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Stereotypes and Emotions: Social Risks and Judgments in Pro-Environmental Behavior

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Abstract

This thesis explores the social dynamics surrounding eco-conscious individuals, examining how stereotypes, social judgments, and observer-based evaluations shape the conditions under which pro-environmental behavior is enacted, perceived, and sustained. While environmental sustainability is broadly endorsed as a societal goal, the consistent adoption of sustainable practices remains limited. In response to growing evidence that the barriers to a sustainable transition are not solely structural or informational, but also deeply social and interpersonal, this research addresses a central question: how are eco-conscious individuals stereotyped, what consequences do these social judgments have for the emotional conditions of sustainable action, and how is this social evaluation shaped by the observer's social identity?

The research is structured into three interconnected studies. The first provides a theory-driven integrative review of 75 empirical studies on stereotypes, stereotype threats, and coping among eco-conscious individuals. Grounded in the Multi-Threat Framework, it identifies three recurring stereotype clusters—moral superiority, social deviance, and identity misalignment—and reconceptualizes coping as identity regulation rather than simple disengagement. The second study empirically examines the emotional dimension of these dynamics. Using survey data and structural equation modelling, it positions emotions as one mechanism that links socially shared perceptions of pro-environmental individuals to sustainable engagement, showing that competence stereotypes are associated with lower negative and higher positive emotions, which in turn mediate the relationship between competence stereotypes and pro-environmental behavior. The third study shifts the analytical focus from the environmental actor to the observer. Combining survey data from Spain with regression analyses and interpretable neural networks, it demonstrates that while mainstream green individuals attract predominantly positive stereotypes on average, this social validation is highly conditional. Negative stereotype attribution is unevenly distributed across observer profiles defined by gender, age, social class, and digital information exposure.

Ultimately, the findings underscore that the social normalization of everyday sustainability is a complex and highly stratified process. By connecting three dimensions that prior research has largely examined in isolation—stereotype content, emotional consequences, and observer conditionality—this thesis contributes to social psychology, environmental psychology, and consumer research. It demonstrates that alongside attitudinal and structural limits, the transition to sustainable lifestyles is hindered by a matrix of interpersonal and reputational barriers that make everyday sustainability socially riskier for some groups than for others.

Keywords: stereotypes, stereotype threats, pro-environmental behavior, emotions, social evaluation, observer identity, sustainability

Resumen

Esta tesis explora las dinámicas sociales en torno a personas comprometidas con el medioambiente examinando cómo los estereotipos, los juicios sociales y las evaluaciones basadas en el observador moldean las condiciones bajo las cuales el comportamiento proambiental se adopta, percibe y sostiene. Si bien la sostenibilidad ambiental cuenta con un amplio respaldo como objetivo social, la adopción sostenida de prácticas sostenibles sigue siendo limitada. En respuesta a la creciente evidencia de que las barreras para una transición sostenible no son únicamente estructurales o informativas, sino también sociales e interpersonales, esta tesis aborda una pregunta central: ¿cómo se estereotipa a las personas comprometidas con el medioambiente, qué consecuencias tienen estos juicios sociales para las emociones relacionadas con la acción sostenible, y cómo esta evaluación social está moldeada por la identidad del observador y su entorno informativo?

La investigación se estructura en tres capítulos, cada uno construyendo sobre el anterior y cada uno abordando una dimensión de esta pregunta. El primer capítulo ofrece una revisión integradora de la literatura con 75 estudios empíricos sobre estereotipos, amenazas estereotípicas y estrategias de afrontamiento entre individuos eco-conscientes, organizada a través del Multi-Threat Framework. Identifica tres grupos recurrentes de estereotipos - superioridad moral, desviación social y desalineamiento identitario - y reconceptualiza el afrontamiento como regulación de la identidad en lugar de simple desvinculación. El segundo estudio examina empíricamente la dimensión emocional de estas dinámicas. Utilizando datos de encuestas y modelos de ecuaciones estructurales, sitúa las emociones como un mecanismo que conecta las percepciones sociales compartidas de los individuos proambientales con el compromiso sostenible, mostrando que los estereotipos de competencia se asocian con menores emociones negativas y mayores emociones positivas, las cuales, a su vez, median la relación entre los estereotipos de competencia y el comportamiento proambiental. El tercer estudio desplaza el foco analítico del actor ambiental al observador. Combinando datos de encuestas en España con análisis de regresión y redes neuronales interpretables, demuestra que, aunque los individuos proambientales convencionales atraen en promedio estereotipos predominantemente positivos, esta validación social es condicional. La atribución de estereotipos negativos está desigualmente distribuida entre perfiles de observadores definidos por género, edad, clase social y exposición a la información sobre sostenibilidad en entornos digital.

Los hallazgos subrayan que la normalización social de la sostenibilidad cotidiana es un proceso complejo y estratificado. Al conectar tres dimensiones que la investigación previa ha examinado en gran medida de forma aislada —contenido del estereotipo, consecuencias emocionales y condicionalidad del observador—, esta tesis contribuye a la psicología social, la psicología ambiental y la investigación del consumidor. Demuestra que la transición hacia estilos de vida sostenibles se ve obstaculizada por una matriz de

barreras interpersonales y reputacionales que hacen que la sostenibilidad cotidiana sea socialmente más arriesgada para unos grupos que para otros.

Palabras clave: estereotipos, amenazas estereotípicas, comportamiento proambiental, emociones orientadas al futuro, evaluación social, identidad del observador, sostenibilidad

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Avant-Propos

Use of GenAI Statement

During the preparation of this dissertation, I used Grammarly for copy-editing purposes and Claude/Notebook LM for limited support tasks such as language editing, source identification, and formatting guidance. Any output produced with these tools was reviewed critically and revised as necessary before being incorporated. I take full responsibility for the content of this dissertation.

CRedit Taxonomy

When no mention of a specific chapter, this taxonomy is valid for all three chapters of the thesis.

Marta Rosales: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Software; Visualization; Writing - original draft; and Writing - review & editing

Isabel Carrero: Conceptualization; Investigation; Methodology; Funding acquisition; Data curation; Project administration; Supervision; Validation; Writing - original draft; Writing - review & editing

Camilla Barbarossa: For chapter 1: Conceptualization; Supervision; Validation; Visualization; Writing - review & editing

Introduction

A reusable coffee cup, a vegan order, a decision to join a climate protest. In contemporary societies, all are broadly legible as expressions of environmental concern (Nielsen et al., 2021; Uren et al., 2019; Stern, 2000). Research in environmental psychology, consumer behavior and social psychology shows that pro-environmental behavior - understood as individual actions that contribute to environmental preservation and sustainability (Stern, 2000) - is influenced not only by values, incentives, or structural constraints, but also by the social meanings attached to those who enact it (Brick et al., 2017; Brough et al., 2016; Griskevicius et al., 2010). Yet such behaviors are not always received favorably. In everyday interactions, they can quickly become socially charged. What might appear as a responsible response to an ecological crisis for some people, is often reframed as a source of social discomfort for others (Antonetti & Maklan, 2016; Minson & Monin, 2012; Zane et al., 2016). Eco-conscious individuals, those who actively incorporate environmental values into their consumption and lifestyle choices (Stern, 2000; Nascimento & Loureiro, 2024) may be admired as principled and committed (Borau et al., 2021; Klas et al., 2019; Li et al., 2023), but also dismissed as preachy, extreme, or socially irritating (Bashir et al., 2013; De Groeve et al., 2021; Minson & Monin, 2012). These reactions suggest not simply that sustainable behaviors are noticed, but that they are interpreted through recognizable stereotypes (Li et al., 2023), defined as widely shared, simplified beliefs about social groups that shape how their members are perceived, evaluated, and treated (Fiske et al., 2002; Hilton & von Hippel, 1996). The vegan, the climate activist, or the ethical consumer are not neutral descriptions, but socially loaded figures through which pro-environmental behavior is categorized and evaluated (Séré de Lanauze & Lallement, 2018; Raynaud et al., 2024).

In the sustainability domain, these stereotypes carry broader assumptions about morality, competence, and social belonging (Catena-Fernández & Fernández, 2025; Köhler et al., 2025; Li et al., 2023). When individuals perceive that eco-conscious groups are stereotyped negatively, they may experience identity-related tensions, known as stereotype threats, which are a psychological state in which individuals fear being evaluated, dismissed, or devalued on the basis of their association with a negatively stereotyped group (Spencer et al., 1999; Steele, 1998). These threats can discourage individuals from adopting or maintaining sustainable practices in order to avoid social risk (Bashir et al., 2013; Swim et al., 2020). Moreover, the specific stereotype content attributed to eco-conscious individuals, whether it concerns the perceived competence of green individuals to produce meaningful change or their moral integrity, may shape the emotional conditions under which others anticipate engaging in pro-environmental behavior (Cuddy et al., 2008; Li et al., 2023). Prior studies have documented the stereotypes associated with green individuals (Ratliff et al., 2017; Swim & Geiger, 2018), the reputational costs that sustainability entails (Antonetti & Maklan, 2016; Zane et al., 2016), and the ways in which social evaluation can discourage or complicate green engagement (Johnstone & Tan, 2015; Markowski & Roxburgh, 2019). Moreover, less

well understood is why these negative consequences are variable rather than uniform. These social costs are not distributed equally; they depend on the intersectional identity of the observer making the judgment (Pearson et al., 2018; Swim & Geiger, 2018). Because social perception is filtered through the observer's own identity and social context, the social validation of green behavior remains a relational and stratified process (Fielding & Hornsey, 2016; Tajfel & Turner, 1979). Pro-environmental behavior may be admired in some cases and penalized in others; its social consequences do not arise in the same way across practices, representations, or audiences.

This question also bears on the wider diffusion of sustainable lifestyles, since practices that are associated with discomfort, reputational cost, or negative social meanings may be harder to normalize in everyday life (Markowski & Roxburgh, 2019; Rettie et al., 2014; Sadalla & Krull, 1995; Valor et al., 2018). At a time when the scale and urgency of environmental challenges demand accelerated collective action (Bamberg et al., 2018; Nielsen et al., 2021), and when environmental issues have become increasingly central to public life and political debate (Köhler et al., 2019), it is important to examine how pro-environmental behaviors are socially interpreted, and how their social meaning may shift from responsibility and commitment to discomfort and misrecognition (Johnstone & Tan, 2015; Valor et al., 2018).

This thesis examines how eco-conscious individuals are socially perceived, how such perceptions are structured through recurring stereotypes, and how they become consequential for sustainable action. Rather than simply asking whether pro-environmental behavior is socially approved or disapproved, the overarching aim is to clarify when it is socially supported, when it becomes socially risky, who evaluates it in each way, and with what implications for engagement and the wider normalization of sustainable lifestyles. To achieve this, the thesis focuses on three interconnected dimensions: the content and structure of stereotypes attributed to eco-conscious individuals, the association between competence stereotypes and the emotional conditions under which individuals anticipate engaging in sustainable action, and the sociodemographic characteristics and informational environment of the observers who attribute these evaluations (Bolderdijk & Cornelissen, 2022; Hoffarth & Hodson, 2016; Köhler et al., 2025; Swim & Geiger, 2018).

Specifically, the question of how the social meaning of pro-environmental behavior is constructed, contested, and made consequential for engagement is addressed through three complementary studies: the first examines the content, structure, and consequences of stereotypes attributed to eco-conscious individuals through a theory-driven integrative review; the second examines how competence-related stereotype content is associated with emotions that are, in turn, linked to engagement in pro-environmental behavior; and the third investigates how the sociodemographic characteristics of observers, including gender, age, socioeconomic status, and the informational environment relate to the attribution of stereotypes to mainstream green individuals.

1. Research Objective and Questions

The objective of this thesis is to deepen our understanding of the stereotyping process and social dynamics surrounding eco-conscious individuals. To do so, this thesis addresses one dimension of the barriers faced in the transition toward more sustainable forms of living and consumption that remains insufficiently understood: the social and interpersonal costs that eco-conscious individuals may face when their behavior becomes subject to evaluation (Bolderdijk & Cornelissen, 2022; Köhler et al., 2019; White et al., 2019). The research is organized around three complementary studies, each developing one dimension of this research objective. Table 1 and the following section present the research questions that guide each study.

Table 1 – Summary of research

Chapter	Research gaps	Research contributions	Research questions
Chapter 1	Research on stereotypes, stereotype threats, and coping among eco-conscious individuals remains fragmented and weakly integrated. The valence of stereotypes remains unclear and there is no theoretically unified framework for coping responses.	Identifies three recurrent stereotype clusters (moral superiority, social deviance, and identity misalignment). Extends the Multi-Threat Framework into moral-symbolic domains. Reframes coping as identity regulation	RQ1.1: What stereotype contents and valences are commonly attributed to eco-conscious individuals? RQ1.2: What types of social threats do these stereotypes elicit? RQ1.3: What coping strategies do individuals adopt in response to stereotype threats in PEB contexts? RQ1.4: What are the downstream consequences of these processes for sustainable engagement?
Chapter 2	Although prior research has extensively examined individual determinants of pro-environmental behavior and climate-related emotions, little is known about how socially shared competence stereotypes of pro-environmental individuals shape emotions associated with engaging in pro-environmental behaviors and, through them, influence engagement in everyday pro-environmental behaviors	Positions emotions as one psychological mechanism that mediates the link between socially shared perceptions of pro-environmental individuals and engagement in PEB. Examines competence stereotypes as one such social perception, showing that it is associated with lower negative and higher positive emotional anticipation of sustainable action	RQ2.1: Are competence stereotypes of pro-environmental individuals associated with the positive and negative emotions individuals anticipate when contemplating engagement in PEBs? RQ2.2: Do positive and negative emotions mediate the relationship between competence stereotypes and self-reported PEB?

Chapter	Research gaps	Research contributions	Research questions
Chapter 3	Prior research has focused on the figure of the radical environmentalist, overshadowing the profile of the mainstream individual. Moreover, the source of the stereotype (the observer) has been overlooked.	Shows that mainstream green individuals attract predominantly positive stereotypes on average but that this evaluation is conditional, varying across observer profiles defined by gender, age, socioeconomic status, and informational environment.	RQ3.1: Have the negative stereotypes associated with radical environmental activism generalized to mainstream green individuals performing everyday PEBs in Spain, or do they remain socially validated on average? RQ3.2: How are observers' socioeconomic status, gender, and age related to positive and negative stereotype attribution toward mainstream green individuals? RQ3.3: How are different sustainability information channels related to stereotype attribution toward mainstream green individuals? RQ3.4: What heterogeneous and potentially non-linear observer patterns can be detected when demographic traits and information-channel exposure are examined together?

The first gap addressed by this thesis concerns the fragmented academic knowledge on the stereotypes, stereotype threats, and coping strategies surrounding eco-conscious individuals (Chapter 1). This literature is fragmented for three main reasons. First, it spans a wide range of disciplines, including environmental psychology, marketing, sociology, and communication, and across different domains of PEB, such as veganism, ethical consumption, and climate protest (e.g., Antonetti & Maklan, 2016; Bashir et al., 2013; De Groot et al., 2021). Second, prior findings diverge in their characterization of stereotype valence: while many studies document negative portrayals of eco-conscious individuals (Bashir et al., 2013; Minson & Monin, 2012), others report positive associations with moral integrity, trustworthiness, or even romantic desirability (Borau et al., 2021; Klas et al., 2019). Third, despite identifying specific coping strategies such as disengagement (Brough et al., 2016), self-silencing (Bolderdijk & Cornelissen, 2022; Geiger & Swim, 2016) and identity reinforcement (Bagci et al., 2021; Nguyen et al., 2014), the literature lacks a theoretically unified framework for understanding how individuals respond to these threats and with what consequences. Chapter 1 addresses this gap through a theory-driven integrative review guided by the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011). Its research questions examine the content and valence of stereotypes attributed to eco-conscious individuals (RQ1.1), the types of stereotype threats these stereotypes elicit (RQ1.2), the coping strategies adopted in response (RQ1.3), and the downstream consequences of these processes for sustainable engagement (RQ1.4). This chapter also provides the conceptual background for the two empirical studies that follow, clarifying the broader tensions surrounding the social evaluation of eco-conscious behavior and identifying the dimensions that Chapters 2 and 3 explore from complementary perspectives.

The second gap is twofold and concerns first, the limited understanding of how socially shared perceptions shape the emotional conditions under which individuals engage in pro-environmental behavior and, second, the neglected role of competence as a socially shared perception within those conditions (Chapter 2). Emotions are among the most consistent psychological correlates of pro-environmental engagement, and perceived efficacy in particular, whether a desired outcome is appraised as attainable, has been identified as one of the strongest emotional and motivational levers of sustainable action (Bandura, 1997; Cohen-Chen & Van Zomeren, 2018). Yet research on emotions in the environmental domain has examined these emotional conditions primarily through individual- and contextual-level antecedents, such as risk perceptions, psychological distance, or efficacy beliefs (e.g., Chu & Yang, 2019; Ojala et al., 2021; Weber & Constantino, 2023), paying limited attention to whether broader, socially shared perceptions of pro-environmental individuals are also associated with the emotional anticipation of sustainable action. In parallel, research on stereotypes in sustainability contexts has mainly emphasized the warmth dimension, often portraying pro-environmental individuals as morally motivated yet lacking effectiveness (Antonetti & Maklan, 2016; Brough et al., 2016; Luchs et al., 2010), whereas the competence dimension has received far less attention (Li et al., 2023). This omission is important because, although competence stereotypes are conceptually adjacent to the efficacy appraisals which are known to be among the strongest emotional and motivational levers of sustainable action, they are not the same construct. Efficacy beliefs are self- or group-referential: they concern observers' appraisals of whether they, or their own group, can act effectively (Bandura, 1997, 2000; Cohen-Chen & Van Zomeren, 2018). Competence stereotypes, by contrast, are other-referential and socially shared and they concern how capable and effective pro-environmental individuals are perceived to be by society at large (Cuddy et al., 2008; Fiske et al., 2002; Li et al., 2023). This distinction matters because it positions competence as a social-level perception that may operate even when observers do not identify with green individuals, and that could therefore be associated with the emotions surrounding sustainable action through a path that individual efficacy beliefs do not capture. Chapter 2 addresses those gaps by examining competence stereotypes of pro-environmental individuals as a social-level perception associated with the emotions individuals anticipate when engaging in everyday environmental action (RQ2.1), and it tests whether positive and negative emotions mediate the relationship between competence stereotypes and self-reported pro-environmental behavior (RQ2.2). In doing so, the chapter foregrounds emotions as one mediating mechanism that connects social perceptions to sustainable engagement, while bringing the under-studied competence dimension into a literature that has concentrated on warmth. It thereby moves from the broad mapping of stereotype content in Chapter 1 to the emotional pathway through which social perceptions are linked to behavioral engagement

A third and fourth gap, addressed jointly in Chapter 3, concern, respectively, whether the negative stereotypes documented in the literature extend beyond radical environmentalists to mainstream green individuals, and whether and how the observer's

own characteristics influence those evaluations. With regard to the first of these gaps, existing research has mainly examined the stereotypes associated with highly visible or radical environmental profiles, particularly activists or vegans (Bashir et al., 2013; De Groot et al., 2021; Hoffarth & Hodson, 2016), while paying less attention to whether similar attributions are attached to less radical profiles. Since individuals assign stereotyped traits to individuals based on their perceived group membership (Fiske et al., 2002; Hilton & von Hippel, 1996), labels assigned to more radical forms of environmentalism may extend to mainstream green individuals performing routine pro-environmental behaviors (e.g., Li et al., 2023). Whether such attributions generalize to routine PEBs bears directly on the social normalization of sustainability, since everyday practices are unlikely to diffuse widely if they remain exposed to reputational penalties (Acuti et al., 2022; Bolderdijk & Cornelissen, 2022; Rettie et al., 2014).

Regarding the second gap addressed in Chapter 3, perception is not a neutral reading of behavior but is filtered through the observer's own identity and social environment (Fielding & Hornsey, 2016; Tajfel & Turner, 1979). Yet prior research has paid limited attention to how the sociodemographic characteristics of observers, such as gender, age, and socioeconomic status, and their informational environments shape stereotype attribution in sustainability contexts (Pearson et al., 2018; Swim & Geiger, 2018). Building on Chapter 1, which shows that the social costs of pro-environmental behavior are contingent rather than uniform, Chapter 3 examines whether such evaluative patterns remain confined to radical environmental profiles or also extend to ordinary individuals engaging in sustainable routine practices. This also extends Chapter 2 in an important way: whereas Chapter 2 establishes that the emotions surrounding sustainable action are shaped by socially shared perceptions of pro-environmental individuals (which, like competence stereotypes, are shared in content yet endorsed to differing degrees), it does not address why endorsement varies across individuals. Chapter 3 investigates this question, examining how the observer's own profile conditions the stereotypes attributed to green individuals. Specifically, it then investigates whether these evaluations differ depending on who is observing. Its research questions examine whether negative stereotypes have generalized to mainstream green individuals in Spain (RQ3.1), whether stereotype attribution varies according to the observer's socioeconomic status, gender, and age (RQ3.2), whether gathering sustainability-related information in different channels is associated with positive and negative stereotype attribution (RQ3.3), and whether the combination of sociodemographic characteristics and informational exposure reveals heterogeneous or non-linear patterns such as interaction effects or curvilinear relationships that standard linear models would not capture (RQ3.4). In this way, Chapter 3 identifies the conditions under which everyday sustainability is socially validated or penalized, and by whom.

2. Research Paradigm

Every research project rests on philosophical assumptions about what constitutes reality, how knowledge of that reality can be obtained, and which methods are appropriate

for producing valid knowledge claims (Crotty, 1998; Grix, 2002; Guba & Lincoln, 2005; Scotland, 2012). Making these assumptions explicit is important in doctoral research, as they shape the coherence between theoretical framing, empirical design, and the interpretation of findings (Brown & Dueñas, 2020; Carter & Little, 2007; Creswell & Poth, 2016). This thesis is situated within a postpositivist paradigm. Postpositivism acknowledges that while an objective social reality exists, our knowledge of it is always partial, shaped by theoretical assumptions, and can only be apprehended imperfectly and probabilistically due to the inherent limitations and values of human researchers (Guba & Lincoln, 2005; Scotland, 2012). Consequently, this paradigm advocates for theoretical guidance, methodological rigor, and an awareness of the theory-laden nature of facts to approximate knowledge while remaining open to continual revision (Johnson & Onwuegbuzie, 2004).

Ontologically, this thesis is grounded in critical realism: the central phenomena under study (social evaluations, stereotype-based judgments, emotional responses, and behavioral tendencies) are treated as real social phenomena because they manifest consistently enough to be studied empirically and generate observable consequences across contexts (Guba & Lincoln, 2005; Scotland, 2012). At the same time, their empirical expression may vary across social settings, social identities, and situational conditions, even when the underlying processes remain analytically distinguishable (Lawani, 2021; Phillips & Burbules, 2000). This means that stereotypes are not treated as fixed or context-free constructs, but neither are they reduced to mere subjective constructions; rather, they are understood as socially shared cognitive structures that can be identified, measured, and analyzed through appropriate methods (Fiske et al., 2002; Hilton & von Hippel, 1996).

Epistemologically, this position entails that social reality is not known through direct observation alone, but through the concepts, measurement instruments, and analytical procedures that researchers use to represent it, acknowledging the theory-laden nature of facts (Johnson & Onwuegbuzie, 2004; Phillips & Burbules, 2000). From this perspective, knowledge is not treated as final truth but as a provisional approximation that improves through the cumulative refinement of theory and evidence (Guba & Lincoln, 2005; Scotland, 2012). Theory therefore plays a central role in this thesis: it organizes prior knowledge, guides the formulation of research questions and hypotheses, informs construct definitions, and supports the interpretation of findings (Carter & Little, 2007; Grix, 2002). More specifically, the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011) provides the guiding structure for synthesizing prior findings in Chapter 1. The Multi-Threat Framework holds that stereotype threat is not a single, uniform experience but varies systematically according to its source (whether it originates from the self, the in-group, or the out-group) and its target (whether it concerns the self or one's broader social group), yielding distinct threat configurations; originally developed in performance-based domains such as education, it is extended here to the identity- and morality-laden context of pro-environmental behavior (see Chapter 1, Section 2). The Stereotype Content Model (Cuddy et al., 2008; Fiske et al., 2002) informs the focus on

competence stereotypes in Chapter 2; and Social Identity Theory (Tajfel & Turner, 1979) provides the main theoretical lens for Chapter 3. In each case, theory is used not merely to describe the phenomena under study, but to specify the mechanisms and conditions through which particular outcomes may emerge (Lawani, 2021; Scotland, 2012).

The postpositivist orientation adopted in this thesis is reflected in the design of the three studies. Chapter 1 adopts a theory-driven integrative review to synthesize a fragmented body of literature through the Multi-Threat Framework and to develop a more cumulative account of stereotype dynamics surrounding pro-environmental behavior. Chapter 2 moves to empirical testing by operationalizing competence stereotypes, emotions, and pro-environmental behavior as latent constructs and examining their relationships through confirmatory factor analysis and structural equation modelling, an approach well suited to the assessment of theoretically specified relations among unobservable constructs (Anderson & Gerbing, 1988; Kline, 2023). Chapter 3 extends this explanatory logic by combining regression analysis with interpretable neural networks in order to capture heterogeneity and potentially non-linear patterns in stereotype attribution across observers, while retaining a theory-guided focus on the conditions under which such evaluations emerge. Taken together, the three studies are guided by the premise that socially conditioned phenomena can be examined empirically without being reduced to isolated observations, and that research should aim to explain patterned relationships (Fletcher, 2017; Guba & Lincoln, 2005; Lawani, 2021), including specifying the conditions under which different stereotype-based evaluations, emotions, and behavioral responses are more or less likely to emerge.

Although the three studies differ in method, this methodological diversity is consistent with, rather than in tension with, the postpositivist orientation. Postpositivism is defined not by a single preferred method but by an epistemological stance. The assumption that an objective social reality exists but can only be apprehended partially, fallibly, and through theory-laden instruments (Guba & Lincoln, 2005; Johnson & Onwuegbuzie, 2004). Under this stance, qualitative and interpretive procedures such as the theory-driven and the ecological illustration in Chapter 1 are not treated as alternatives to an objective reality but as systematic, theory-guided means of approximating it, on the same epistemological approach as the confirmatory modelling in Chapter 2 and the interpretable machine-learning analysis in Chapter 3. What unifies the three studies is therefore not a shared commitment to theory-guided, empirically disciplined, and revisable knowledge claims about real but imperfectly observable social phenomena (Fletcher, 2017; Scotland, 2012). The choice of method in each study is driven by the nature of its research question—mapping a fragmented field, testing specified relations among latent constructs, and detecting heterogeneous observer patterns, respectively—while the underlying epistemological assumptions remain constant across all three.

3. Thesis outline

The thesis unfolds through three studies. Chapter 1 reviews the literature on stereotypes, stereotype threats, and coping among eco-conscious individuals. Drawing on a theory-driven integrative review of 75 empirical studies, complemented by an ecological illustration derived from social listening data, and guided by the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011), the chapter organizes prior findings into a more integrated account. It shows that eco-conscious individuals are recurrently associated with stereotypes of moral superiority, social deviance, and identity misalignment, and reveals how these stereotypes give rise to stereotype threats (Spencer et al., 1999; Steele, 1998). These threats manifest in self-focused forms (e.g., guilt over perceived behavioral inconsistency, or fear of being dismissed as preachy by skeptical audiences) and group-focused forms (e.g., concern that individual behavior may undermine the credibility of the broader environmental movement), shaped by the strength of green self-identity and the visibility of sustainable behavior. The review reconceptualizes coping as identity regulation, rather than simple disengagement: strategies through which individuals manage moral integrity, reputation, and collective legitimacy, albeit at costs such as emotional fatigue, perceived inauthenticity, and strategic withdrawal (Howard, 2023; Prosser et al., 2025).

The first chapter concludes by outlining a research agenda. Three insights from this literature review are particularly important for what follows. First, it reveals that research on the emotional consequences of stereotype attribution for pro-environmental engagement remains underdeveloped: although stereotypes are known to shape emotional responses across social domains (Cuddy et al., 2008; Fiske et al., 2002), the sustainability literature has not systematically examined the emotional pathway through which socially shared perceptions of pro-environmental individuals, such as competence stereotypes, are translated into everyday environmental action. Without understanding this emotional mechanism, it remains unclear how social perceptions translate into behavioral encouragement or avoidance. Chapter 2 addresses this gap. Second, it shows that existing studies have focused disproportionately on the stereotypes associated with highly visible or radical environmental profiles, particularly activists or vegans (Bashir et al., 2013; De Groot et al., 2021; Hoffarth & Hodson, 2016). Third, the review identifies limited attention to the observer's profile in stereotype attribution; that is, to how the sociodemographic characteristics of the person making the judgment shape whether pro-environmental behavior is socially validated or penalized. Chapter 3 responds directly to these latter two priorities.

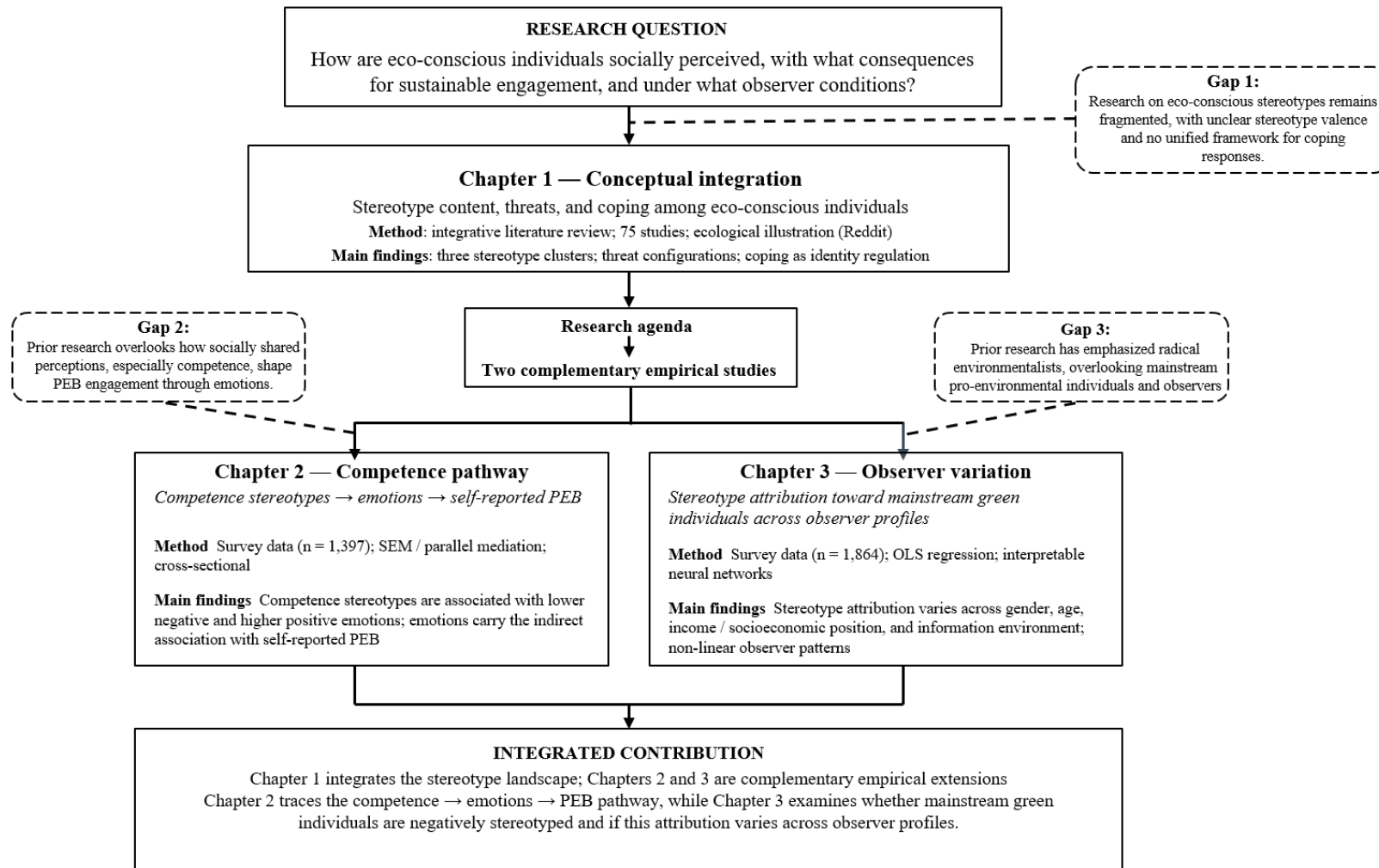
Using survey data from 1,397 Spanish residents and structural equation modelling with confirmatory factor analysis, Chapter 2 shows that competence stereotypes are associated with lower negative and higher positive emotions, and that these emotions are, in turn, differentially related to pro-environmental behavior. The main contribution of this chapter is to position emotions as the psychological mechanism that links socially shared perceptions of pro-environmental individuals to behavioral engagement, highlighting that

the emotional conditions surrounding sustainable action are shaped not only by individual or contextual factors, but also by broader social perceptions such as competence stereotypes (Cuddy et al., 2008; Li et al., 2023). In this way, the chapter moves from the broad mapping of stereotypes and threats in Chapter 1 to a specific pathway through which social evaluations may facilitate or constrain engagement in pro-environmental behavior.

Chapter 3 extends this line of inquiry by shifting the analytical focus from the environmental actor to the observer, and from vegans or radical activists to mainstream green individuals performing everyday pro-environmental behaviors. Using survey data from 1,864 respondents in Spain and combining regression analyses with interpretable neural networks, the study captures both average patterns and heterogeneous relationships in positive and negative stereotype attribution. The findings show that mainstream green individuals attract predominantly positive stereotypes on average, but that this positive social evaluation is conditional and unevenly distributed. Negative stereotype attribution varies across observer profiles defined by gender, age, social class, and in what channel they gather sustainability-related information. The social normalization of sustainability is strongest among middle-income and older observers, while gathering environmental information in digital channels is associated with smaller generational differences in stereotype attribution. The main contribution of this chapter is to demonstrate that the social validation of everyday sustainability is conditional rather than uniform, by showing that positive and negative stereotype attribution toward mainstream green individuals varies across observer profiles.

Taken together, these three studies offer a more integrated account of the social dynamics surrounding pro-environmental behavior than have been available in the literature to date. The thesis connects three dimensions that prior research has largely examined in isolation: the content and structure of stereotypes attributed to eco-conscious individuals (Chapter 1), the emotions that mediate the link between social perceptions of pro-environmental individuals and engagement in sustainable action (Chapter 2), and the observer-level conditions under which positive and negative stereotype attribution varies (Chapter 3). In doing so, this research contributes to social psychology, environmental psychology, and consumer research by showing that the social meaning of everyday sustainability is shaped not only by what people do, but also by how their behavior is stereotyped (Fiske et al., 2002; Tajfel & Turner, 1979), the emotions associated with those social perceptions, and who is doing the evaluation (Pearson et al., 2018; Swim & Geiger, 2018). Consequently, for the broader literature on barriers to sustainable transition (Gifford, 2011; Köhler et al., 2019; White et al., 2019), this thesis moves beyond the mere recognition that interpersonal and reputational barriers exist (e.g., Bashir et al., 2013; Bolderdijk & Cornelissen, 2022) to show how these social barriers operate dynamically and conditionally. The thesis shows that the transition to sustainable lifestyles is hindered not only by individual attitudes or structural limits, but by a complex matrix of social evaluation that makes everyday sustainability socially riskier for some groups than for others.

Figure 1. Integrated Research Design



Chapter 1

Stereotype Threats and Coping Among Eco-Conscious Individuals¹

Abstract

Eco-conscious individuals embody values essential for sustainability, yet they are often stereotyped as preachy, elitist, or radical. Such portrayals create stereotype threats that render identity-expressive pro-environmental behaviors socially costly rather than consistently rewarded. Despite growing scholarly attention, research in this area remains fragmented and lacks theoretical integration. Prior studies vary widely in the stereotypes examined, the conditions under which threats arise, and the coping strategies eco-conscious individuals adopt to navigate social disapproval. This fragmentation has obscured recurring patterns, hindering cumulative theory development. We address these gaps through a theory-driven integrative review of 75 empirical studies complemented by an ecological illustration drawn from online discussions, guided by the Multi-Threat Framework. Our synthesis identifies three clusters of stereotypes—moral superiority, social deviance, and identity misalignment—and shows how stereotype threats manifest in self-focused and group-focused forms, shaped by the strength of green self-identity and the visibility of sustainable behavior. We reconceptualize coping as identity regulation, rather than simple disengagement: strategies through which individuals manage moral integrity, reputation, and collective legitimacy, albeit at costs such as fatigue, perceived inauthenticity, and withdrawal. We conclude by outlining a research agenda that highlights four priorities: the ambivalence of eco-consciousness as a “burden of virtue”; the conditional nature of stereotype threat shaped by identity and visibility; the cultural role of coping in constructing norms of authenticity and legitimacy; and methodological innovation to capture the dynamics of stereotype threats, coping, and sustainable engagement.

Keywords: Stereotypes, stereotype threats, coping, eco-conscious individuals, pro-environmental behavior, integrative literature review

¹ This chapter was presented at the EMAC 53rd Annual Conference (Bucharest, Romania, May 2024), the Academy of Marketing Conference AM2024 (Cardiff, UK, July 2024), the EMAC Spring Conference 2025 (ESIC, Pozuelo de Alarcón, Spain, May 2025), and the AEMARK 2025 Conference (Murcia, Spain, September 2025), under the title "Stereotype Threats in Pro-Environmental Behavior: An Integrative Review."

1. Introduction

Public perceptions of eco-conscious individuals reveal a striking paradox. Although sustainability has moved to the center of public discourse, those who actively translate environmental values into everyday behavior are frequently met with judgment rather than approval. Online discussions ask, for example, “Why are vegans so annoying?” (Bridges, 2021), while social media posts openly legitimize criticism of the “hypocrisy” of climate activists (Reddit, 2024). These sentiments are echoed in mainstream media and political discourse, where climate protesters are framed as “extremists” (Ritchie, 2023) or “eccentric crusties” (Gayle, 2019). Taken together, these portrayals suggest that, despite broad societal endorsement of sustainability goals, individuals who engage in pro-environmental behaviors (PEBs) often incur social penalties. This pattern challenges a core assumption in environmental psychology and related fields, that PEBs primarily function as socially rewarded signals of moral character, status, or trustworthiness (Puska et al., 2018; Sherif & Simon, 2025; Uren et al., 2019). Instead, emerging evidence indicates that the social meaning of PEBs is contingent: under certain conditions, sustainable actions invite admiration, but under others they trigger ridicule, distancing, or reputational costs (Brick et al., 2017; Swim et al., 2020; Uren et al., 2019). These subtle but pervasive forms of social disapproval can undermine motivation and constitute an underappreciated barrier to sustained engagement in sustainability (Acuti et al., 2022).

A central mechanism underlying these dynamics is *stereotype threat*. Stereotypes, defined as widely shared, simplified beliefs about social groups, shape not only how others are evaluated, but also how individuals anticipate being perceived and judged (Judd & Park, 1993). In sustainability contexts, people who adopt vegan diets, participate in climate activism, or consume eco-friendly products are often stereotyped as self-righteous, extreme, elitist, or socially deviant (Antonetti & Maklan, 2016; Bashir et al., 2013; Köhler et al., 2025; Liu et al., 2025). When such stereotypes become salient, they can activate stereotype threat: a psychological state in which individuals fear being evaluated, dismissed, or devalued on the basis of their association with a “green” identity (Spencer et al., 1999; Steele, 1998). Importantly, in sustainability domains, this threat does not center on doubts about competence or ability, but on concerns about moral judgment, social acceptance, and reputational standing. As a result, even individuals who strongly endorse environmental values may strategically conceal, downplay, or disengage from PEBs to avoid social costs (Bashir et al., 2013; Swim et al., 2020).

Although research examining stereotypes and stereotype threats in sustainability contexts has grown substantially, the literature remains theoretically fragmented. First, existing studies are dispersed across disciplines, including communication, economics, marketing, sociology, and environmental psychology, and across heterogeneous domains of PEB, such as veganism, ethical consumption, and climate protest. This dispersion has produced rich but siloed insights, making it difficult to build cumulative theory. Second, prior findings diverge in their characterization of stereotype valence. While many studies

document negative portrayals of eco-conscious individuals, others report positive associations with moral integrity, trustworthiness, or even romantic desirability (Borau et al., 2021). Rather than reflecting empirical inconsistency, this ambivalence points to a deeper theoretical tension: eco-consciousness can function as a valued social signal in some contexts while becoming a social liability in others. Third, the literature lacks a coherent account of how individuals respond to these threats. Researchers have identified a variety of coping strategies, such as disengagement (Brough et al., 2016), self-silencing (Bolderdijk & Cornelissen, 2022; Geiger & Swim, 2016), or identity reinforcement (Bagci et al., 2021; Nguyen et al., 2014). Yet these responses are described using inconsistent terminology and weakly integrated theoretical rationales. Without an organizing framework, it remains unclear when individuals withdraw from PEB, when they strategically regulate its visibility, and when they intensify identity expression. What is missing, therefore, is a theory-driven explanation of when PEB shifts from a potential social asset to a social liability, and how eco-conscious individuals navigate this tension through different forms of coping.

To address these gaps, we conduct a theory-driven integrative review that synthesizes research on stereotypes, stereotype threats, and coping among eco-conscious individuals, complemented by an ecological illustration derived from social listening data. Specifically, we examine (a) *the content and valence of stereotypes attributed to eco-conscious individuals*, (b) *the types of social threats these stereotypes elicit*, (c) *the coping strategies individuals adopt in response*, and (d) *the downstream consequences of these processes for sustainable engagement*. By organizing fragmented findings into a coherent framework, our study advances understanding of the social risks embedded in PEB and clarifies why sustainability engagement is often more psychologically and socially complex than commonly assumed.

Our synthesis is guided by the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011), which conceptualizes stereotype threat as a multidimensional phenomenon varying by both the source and target of the threat. While this framework has been applied extensively in competence-based domains such as education and work, it has not been systematically leveraged to understand sustainability-related behaviors. We argue that it is particularly well suited to this context, where behaviors are voluntary, moralized, identity-expressive, and often publicly visible. Applying the Multi-Threat Framework allows us to reconcile conflicting findings in the literature by showing that apparent inconsistencies often reflect different threat configurations of PEB. In doing so, we position the framework not merely as an organizing device, but as a corrective theoretical lens for understanding the social dynamics of sustainability.

This study makes three contributions. First, we contribute to environmental psychology literature by addressing a central but under-theorized tension: the psychological and social consequences of engaging in PEBs. Whereas prior reviews have focused on structural or motivational barriers to green consumption (e.g., Gleim et al., 2013; Andrade & Vieites, 2025) or on the unintended negative effects of sustainable

products and services (Acuti et al., 2022), we offer the first cross-disciplinary synthesis of stereotypes targeting eco-conscious individuals. In doing so, we clarify the social conditions under which PEB is experienced as socially rewarding versus socially risky. Second, we extend stereotype threat theory into a moral-symbolic domain by applying the Multi-Threat Framework to sustainability. This extension reveals how distinct threat configurations give rise to qualitatively different coping responses, and how these responses operate as strategies of identity and visibility regulation rather than simple disengagement. Third, we develop a forward-looking research agenda that identifies key boundary conditions—such as green self-identity strength, behavioral visibility, and intersecting identities—that shape when and how stereotype threats emerge. This agenda moves the field beyond description toward explanation and prediction.

Finally, our study has practical relevance. By clarifying when and why stereotype threats deter pro-environmental action, our framework offers guidance for designing sustainability interventions, communication strategies, and public policies that reduce social risk and foster more inclusive pathways to engagement. The ecological illustration presented alongside this review further suggests that these conceptual patterns are not confined to researcher-elicited contexts but can be recognized in naturally occurring online discourse, where eco-conscious individuals negotiate stereotypes, threats, and coping in everyday interaction. In highlighting the social and identity-based barriers to sustainability, we underscore that promoting PEB requires not only changing incentives and infrastructures, but also reshaping the social meanings attached to acting green.

2. The Multi-Threat Framework as a Theoretical Lens

Stereotype threats targeting eco-conscious individuals emerge in a context that differs fundamentally from the competence-based domains in which stereotype threat theory was originally developed. In fields such as STEM, education, or gaming, stereotype threat primarily undermines task performance under evaluation, as individuals fear confirming negative ability-related stereotypes (Carels et al., 2013; Çetinkaya et al., 2020; Pennington et al., 2018; Shapiro, 2011; Verkuyten et al., 2019). In contrast, sustainability-related stereotype threats are less about competence and more about how identity-expressive, value-driven behaviors are socially interpreted. Individuals may worry about appearing hypocritical when flying after advocating reduced emissions, or about being perceived as moralizing or preachy when declining a meat-based meal (Howard, 2023; Johnstone & Tan, 2015; Seyfi et al., 2025). These concerns reflect fears of negative social judgment, exclusion, or loss of credibility rather than apprehensions about personal ability or performance. As a result, stereotype threat in sustainability contexts is fundamentally interpretive rather than performative, manifesting through concerns about meaning, impression management, and social evaluation.

Several defining characteristics of PEB further amplify the relevance of stereotype threat in sustainability contexts. First, many PEBs are highly visible and therefore subject to public observation and evaluation. While some behaviors remain largely private (e.g.,

green energy subscriptions), others, such as veganism, participation in climate protests, or owning an electric car, are conspicuous and invite social scrutiny (Bolderdijk & Cornelissen, 2022; Graham-Rowe et al., 2012; Paxman, 2021). Second, PEBs are symbolically charged, signaling alignment with particular moral, political, or social identities (Borau et al., 2021; Geiger & Swim, 2018). For instance, driving an electric car may simultaneously communicate environmental concern, affluence, political ideology, or social status, rendering the behavior socially meaningful beyond its environmental consequences (Graham-Rowe et al., 2012). Third, green identity is dynamic and context-sensitive, shaped by social cues, audiences, and levels of personal commitment (Kollmuss & Agyeman, 2002; Whitmarsh & O'Neill, 2010). Together, these interlocking features heighten individuals' sensitivity to how their pro-environmental actions are interpreted, increasing the likelihood that PEBs will elicit stereotype threat in socially evaluative contexts.

Despite growing recognition of these dynamics, existing research lacks a systematic framework for organizing the diverse forms of stereotype threat that arise in sustainability contexts and the strategies individuals use to manage them. The literature documents a wide range of responses—sometimes suggesting that moral or positive stereotypes motivate engagement, and at other times indicating disengagement or withdrawal—without a unifying structure to reconcile these patterns. Apparent inconsistencies in findings regarding stereotype valence and coping responses may therefore reflect the activation of qualitatively different stereotype threat configurations across contexts, rather than genuinely contradictory effects of PEB. Without a structured lens, research on stereotype threats in sustainability remains fragmented, making it difficult to compare results, identify boundary conditions, or build cumulative theory.

To address this gap, we adopt the *Multi-Threat Framework* (Shapiro & Neuberg, 2007; Shapiro, 2011) as our guiding theoretical lens. The Multi-Threat Framework advances stereotype threat theory by moving beyond a one-size-fits-all account and introducing a dual-axis typology that distinguishes six types of stereotype threat. These threats vary along two dimensions: the *source of the threat* (whether it originates from the self, the in-group, or the out-group) and the *target of the threat* (whether concerns are directed toward the self or toward one's social group). By differentiating among distinct threat configurations, the Multi-Threat Framework provides a principled way to map when, why, and how eco-conscious individuals experience stereotype threat in response to their behaviors.

Importantly, the Multi-Threat Framework also allows for the systematic integration of *coping strategies* within specific threat configurations. Prior research has identified a variety of responses to sustainability-related stereotype threat, including disengagement from PEB (Brough et al., 2016), self-silencing or behavioral concealment (Bolderdijk & Cornelissen, 2022; Geiger & Swim, 2016), and identity reinforcement or reaffirmation (Bagci et al., 2021). However, these strategies are rarely situated within a coherent theoretical structure (Geiger & Swim, 2016; Greenebaum, 2012a; Hards, 2013).

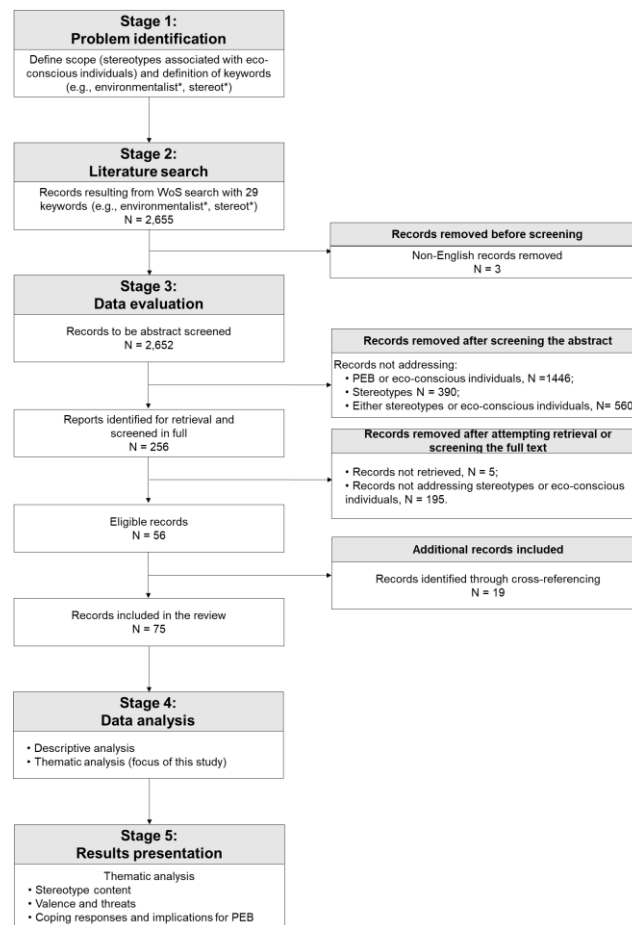
The Multi-Threat Framework clarifies how different coping responses are not interchangeable but instead derive from the specific nature of the threat being experienced, thereby helping to explain variation in behavioral outcomes across individuals and contexts.

Finally, the Multi-Threat Framework is uniquely equipped to capture the role of *intersecting identities* in shaping sustainability-related stereotype threats. Eco-conscious individuals do not hold a singular identity; rather, green identity often intersects with other identities such as gender, political orientation, or social class. For example, men may experience tension between sustainability norms and dominant masculinity norms (Brough et al., 2016), while politically conservative individuals may fear that engaging in PEB will be misinterpreted as ideological alignment (Bashir et al., 2013; Cherry, 2019). The salience of these competing identities can influence which source and target of threat become activated, as well as which coping strategy is selected. Understanding stereotype threat in sustainability therefore requires a framework capable of accommodating identity complexity and contextual variability. In this review, the Multi-Threat Framework serves not only as a theoretical foundation but also as an organizing structure for synthesizing existing findings and advancing a more coherent research agenda.

3. Methodology

We conducted a *theory-driven integrative literature review*, structured according to Hopia et al.'s (2016) five-stage framework: problem identification, literature search, data evaluation, data analysis, and results presentation. This approach integrates conceptual depth with procedural transparency and replicability. To that end, we followed PRISMA guidelines (Page et al., 2021), ensuring rigor in search, screening, and reporting procedures while adhering to integrative review practices (Paul & Criado, 2020). Figure 2 provides a graphical representation of the literature review process.

Figure 2. Integrative literature review: Five-stage methodological approach



In addition to the literature review, we drew on naturally occurring online discussions as a complementary source of ecological illustration (Kozinets, 2002; Costello et al., 2017). The studies included in this review rely predominantly on researcher-elicited designs (surveys, vignettes, experiments, and interviews) in which participants respond to predefined prompts about stereotypes, social evaluation, or coping (Pennington et al., 2016). While these designs provide robust evidence of the mechanisms involved, they carry implicit assumptions about how such dynamics unfold outside research contexts (Dahl, 2017). Stereotype threats associated with green identities are inherently social, interactional, and discursive: they arise through anticipated judgment, audience response, and are conditioned from the public visibility of behavior (Brick et al., 2017; Fielding & Hornsey, 2016; Griskevicius et al., 2010). Because these dynamics are often negotiated in discourse rather than fully captured through researcher-elicited designs, naturally occurring online discussions provide a useful context in which the review's conceptual patterns can be observed as they are publicly articulated, contested, and managed in everyday interaction (Kozinets, 2002). Rather than serving as a second source of equivalent evidence, or as a validation of the review's framework, this material was used to ground the review in ecologically situated discourse; that is, to examine

whether the patterns identified in the literature can also be recognized in unsolicited, real-world settings (Ghermandi et al., 2023). This approach responds to a limitation of literature reviews: that conceptual patterns derived from researcher-elicited data may not fully capture how the phenomena in question unfold in spontaneous, unstructured social interaction (Kaman & Deshmukh, 2025; Kozinets, 2002). By examining naturally occurring discussions in which individuals articulate, contest, and manage green identities without being prompted, the ecological illustration provides a form of ecological evidence to examine if its categories map into the discursive realities that eco-conscious individuals navigate in everyday life. In line with the MTF, the online material was examined through the same conceptual lens guiding the review's coding scheme.

3.1 Problem Identification

The purpose of this review is to consolidate and advance theoretical understanding of the stereotypes, stereotype threats, and coping strategies feared by eco-conscious individuals. Although scholarly attention to these themes is growing, literature is fragmented across disciplines and PEBs. We grounded our analysis in the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011), which informs our research questions and coding scheme.

3.2 Literature Search

We followed the PRISMA procedure for conducting a systematic literature search. First, *eligibility criteria* were defined. We defined the scope of the review as research addressing stereotypes directed at eco-conscious individuals, including but not limited to “green” consumers, veg*ans, dietary environmentalists, and environmental activists. Our goal was to capture relevant work across marketing, communication, business ethics, social psychology, and environmental sciences, as well as related disciplines.

Second, *information sources* were identified. The search was conducted in the Web of Science (WoS) Core Collection, which is recognized as one of the world’s premier platforms for scientific citation and discovery. Beyond its extensive coverage of peer-reviewed journals and multidisciplinary indexing, WoS provides access to more than 18,000 scholarly journals, making it a comprehensive and authoritative data source for systematic reviews (Li et al., 2018). Furthermore, its use is well established in sustainable consumption and behavior literature reviews (e.g., Munaro et al., 2024; Nangia et al., 2024). We applied the following inclusion criteria: peer-reviewed journal articles, written in English, that investigate stereotypes targeting eco-conscious individuals. No date restrictions were applied. The final search, conducted in August 2025, yielded 2,655 articles.

Third, a *search strategy* was developed. Drawing on prior literature (Acuti et al., 2022; Gleim et al., 2013) as well as consultations with academic experts in PEB and stereotyping, we developed a comprehensive list of keywords. The search string combined twenty sustainability-related terms (e.g., “environmentalist*”, “climate change”, “sustainab*”, “eco-friendly”, “vegan*”) and nine stereotyping-related terms

(e.g., “stereot*”, “prejudi*”, “discrimination”, “stigma”, “favoritism”), while excluding irrelevant domains such as health, autism, marine science, and racism. The complete search syntax is presented in Appendix A.

3.3 Data Evaluation

We applied a multi-stage screening protocol aligned with PRISMA (see Figure 2). For the selection process, we removed three non-English records. Second, we manually screened 2,652 abstracts for relevance. We excluded 2,396 articles that did not meet our inclusion criteria: 1,446 did not address eco-conscious individuals or PEBs, 390 did not focus on stereotypes, and 560 addressed neither sustainability nor stereotypes. Third, we retrieved the full texts of 256 articles and assessed them against our predefined criteria. This process resulted in the exclusion of 200 articles: five due to inaccessibility and 195 for lack of relevance upon full-text review.

In cases of ambiguity, two authors independently reviewed the articles, and discrepancies were resolved through discussion with a third author. To minimize omission risk, we conducted backward and forward citation tracking. This manual cross-referencing yielded 19 additional articles. Our final sample included 75 peer-reviewed empirical studies (see Appendix B for the final list of selected articles).

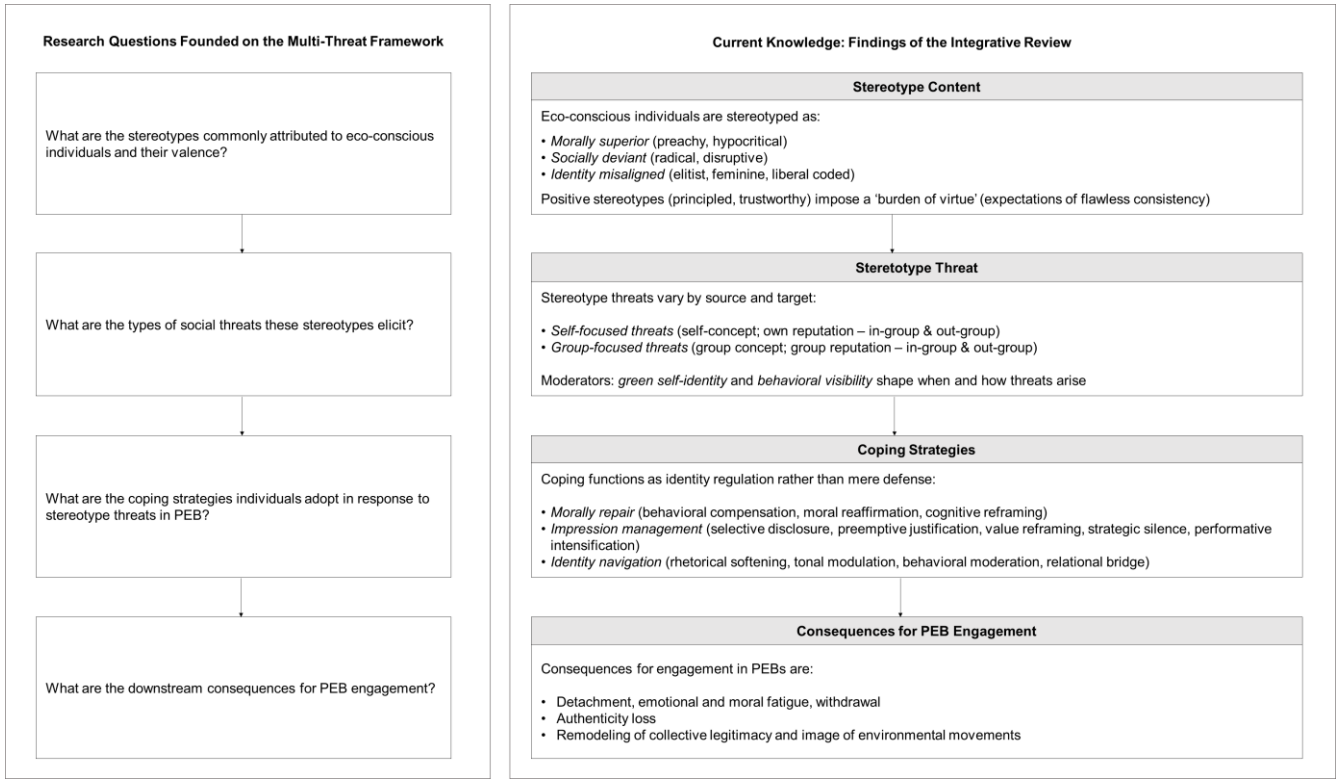
3.4 Data Analysis

For the data collection and analysis process, we conducted both descriptive and thematic analyses of the final sample. The descriptive analysis examined publication trends, disciplinary affiliations, and temporal patterns. Research on stereotypes associated with eco-conscious individuals spans from 1995 to 2025, with notable growth after 2013. Most articles were published in journals focusing on psychology, marketing, communication, and environmental science, with further contributions from sociology, business ethics, and transportation. Psychology and marketing accounted for nearly half the studies reviewed (see Appendix B).

Concerning the coding process, we first coded each paper for bibliographic information (year of publication, journal, and authors) and study characteristics, including study type, theoretical framework(s), research questions and/or hypotheses, methodological approach, sample characteristics, independent and dependent variables, as well as mediators and moderators. Then, for the thematic analysis, which is the main focus of this study, we used a deductive coding approach informed by the Multi-Threat Framework. This framework includes five dimensions: stereotype content, stereotype source and target, the type of PEB being stereotyped, the threat posed, and the coping strategies, including potential implications for sustainability engagement. Any discrepancies were discussed and resolved collaboratively. Inter-coder reliability based on 67 articles was 97.46%, which exceeds the recommended threshold for qualitative agreement. Reliability values above 0.90 are considered excellent and ensure the consistency and validity of qualitative coding decisions (Rust & Cooil, 1994). The

findings of the thematic analysis are discussed in the next sections, organized around our research questions (Figure 3).

Figure 3. Integrative Framework of Findings



3.5. Ecological illustration via social listening

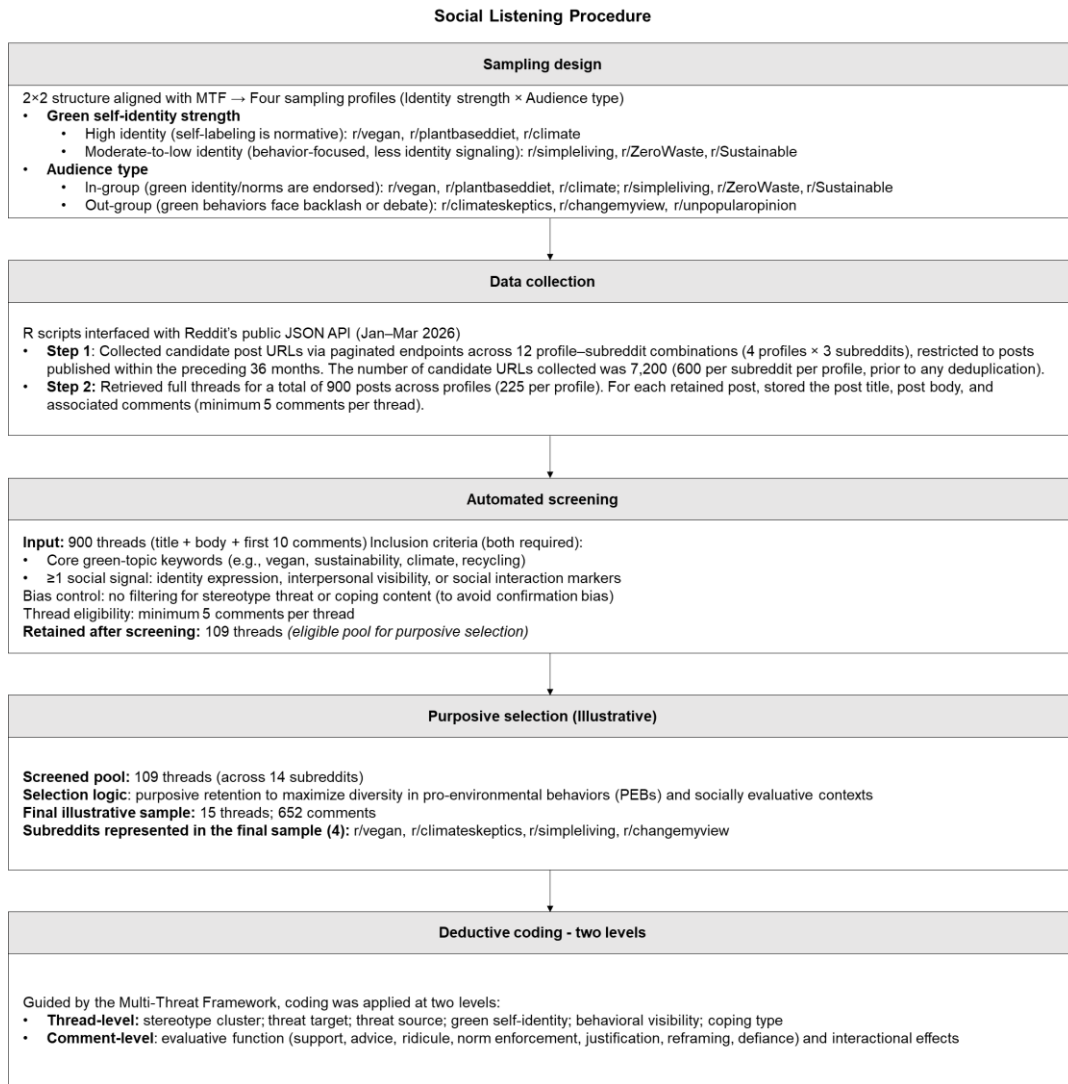
To complement the literature review, we included naturally occurring online discussions as a source of ecological illustration. Reddit was selected as the data source for three reasons aligned with the phenomenon under study. First, its pseudonymous structure encourages disclosure of identity-relevant tensions, including moral doubts, social friction, and stigma management, that individuals may underreport in identifiable settings (Proferes et al., 2021). Second, Reddit's subreddit architecture provides naturally occurring communities with distinct norms and audience compositions, enabling targeted sampling along theoretically relevant dimensions such as identity normativity and supportive versus adversarial audiences (Rocha-Silva et al., 2024), dimensions that map directly onto the identity and audience axes central to the MTF. Third, Reddit is now an established data source in social and behavioral research, with a growing methodological precedent for studying identity- and stigma-related discourse in situ (Boettcher et al., 2021; De Choudhury et al., 2014). This matters for the present study because it indicates that Reddit can sustain systematic collection and analysis of naturally occurring, socially evaluative interaction which is the setting in where stereotype threat cues and coping responses are likely to be publicly articulated, challenged, and negotiated.

This additional layer was motivated by the nature of the phenomenon under study. Stereotype threats associated with green identities are social, identity-relevant, and interactional: they arise through anticipated judgment, audience response, reputational concern, and visibility of behavior (Brick et al., 2017; Fielding & Hornsey, 2016; Griskevicius et al., 2010). Because these dynamics are often negotiated in discourse rather than captured fully through researcher-elicited designs, naturally occurring online discussions provide a useful context in which the review's conceptual patterns can be observed as they are publicly articulated, contested, and managed in everyday interaction (Kozinets, 2002).

Data were collected between January 2026 and March 2026 using R scripts interfaced with Reddit's public JSON API. To identify discussions in which social evaluation was likely to be salient, we followed a structured sampling design organized along two dimensions aligned with the MTF: identity strength and audience type. This design guided the selection of subreddits, including communities associated with strong eco-conscious identities and in-group norms, as well as communities where green identities were more likely to be contested by skeptical or outgroup audiences. Candidate threads were screened using keyword families organized along the dimensions of the MTF, including sustainability-related terms, indicators of green self-identity strength, behavioral visibility, and social interaction (see Appendix C). This screening stage did not filter for stereotype threat or coping content to reduce confirmatory bias and preserve the illustrative character of the sample. Threads with fewer than five comments were excluded to ensure sufficient interactional depth.

From the resulting pool of 109 threads and 3,874 comments, we purposively retained discussions covering different PEBs and socially evaluative contexts. The final illustrative dataset comprised 15 threads and 652 comments drawn from four subreddits: r/vegan, r/climateskeptics, r/simpleliving, and r/changemyview. The analysis followed a structured deductive coding procedure guided by the MTF. At the thread level, data was coded for stereotype-related threat, stereotype cluster, threat target, threat source, green self-identity strength, behavioral visibility, and coping type. At the comments level, those were examined for their evaluative and social-regulatory functions, including support, advice, norm enforcement, ridicule, justification, reframing, defiance, and interactional effects. Consistent with the purpose of this section, these materials were used to illustrate how the review's core patterns surface in naturally occurring discourse rather than to estimate prevalence or establish causal claims. Figure 4 provides an overview of the Reddit data collection and coding.

Figure 4. Social listening procedure



Several limitations of this material should be acknowledged. Reddit users are not representative of the general population: the platform skews toward younger, male, and digitally engaged users, and participation is self-selected, so the discussions analyzed cannot be read as prevalence estimates or as a representative sample of public opinion (Proferes et al., 2021). Pseudonymity, while valuable for eliciting candid identity-relevant talk, also precludes verification of who is speaking and from what social position. Subreddit norms further shape what is expressed, since each community enforces its own conventions about acceptable discourse. For these reasons, the Reddit material is used only as ecological illustration rather than as confirmatory evidence. Its purpose is to show that the conceptual patterns derived from literature can be recognized in spontaneous, unsolicited interaction, not to test or generalize them. Consistent with this aim, the coding scheme was not generated inductively from the data but specified deductively in advance from the dimensions of the Multi-Threat Framework (identity strength, audience type, threat source and target, behavioral visibility, and coping type). The same pre-specified scheme was applied at the thread level and, for evaluative and social-regulatory functions,

at the comment level, ensuring that the illustration was examined through the same conceptual lens guiding the review itself.

4. Results

4.1 *Stereotype Content and Valence: Clusters and Cross-Cutting Themes*

Existing research reveals a wide array of stereotypes attributed to eco-conscious individuals. While the surface expression of these stereotypes varies—targeting vegans, climate activists, or users of eco-friendly products, for example—they tend to cluster around three interrelated themes: *moral superiority*, *social deviance*, and *identity misalignment* (Figure 3; Table 2).

The first and most persistent cluster involves *moral superiority*. Eco-conscious individuals are often cast as self-righteous, preachy, or morally overbearing (Bashir et al., 2013; De Groeve et al., 2021; Minson & Monin, 2012). This image of the “holier-than-thou” eco-conscious individual emerges not necessarily from explicit statements, but from what PEBs symbolize. When someone embraces a voluntary simplicity lifestyle or mentions they are vegan, these acts, however benign, can be perceived as silent critiques of others’ choices. Many PEBs involve personal sacrifice (e.g., higher efforts and time), which makes them highly legible moral signals. As a result, observers may interpret such behaviors as indirect judgments of their own, fostering the stereotype of the eco-conscious person as sanctimonious or socially difficult. These stereotypes are especially pronounced in domains like veganism, voluntary simplicity or slow living lifestyle, where personal efforts and ethical signaling converge. In some studies, vegans are explicitly described as “judgmental,” or “annoying”, with their moral commitment framed as intrusive or self-congratulatory (Bolderdijk & Cornelissen, 2022; Cole & Morgan, 2011; Paxman, 2021). As such, moral superiority stereotypes transform PEBs into reputationally risky signals, particularly in interpersonal contexts where social comparison is salient.

The second cluster centers on *perceptions of social deviance or extremism*. From climate marches to digital activism, highly visible PEBs are often perceived as disruptive, irrational, or politically radical (Cherry, 2019; Hards, 2013; Paxman, 2021). Activists are framed as militant and obstructionist; their actions are interpreted less as civic engagement than as public nuisance (Bashir et al., 2013; Brock et al., 2022; Stenhouse & Heinrich, 2019). These judgments are reinforced by media caricatures that cast eco-conscious individuals as fringe: tree-huggers, or uncooperative crusties (Rawlinson, 2019). This stereotype is especially salient in protest-oriented behaviors, where visibility and confrontation heighten perceptions of extremism. It is also frequently projected onto environmental scientists, who are sometimes framed as “alarmist,” “politicized,” or “anti-growth” (Koteyko et al., 2013; Lewandowsky et al., 2015; Suldovsky et al., 2019; Žuk, 2022). Importantly, it is not always the behavior itself but its symbolic challenge to prevailing norms that elicits this response. In this sense, the stereotype functions as a form of boundary enforcement, discouraging behaviors that are perceived to threaten

established social, political, or economic arrangements (Antonetti & Maklan, 2016; Miller et al., 2025; Reid et al., 2015).

The third cluster highlights *identity misalignment*. Here, the issue is not just what eco-conscious individuals do, but who they are presumed to be, considering other salient identities also. Stereotypes are also shaped by race, age, and gender intersections (Anfinsen et al. 2019; Li et al., 2023; Pearson et al., 2018). PEBs are often coded as feminine, elite, or politically liberal, creating a perceived mismatch for individuals who do not identify with those categories (Brough et al., 2016; Brown, 2025; Geiger & Swim, 2018). Men may avoid purchasing eco-friendly products or adopting eco-friendly alternatives such as electric vehicles for fear of appearing unmasculine (Brough et al., 2016; Otterbring, 2023); working-class consumers may see organic food as signaling elitism or cultural snobbery (Barnhart & Mish, 2017; Cherry, 2019; Greenebaum, 2012a). Politically conservative individuals, too, may worry that engaging in PEBs marks them as ideologically inconsistent (Geiger et al., 2019; Kibele et al., 2023; Žuk, 2022). These identity mismatches are especially prevalent in consumption and lifestyle-based PEBs, such as veganism, electric-vehicle driving or purchasing eco-friendly products, that are tightly linked to classed and gendered assumptions, and they can create judgment by both ingroup and outgroup members. Importantly, identity misalignment does not imply universal stigma; rather, it highlights how the social costs of PEB are unevenly distributed across social groups.

Across these clusters, valence is in a few cases ambivalent. Negative portrayals are widespread. However, some studies identify more favorable perceptions, such as being principled, trustworthy, or romantically attractive (Borau et al., 2021; Ratliff et al., 2017). These positive associations often emerge in interpersonal contexts, where PEBs are read as signs of romantic commitment or long-term relationship (Borau et al., 2021; Didonato & Jakubiak, 2015). Yet these positive associations are fragile. What appears admirable to one audience may come off as condescending to another. Moreover, even positive stereotypes can impose pressure, creating expectations to always act consistently, embody moral leadership, or serve as a model for others (Bolderdijk & Cornelissen, 2022; Greenebaum, 2012b; Minson & Monin, 2012). The weight of being perceived as virtuous can be just as constraining as being seen as radical.

In sum, across PEBs, recurring themes of moral judgment, deviance, and identity misalignment emerge, shaping how PEBs are perceived and evaluated (Bashir et al., 2013; Brough et al., 2016). And yet, not all PEBs are perceived equally. Veganism and activism carry more symbolic weight than green commuting, recycling, or purchasing non-conspicuous eco-friendly products which are often less visible (Bolderdijk & Cornelissen, 2022; Chikowore, 2025; Köhler et al., 2025; Li et al., 2023). These distinctions are consequential. They help clarify that the social risks associated with PEB are not incidental but systematically patterned across behaviors and contexts. In the next section, we build on this insight to examine how such content-based differences shape the types of stereotype threats eco-conscious individuals encounter in social environments.

Table 2. Stereotype Content and Valence in PEB: Clusters and Cross-Cutting Themes

Stereotype Cluster	Core Stereotypes	Most Affected PEBs	Valence	Underlying Social Logic	Key Examples (Individuals)	Illustrative References
Moral and Ethical Judgments	Self-righteous, preachy, morally overbearing, militant, annoying	Veganism, zero-waste living, public-facing consumption choices	Negative and positive. Primarily negative	Sustainable choices signal personal sacrifice and ethical superiority, provoking defensiveness, and moral scrutiny. At the same time, they may be perceived as indicators of trustworthiness or principled character, especially in relational settings, but this can lead to scrutiny for moral consistency.	The preachy vegan; the zero-waste purist who ‘shames’ others; the morally admired but scrutinized colleague who forgets to recycle	Bashir et al., 2013; Bolderdijk & Cornelissen, 2022; Borau et al., 2021; Brough et al., 2016; Cherry, 2019; Greenebaum, 2012a; King, 2019; Lewandowsky et al., 2015; MacInnis & Hodson, 2015; Paxman, 2021; Swim et al., 2020; White & Dahl, 2006
Norm Deviance or Extremism	Radical, extremist, obstructionist, disruptive, excessive	Public protest, climate activism, symbolic rejection of norms	Primarily negative	Highly visible or disruptive actions challenge social conventions and are interpreted as politically motivated or socially deviant.	The street protester blocking traffic; the activist confronting bystanders; the online environmentalist	Antonetti & Maklan, 2016; Bashir et al., 2013; Brock et al., 2022; Cherry, 2019; Hards, 2013; Paxman, 2021; Stenhouse & Heinrich, 2019
Identity Misalignment	Feminine, elite, liberal, out-of-touch, emotional, desperate	Veganism, ethical consumption, maternal activism, zero-waste living	Negative and positive. Primarily negative	Mismatch between sustainable behavior and personal identity norms (gender, class, race, political ideology) creates tension and perceived inauthenticity.	The ‘unmanly’ man purchasing green products; the conservative feeling out of place in green spaces	Bolderdijk & Cornelissen, 2022; Brough et al., 2016; Cherry, 2019; King, 2019; Paxman, 2021; Swim & Geiger, 2018; Tran, 2022; Zabkar & Hosta 2013.

4.2 Stereotype Threats in PEB: Conditions and Configurations

Stereotype threats in PEB arise when individuals anticipate being judged, mischaracterized, or devalued because of their eco-conscious group membership (Spencer et al., 1999; Steele, 1998). In sustainability contexts, these threats are closely tied to how PEB is socially interpreted, rather than to concerns about competence or performance. Drawing on the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011), which distinguishes stereotype threats by their *source* (self, in-group, or out-group) and *target* (self or in-group), we examine how eco-conscious individuals experience stereotype threat across sustainability-relevant contexts.

Extending the Multi-Threat Framework to sustainability contexts, we advance it by explicitly incorporating two moderators—*green self-identity* and *behavioral visibility*—that systematically condition the emergence and salience of stereotype threat (Figure 3). *Green self-identity* refers to the extent to which individuals internalize environmental values as central to their self-concept (Whitmarsh & O'Neill, 2010). Individuals with strong green identities are more likely to interpret lapses in sustainable behavior not merely as practical failures but as symbolic violations of personal integrity, heightening sensitivity to moral dissonance and in-group accountability. By contrast, individuals with weaker or more peripheral green identities tend to calibrate their actions according to how others might interpret them. Accordingly, strong green identity primarily amplifies self-focused threats, whereas weaker or more peripheral identities heighten sensitivity to externally imposed evaluation.

Behavioral visibility captures the extent to which a PEB is observable and socially interpretable. Low-visibility actions, such as subscribing to green energy at home, rarely invite scrutiny (e.g., Hards, 2013; Kibele et al., 2023). In contrast, high-visibility behaviors, such as refusing meat at a corporate lunch or participating in climate protests, are conspicuous and ideologically charged, making them more likely to activate stereotypes and social judgment (e.g., Bashir et al., 2013; Kurz et al., 2020). As a result, high behavioral visibility primarily activates social and reputational threats by rendering identity claims difficult to avoid, whereas low visibility constrains the scope of threat to self-directed concerns. Situating green self-identity and behavioral visibility within the Multi-Threat Framework underscores the conditional and context-dependent nature of stereotype threats in sustainability contexts.

To synthesize these dynamics, rather than treating different configurations of stereotype threat as isolated cases, we organize them into two broader categories: *self-focused threats*, which center on individuals' moral integrity and personal reputation, and *group-focused threats*, which implicate the environmentalist movement or eco-conscious individuals as a collective. This distinction highlights not only the diversity of stereotype threats but also the different levels at which eco-conscious individuals incur social risk (Table 3). Importantly, these threat configurations help explain why the same PEB may

be experienced as socially rewarding in some contexts yet socially costly in others, depending on identity strength, visibility, and audience.

4.2.1 Self-focused threats: threats to one's moral integrity and reputation

Eco-conscious individuals often wrestle with how their behaviors reflect on their moral self-concept. At the most internal level, *self-concept threat* arises when individuals with strong green identities perceive their own behavioral lapses as moral failures, even in the absence of external evaluation (Table 3). These threats are primarily internal and are most salient in low-visibility contexts, where external audiences are absent. For instance, a sustainability-conscious consumer may experience guilt after privately purchasing fast fashion despite publicly advocating for circular fashion (Elgaaiied-Gambier & Mandler, 2021). This dynamic illustrates how internalized moral standards drive stereotype threat in sustainability contexts, as everyday consumption choices are experienced not merely as personal preferences but as moralized reflections of one's character and integrity.

Self-focused threats can also be relational. *Own-reputation threat (in-group)* emerges when strong green identifiers fear falling short in the eyes of fellow environmentalists, particularly in high-visibility contexts. For example, an activist may worry about being criticized by peers for staying in a chain hotel during a climate conference (Minson & Monin, 2012; Seyfi et al., 2025). By contrast, *own-reputation threat (out-group)* tends to affect moderate to high identifiers engaging in conspicuous PEBs within skeptical or mixed social settings, where the primary concern is being mocked as sanctimonious, moralizing, or extreme. A professional bringing a reusable container to a corporate lunch, for instance, may fear being labeled “preachy” by colleagues (Bashir et al., 2013; Johnstone & Tan, 2015; Paxman, 2021). Together, these relational self-focused threats underscore that eco-conscious individuals are accountable not only to themselves but also to multiple, and sometimes conflicting, audiences. Importantly, behavioral visibility does not uniformly generate social rewards; instead, it creates social risk that depends on the audience evaluating the behavior.

4.2.2 Group-focused threats: threats to the environmentalist identity and movement.

Eco-conscious individuals also worry about how their actions reflect on the broader environmentalist community. *Group-reputation threat (in-group)* arises when individuals fear that their behavior may tarnish the group's credibility in the eyes of fellow activists (Table 3). This is most pronounced among strong identifiers in visible community contexts. Here, the concern is not personal image but the perceived integrity and credibility of the collective. For example, serving bottled water at a sustainability workshop may be perceived as undermining the group's legitimacy among peers (Minson & Monin, 2012; Prosser et al., 2025).

A final case is *group-reputation threat (out-group)*, which captures anxieties that outsiders will generalize from individual behaviors to the movement as a group, particularly in politicized and high-visibility contexts. For instance, participating in a

disruptive climate protest may be seen by outsiders as confirming stereotypes of environmentalists as militant or irrational (Bashir et al., 2013; Farinha & Rosa, 2022; Köhler et al., 2025). Together, these threats illustrate how the legitimacy of the movement is constantly negotiated across different audiences.

Our review reveals an imbalance in how these threats have been studied. While self-focused threats (e.g., guilt, hypocrisy, being mocked) have received considerable attention (85.5%), group-focused threats remain underexplored (14.5%). This gap matters: self-focused threats may deter individual PEB, but group-based threats can undermine the legitimacy and cohesion of environmental movements and weaken public support. They do not merely challenge personal motivation to act but also jeopardize the symbolic infrastructure and solidarity that sustain environmental engagement over time.

Our structured mapping therefore advances prior work by moving beyond broad, undifferentiated references to stereotype threat. By identifying five distinct cases within two higher-order categories, we introduce a coherent typology that equips scholars with a more precise vocabulary for analyzing the social risks faced by eco-conscious individuals. This typology provides a systematic way to link stereotype content to specific forms of social threat. How individuals adaptively respond to these threats through distinct coping strategies is discussed in the next section.

Table 3. Stereotype Threats in PEB: Conditions and Configurations

Category	Threat Type	Source of Threat	Target of Threat	Green self-identity	Behavioral visibility	Illustrative Example
<i>Self-focused threats</i>	Self-concept threat	Self	Self	Strong identifiers (internalized values)	Low visibility (private lapses)	Activist secretly taking flights despite advocating for the environment (Howard, 2023)
	Own-reputation threat (in-group)	In-group	Self	Strong identifiers	Moderate to high visibility in peer/activist contexts	Vegan criticized by other vegans for prioritizing personal health needs over animal welfare (Greenebaum, 2012b)
	Own-reputation threat (out-group)	Out-group	Self	Strong to moderate identifiers	High visibility in skeptical/mixed settings	Electric vehicle driver denigrated by the public as eccentric and radical for using these (King et al., 2019)
<i>Group-focused threats</i>	Group-reputation threat (in-group)	In-group	Group	Strong identifiers	High visibility within activist/green communities	Radical vegan protests publicly criticized by the media and internally by other vegans undermining group legitimacy (Napoli et al., 2024)

Category	Threat Type	Source of Threat	Target of Threat	Green self-identity	Behavioral visibility	Illustrative Example
	Group-reputation threat (out-group)	Out-group	Group	Moderate to strong identifiers	High visibility, especially politicized contexts	Disruptive protest seen by outsiders as confirming stereotypes of environmentalists as militant (Bashir et al., 2013)

4.3 Coping Responses: Navigating Moral, Reputational, and Collective Tensions

In sustainability contexts, coping strategies denote the psychological and behavioral responses individuals adopt to manage the moral, reputational, and collective pressures generated by stereotype threats (King et al., 2019; Seyfi et al., 2025; Valor et al., 2018). Our literature review revealed three overarching categories of coping—*moral repair*, *impression management*, and *identity navigation*—each corresponding to distinct threat configurations (Figure 3). Importantly, these strategies are not mere defensive maneuvers. They not only protect the self and the group from perceived harm but also allow individuals to reconcile environmental commitments with audience expectations.

4.3.1 Moral repair: coping with internal lapses

Moral repair strategies emerge primarily in self-concept threats, where the central issue is maintaining integrity with one's own values rather than managing external perceptions (Table 4). Individuals with strong green identities often feel guilt, disappointment, or moral dissonance when they fail to live up to their standards. To restore coherence, they draw on several distinct tactics. *Behavioral compensation* involves counterbalancing lapses in one domain with pro-environmental effort in another, for example, offsetting emissions from air travel by purchasing carbon credits (Otterbring, 2023). *Moral reaffirmation* strengthens one's commitment to environmental principles, often through heightened activism or visible dedication to sustainable practices, which helps counterbalance the perceived moral shortfall (Elgaaied-Gambier & Mandler, 2021; Griskevicius et al., 2010; Zane et al., 2016). *Cognitive reframing* allows individuals to reinterpret lapses as situational rather than dispositional, such as attributing unsustainable choices to external constraints like cost, time pressure, or lack of alternatives (Johnstone & Tan, 2015; Seyfi et al., 2025). Together, these tactics function as psychological repair mechanisms, specifically in response to self-concept threats tied to moralized understandings of PEB, enabling individuals to protect their sense of moral integrity and maintain long-term identification with sustainability despite temporary inconsistencies (Elgaaied-Gambier & Mandler, 2021; Shapiro & Neuberg, 2007).

4.3.2 Impression management: coping with reputational risks

Impression management strategies dominate in own-reputation threats, where the concern is how one's behavior will be judged by others, whether fellow environmentalists

or outsiders (Table 4). Coping here centers on controlling the narrative of one's actions. When eco-conscious individuals confront in-group members, they might engage in *selective disclosure*: they highlight behaviors that signal environmental commitment while concealing those that might draw criticism (e.g., they might mention their recycling habits but not their long-haul flights) (Hards, 2013; Howard, 2023). Similarly, they might engage in *preemptive justification* by reframing failures in performing PEBs in pragmatic terms, such as citing financial or family constraints rather than manifesting reduced commitment (Hards, 2013; Swim et al., 2020).

When eco-conscious individuals confront potentially skeptical or divergent out-groups, they might engage in *value reframing*: they tend to shift the emphasis from moral superiority to shared benefits, like presenting plant-based eating as a health or cost-saving choice instead of an ethical obligation, to increase similarity with the audience (Buttny & Kinefuchi, 2020; Paxman, 2021). Similarly, they might perform *strategic silence*, such that they choose not to discuss certain PEBs at all, thereby avoiding reputational risk (Bolderdijk & Cornelissen, 2022; Paxman, 2021; Seyfi et al., 2025). By contrast, in some cases, eco-conscious individuals practice *performative intensification*, deliberately amplifying the visibility or frequency of their PEBs, such as publicly posting about eco-friendly choices or becoming ambassadors of their eco-friendly choices or lifestyles (De Nardo et al., 2017; Griskevicius et al., 2010; Hards, 2013).

Overall, impression management strategies reveal that coping is not about altering core values but about safeguarding credibility and image in environments where eco-conscious individuals are potentially internally and externally scrutinized (Buttny & Kinefuchi, 2020; Howard, 2023; Paxman, 2021).

4.3.3 Identity navigation: coping with group-level threats

Identity navigation strategies address group-focused threats, where the identity of the “green” group itself is at stake (Table 4). Unlike impression management, which centers on individual reputation, identity navigation is about preserving the movement's legitimacy in contested or mixed social spaces (Burke, 2020; Castro & Rosa, 2023). *Rhetorical softening* reduces the perceived extremity of environmentalist identity by using more inclusive language to avoid triggering stereotypes of rigidity. Similarly, *tonal modulation* employs humor, irony, or a lighter communicative style to defuse defensiveness and present environmentalism as approachable rather than moralizing (Buttny & Kinefuchi, 2020; Howard, 2023; Stenhouse & Heinrich, 2019). *Behavioral moderation* involves tempering or avoiding highly provocative actions that might confirm negative stereotypes, for instance opting for peaceful protest over disruptive tactics (Farinha & Rosa, 2022; Köhler et al., 2025). Also, this macro-category of strategies aims to build a *relational bridge*, that is, to connect with audiences holding different values by reframing environmentalism in terms they find resonant (e.g., emphasizing economic opportunity, public health, or cultural stewardship rather than moral obligation; (Burke, 2020; Buttny & Kinefuchi, 2020; Cherry, 2019). Overall, these sub-strategies serve as

boundary work, enabling individuals to protect the group's legitimacy while expanding its reach to diverse audiences.

Taken together, these coping strategies demonstrate that eco-conscious individuals do not passively endure stereotype threats but actively repair, manage, and reshape the meaning of their PEBs. Moral repair sustains internal coherence, impression management protects personal reputation, and identity navigation preserves collective legitimacy. Yet these strategies are not without costs. Continuous impression management or identity navigation can produce emotional fatigue, diminish authenticity, or lead to strategic withdrawal from high-visibility actions (Howard, 2023; Lindblom & Jacobsson, 2014; Prosser et al., 2025). Moreover, the burden of coping is unevenly distributed: highly identified individuals face pressure to model consistency, while weaker identifiers may encounter sharper scrutiny from both in-groups and out-groups (Elgaaied-Gambier & Mandler, 2021; Pearson et al., 2018; Zane et al., 2016). These asymmetries influence not only who feels able to participate in sustainability efforts but also how PEB is socially interpreted, legitimized, or dismissed (Bashir et al., 2013; Kibele et al., 2023; Pearson et al., 2018). This reconceptualization of coping resolves the apparent contradiction in the literature: individuals do not simply choose between status-seeking and avoidance; they actively regulate their identity signals to navigate the complex terrain between internal conviction and external stigma.

Ultimately, coping is both a response to threat and a generator of social meaning. Each act of silence, justification, or rhetorical adaptation contributes to evolving norms of environmental legitimacy (Elgaaied-Gambier & Mandler, 2021; Paxman, 2021). Over time, these micro-level strategies accumulate, shaping which PEBs are regarded as authentic or excessive, who feels empowered to engage, and what narratives dominate the cultural understanding of environmentalism. Coping, therefore, is not merely a defensive reaction, it is a constitutive force that actively constructs the symbolic and normative boundaries of sustainability (Elgaaied-Gambier & Mandler, 2021; Fritsche et al., 2018; Raynaud et al., 2024).

Table 4. Coping Strategies for Stereotype Threats in PEB

Stereotype Threat Type	Coping Strategy Category	Sub-strategies	Illustrative Example
Self-concept threat (self → self)	Moral repair	• Behavioral compensation: offset lapses by engaging in other sustainable acts (e.g., offsetting flight emissions). • Moral reaffirmation: recommit to environmental values through increased activism or visible sustainable practices. • Cognitive reframing: attribute lapses to external constraints (e.g., cost, lack of alternatives).	A traveler chooses a faster and cheaper flight over a more environmentally friendly train, despite feeling guilty, and justifies their decision by stating, "Even if there's a more ethical choice, if it's not economically feasible, I just can't justify it (Seyfi et al., 2025, p. 1138)
Own-reputation threat (in-group) (in-group → self)	Impression management	• Selective disclosure: highlight "good" behaviors, conceal lapses. • Preemptive justification: explain lapses in pragmatic terms. • Strategic silence: avoid discussing potentially criticized choices. • Value reframing: emphasize shared benefits (e.g., health, cost-saving). • Performative intensification: increase visibility of sustainable acts to signal authenticity.	A climate activist, having recently taken a flight, strategically avoids bringing up air travel in conversations with fellow climate advocates. When the topic arises, they deflect with a neutral comment, "But if it's just a situation where somebody says I'm taking a flight, I no longer make a point. I just say, 'Oh that's nice, where are you going?' partly because I have also taken flights. (Howard, 2023, p.1145)
Own-reputation threat (out-group) (out-group → self)	Impression management	Same as above, but with emphasis on avoiding ridicule from skeptics.	In presence of meat eaters, vegans avoid expressing their meat-free preferences or focus on the health benefits rather than in animal cruelty/environmental impact, as this would imply moral criticism of the meat consumer (Bolderdijk & Cornelissen, 2022),
Group-reputation threat (in-group) (in-group → group)	Identity navigation	Same as above, but with emphasis on protecting credibility within activist circles.	In an activist camp, some advocated for emphasizing their identity as "locals" in public messaging to shed the negative impact of stigmatization, while others wished to focus on a

Stereotype Threat Type	Coping Strategy Category	Sub-strategies	Illustrative Example
Group-reputation threat (out-group) (out-group → group)	Identity navigation	Same as above, but with emphasis on countering outsider stereotypes.	global environmental message. This internal discussion demonstrates behavioral moderation to protect credibility within activists. (Brock et al., 2022)
			Protesters highlight benefits such as health, cost savings or social welfare of climate reform in their messaging to reduce the perception of environmentalists as militant or irrational. (Howard, 2023; Klas et al., 2019).

4.4 Ecological Illustration: Patterns in Naturally Occurring Discourse

To complement this integrative review, we examined naturally occurring Reddit discussions (see Section 3.5) to illustrate how these conceptual dynamics surface in unsolicited, everyday discourse among individuals engaged in diverse PEBs. Overall, the online material was consistent with the review's framework. Across threads concerning veganism, climate advocacy, and voluntary simplicity, data were identifiable that aligned with the stereotype clusters, threat configurations, and coping responses present in the literature. Table 5 provides a summary overview of the illustrative dataset across the 15 retained threads and the 652 comments guided by the MTF.

Table 5. Patterns across 15 Reddit threads and 652 comments

Stereotype Cluster					
Stereotype cluster	Threads (n)	PEB domains	Illustrative threat example for stereotype content		Comment patterns of the threat
Moral superiority	7	Veganism, climate advocacy, AI/environment	A user tried to educate family members about animal cruelty but was perceived as preachy (Post 9, r/vegan)		A highly endorsed comment warned that ‘behaving self-righteously like you're the only moral person is a huge turn-off,’ illustrating how the moral superiority stereotype is articulated by audiences
Social deviance	4	Veganism	A vegan described that people routinely asked, "what do you eat then?", treating the dietary choice as an anomaly and requiring justification (Post 10, r/vegan)		Comments recommended to staying silent to avoid conflict, with several noting that confrontation ‘pushes people away’
Identity misalignment	3	Veganism, voluntary simplicity	A young user whose parent framed veganism as a symptom of disordered eating described having to be sneaky because the vegan identity was incompatible with the family's expectations of a normal, healthy child (Post 3, r/vegan)		Comments advised practical solutions such as cooking for the family, seeking medical justification, or planning to move out
Mixed	1	Climate advocacy	A user argued that critics of AI on environmental grounds are hypocrites, recasting moralized environmental positions as inconsistent (Post 15, r/changemyview)		Comments debated where the line between legitimate concern and hypocrisy falls, illustrating how moral superiority and identity misalignment stereotypes can co-occur
Stereotype threat					
Threat configuration	Threads (n)	Green self-identity	Behavioral visibility	Illustrative threat example for threat configuration	Comment patterns of the threat
Self-concept threat (self → self)	3	High	Low/ private	A seven-year vegan who stopped after hospitalization described feeling ashamed and corrupted (Post 8, r/vegan)	Comments offered reassurance and reframed the lapse as situational (‘health comes first’), functioning as peer-based moral repair
Own-reputation threat, in-group (in-group → self)	2	High	High / public	A user questioned a friend's claim to veganism after dietary and lifestyle changes, policing who counts as really vegan (Post 2, r/vegan)	Comments divided between boundary enforcement (that's not vegan) and inclusive reframing (every bit helps), reflecting in-group norm negotiation
Own-reputation threat, out-group (out-group → self)	8	High to moderate	High/ Moderate	A vegan was looking for ‘witty responses’ for the recurring question from non-vegans of ‘what do you eat then?’ (Post 10, r/vegan)	Comments gave some advice and proposed impression management (‘just say it's for health’) and strategic humor
Group-focused threat (in-group or out-group → group)	2	High	High / public	A 25-year climate-solutions professional wrote a dystopian novel to criticize what he perceived as moral rigidity within the movement (Post 13, r/climateskeptics)	Comments engaged in debate about whether the movement's image helps or hurts the cause, illustrating collective group-reputation concern

Coping Responses			
Coping category	Threats (n)	Illustrative thread example of coping responses	Comment patterns of the threat
<i>Moral repair</i>	1	A vegan who felt guilt over animal suffering described feeling that ‘activism never feels enough’, using recommitment to restore moral coherence (Post 4, r/vegan)	Comments reinforced moral repair (‘you’re doing more than most’) and normalized imperfection as compatible with sustained commitment
<i>Impression management</i>	8	A vegan preparing for discussions with a skeptical partner was asking the community for neutral scientific sources to replace moral language with evidence-based arguments (Post 1, r/vegan)	Comments give arguments based on science and advised strategic framing (‘don’t lead with ethics, lead with health’)
<i>Identity navigation</i>	2	The climate-solutions professional who chose a dystopian novel to voice concerns about ideological rigidity illustrates rhetorical softening: criticizing internal dynamics while remaining within the broader climate movement (Post 13, r/climateskeptics)	Comments debated the legitimacy of internal critique, reflecting how identity navigation operates as boundary work between loyalty and dissent
<i>Mixed</i>	4	A vegan who bought cheese pizza for a club event responded to guilt by committing to funding fully vegan options at future events, combining moral repair with impression management (Post 11, r/vegan)	Comments offered both emotional support and practical strategies

The three stereotype clusters identified in the review—moral superiority, social deviance, and identity misalignment—were each recognizable across the purposive sampled discussions. Moral superiority stereotypes were especially salient in vegan threads where eco-conscious individuals described being perceived, or anticipating being perceived, as self-righteous, judgmental, or implicitly critical of others' choices. In one vegan discussion, a highly endorsed comment warned that “behaving self-righteously like you’re the only moral person is a huge turn-off,” while other users noted that people often react defensively because veganism “makes them question their morals.” These examples closely reflect that PEBs can function as silent critiques of others' behavior, thereby eliciting defensiveness from the ingroup and resistance of the outgroup (Bashir et al., 2013; Minson & Monin, 2012). Social deviance stereotypes emerged where PEBs were treated as abnormal, not conforming to social norms and in need of justification. For example, one vegan described being routinely asked ‘what do you eat then?’, framing the dietary choice as an anomaly that required explanation. Identity misalignment was present where green identities appeared to clash with broader expectations tied to lifestyle and social roles. A young user whose parents framed veganism as a symptom of disordered eating described having to 'be sneaky' because the identity was incompatible with the family's expectations of a normal, healthy child.

The online discussions also reflected the self-focused and group-focused threat configurations identified in the review. Self-concept threat was visible in posts where highly identified individuals experienced guilt, shame, or moral dissonance in the absence of overt external evaluation. For instance, a seven-year vegan who had stopped after hospitalization described feeling ashamed and corrupted, and a vegan in college who purchased cheese pizza for a club event expressed distress at having financially supported animal exploitation. In both cases, the salient threat centered on moral integrity and the meaning of the act for the self (i.e., what this says about me as a vegan), rather than immediate interpersonal judgment, which is consistent with prior work on identity-based dissonance in sustainability contexts (Elgaaiied-Gambier & Mandler, 2021; Whitmarsh & O'Neill, 2010). By contrast, own-reputation threat was more apparent where users anticipated ridicule or friction in mixed settings. One vegan explained that they had not disclosed their identity to coworkers for about a year, while another asked the community for “witty responses” to questions such as “what do you eat then?” because these interactions made the user feel awkward and defensive. Here, the core concern was not simply whether the behavior aligned with personal standards, but whether it would be interpreted through stereotyped lenses (e.g., preachy, difficult, or weird) in socially visible interaction. Group-focused threats were less prominent, but still discernible. In one climate-related thread, a long-standing climate-solutions professional described writing a novel to voice concern about what he perceived as moral rigidity within the movement, suggesting an effort to criticize internal dynamics while protecting broader group legitimacy (Burke, 2020; Castro & Rosa, 2023). Across these cases, the variation in threat configurations was consistent with the moderating roles of green self-identity

and behavioral visibility theorized in the review: when green self-identity was strong but the identity-relevant tension remained private, threat centered on self-concept; when behavior or identity became publicly visible, concern shifted toward reputation, audience response, and social interpretation (Bolderdijk & Cornelissen, 2022; Whitmarsh & O'Neill, 2010).

The three categories of coping as identity regulation—moral repair, impression management, and identity navigation—were likewise observable. Moral repair appeared where users sought to restore coherence after moments of perceived inconsistency that could undermine their moral self-concept or invite self-stigmatizing interpretations. The college-club vegan, for example, responded by committing to fund fully vegan options at future events and to cover the additional cost personally, thereby combining behavioral compensation with moral reaffirmation. A similar pattern appeared when a pregnant vegan framed a temporary dietary change as situational and planned to work with a dietician postpartum, suggesting cognitive reframing rather than wholesale identity abandonment (Johnstone & Tan, 2015; Seyfi et al., 2025). Impression management strategies were especially prominent in interpersonal contexts. One vegan preparing for discussions with a skeptical partner sought ‘neutral scientific sources’ in order to replace moral language with evidence-based arguments, while others described withholding disclosure, softening their language, or remaining silent because ‘people get defensive’ when veganism is mentioned. These responses closely match the forms of value reframing and strategic silence identified in the review as ways of reducing reputational risk without necessarily altering core commitments (Buttny & Kinefuchi, 2020; Paxman, 2021). Identity navigation was less common but still visible in the where concern extended beyond the self to the credibility of the broader group. The climate-solutions professional who chose the literary register of a dystopian novel to raise concerns about ideological rigidity illustrates this dynamic particularly well: rather than rejecting the green identity altogether, the user appeared to soften and redirect criticism in a way that preserved distance from perceived extremity while remaining within the broader climate field (Burke, 2020; Castro & Rosa, 2023).

Taken together, these examples provide a limited but concrete illustration of how the patterns present in the review may also be recognized in naturally occurring discourse, where eco-conscious identities and PEBs are publicly interpreted, negotiated, and contested in everyday interaction.

5. General Discussion

Research on eco-conscious individuals has expanded across disciplines, yet insights into the stereotype threats they face remain fragmented. Our integrative review addresses this gap by consolidating dispersed findings and situating them within the Multi-Threat Framework, and the ecological illustration suggests that these patterns extend into naturally occurring online discourse.

Three key insights emerge. First, stereotypes of eco-conscious individuals cluster around *moral superiority*, *social deviance*, and *identity misalignment*, reflecting recurring patterns across domains rather than isolated labels. Second, stereotype threats in sustainability are moral and reputational rather than competence-based, and occur in *self-focused* (integrity, reputation) and *group-focused* (credibility, legitimacy) configurations, shaped by green self-identity and behavioral visibility. Third, coping responses—*moral repair*, *impression management*, and *identity navigation*—are best understood as forms of identity regulation that protect both individuals and groups while also reshaping cultural understandings of sustainability. Yet these strategies impose costs, including fatigue, inauthenticity, and withdrawal (Figure 3). The ecological illustration presented in Section 4.4 offered preliminary resonance for this overall pattern: across Reddit threads concerning veganism, climate advocacy, and voluntary simplicity, all three stereotype clusters, both self-focused and group-focused threat configurations, and all three coping categories were recognizable in unsolicited discourse, suggesting that the framework captures socially meaningful dynamics beyond those identified in researcher-elicited designs alone.

Together, these insights reframe eco-consciousness as an ambivalently valued and socially contingent identity. They clarify why eco-conscious individuals may be admired and stigmatized simultaneously, and why PEBs can carry significant social risks even for highly committed actors.

5.1 Theoretical Contributions

Our integrative review contributes to theory in stereotype research and sustainability in three major ways: (1) systematizing stereotype content, (2) extending stereotype threat theory into moral-symbolic domains, and (3) reframing coping as identity regulation. Each contribution resolves fragmentation in the literature and opens new theoretical ground.

First, prior studies have catalogued how eco-conscious individuals are perceived, yet these insights were dispersed across behaviors and disciplines. Vegans have been cast as “preachy” (Minson & Monin, 2012), activists as “radical” (Brock et al., 2022), and consumers of organic food as “elitist” (Greenebaum, 2018). Without integration, such findings remained anecdotal and domain specific. By consolidating them into three clusters—moral superiority, social deviance, and identity misalignment—we demonstrate that these stereotypes are not idiosyncratic but recurring patterns of social judgment (Paxman, 2021). Importantly, we also clarify their ambivalent valence: eco-consciousness is sometimes admired as principled, trustworthy, or desirable (Borau et al., 2021; Li et al., 2023), but these portrayals generate hidden costs by imposing expectations of morality and consistency (Greenebaum, 2012b; Minson & Monin, 2012). This reframes eco-consciousness as an ambivalent identity that is simultaneously valorized and burdened.

Second, stereotype threat has been extensively studied in competence-based contexts such as education or the workplace (Shapiro & Neuberg, 2007; Shapiro, 2011). In these domains, threats undermine ability demonstration under evaluation (Spencer et al., 1999; Steele, 1998). Our review shows that sustainability differs fundamentally: here, threats are moral and reputational, not competence based. They materialize in self-focused configurations (fears of hypocrisy, guilt, reputational loss) and group-focused configurations (concerns about credibility and legitimacy of the environmentalist movement). By integrating green self-identity (Whitmarsh & O'Neill, 2010) and behavioral visibility (Bolderdijk & Cornelissen, 2022; Johnstone & Tan, 2015) as boundary conditions, we extend stereotype threat theory to explain *when, for whom, and under what circumstances* threats emerge in value-driven domains. Consistent with this account, in the Reddit discourse analysis, there was variation in threat configurations that aligned with the moderating roles of identity and visibility: when commitment was strong, but lapses remained private, threat centered on self-concept; when behavior or identity became publicly visible, concern shifted toward reputation, audience response, and social interpretation. This demonstrates that stereotype threat is not confined to ability contexts but applies to identities tied to morality, politics, and symbolic consumption (Brough et al., 2016; Cherry, 2019).

Third, earlier studies documented isolated coping responses such as disengagement (Brough et al., 2016), silence (Bolderdijk & Cornelissen, 2022), or reinforcement (Bagci et al., 2021). Without a unifying framework, these appeared as scattered tactics. Our review integrates them into three categories—moral repair, impression management, and identity navigation—and aligns each with specific threat types. More importantly, we reconceptualize coping as identity regulation: strategies that not only protect the self from stigma but also negotiate authenticity and legitimacy in social interactions (Geiger & Swim, 2016; Greenebaum, 2012b; Hards, 2013).

This reframing advance theory in two ways. First, it shifts the view of coping from defensive adjustment to constitutive practice; coping actively shapes what is seen as authentic environmentalism and who is entitled to represent the movement. Second, it highlights the double-edged nature of coping: while enabling engagement, it imposes costs such as emotional fatigue, perceived inauthenticity, and eventual withdrawal (Howard, 2023; Lindblom & Jacobsson, 2014; Prosser et al., 2025). By treating coping as identity regulation, we connect individual micro-strategies to collective meaning-making, thus linking psychological processes with cultural dynamics. The Reddit material provided concrete instances of this connection: users did not simply defend their choices but actively negotiated the boundaries of legitimate environmentalism through justification, reframing, strategic silence, and discourse modulation which are patterns that mirror the coping categories identified in the review and illustrate how those patterns unfold in real-time social interaction.

Together, these contributions move the field beyond fragmented observations. They clarify recurring stereotypes directed at eco-conscious individuals, extend

stereotype threat theory into moral-symbolic domains, and reframe coping as constitutive identity work. In doing so, they provide a conceptual foundation for future research on sustainability as a socially contested identity rather than a purely behavioral choice.

5.2 Practical Implications

Negative stereotypes make PEB socially costly. Media and politicians often caricature activists as eccentric or extreme, with headlines describing protesters as “uncooperative crusties” in “hemp-smelling bivouacs” (Rawlinson, 2019) or as “annoying disruptors” blocking daily life (Rowlatt, 2025). Gendered frames deepen the stigma: sustainable choices are often coded as feminine, discouraging men from adopting them. Research shows that men sometimes avoid behaviors such as veganism or electric vehicle use because these choices are perceived as unmasculine (Brough et al., 2016; Pinna, 2020; Shang & Peloza, 2016; Swim & Geiger, 2018; Vrijnsen et al., 2025). These portrayals do not simply ridicule; they create reputation and identity threats that silence individuals, deter visible PEB, and erode the legitimacy of sustainability movements.

Positive stereotypes can be equally constraining. Admiring eco-conscious individuals as especially principled or morally pure raises expectations of flawless consistency. The European *flygskam* (“flight shame”) movement turned occasional flights into reputational scandals until headlines like “Flight shame is dead” marked its collapse under the weight of social pressure (Niranjan, 2024). Similarly, plastic-straw bans were criticized for overlooking accessibility needs, reinforcing the stereotype of the flawless “eco-saint” (Enking, 2018; Martinez, 2018). These portrayals create a “burden of virtue”: even small lapses invite accusations of hypocrisy, which fosters fatigue, silence, and disengagement rather than sustained commitment.

If negative stereotypes stigmatize and positive ones over-idealize, the challenge for managers, media, and public figures is to reshape representations of eco-conscious individuals in ways that reduce the social costs of engagement. This is essential to resolving the visibility paradox: creating conditions under which visibility confers social rewards rather than generates social threat (Puska et al., 2018). Encouragingly, mainstream narratives are increasingly spotlighting “imperfect” environmentalists. For example, the World Economic Forum’s piece “*How imperfect environmentalism can be a catalyst for change*” (Morovati, 2024) highlights ordinary individuals who make sustainable choices most, but not all, of the time, emphasizing that progress, rather than perfection, drives meaningful change. Media campaigns are also beginning to challenge gendered frames by portraying men who adopt plant-based diets or electric vehicles not as weak but as pragmatic and future-oriented. Similarly, youth-oriented outlets increasingly depict eco-conscious individuals as relatable peers navigating everyday constraints, rather than as rigid moralists. Together, these more inclusive portrayals reduce reputational threats, normalize eco-consciousness as identity-neutral, and broaden identification across social groups. By expanding the definition of a “role model” beyond high-cost, high-visibility archetypes (Sherif & Simon, 2025), such representations make

sustainable engagement appear more attainable and socially inclusive, thereby supporting the diffusion of sustainability practices into the mainstream.

Beyond representation, practitioners need a guiding principle: diagnosis must precede design. Stereotype content is not automatically threatening; it becomes so depending on who evaluates (in-group vs. out-group), which target is salient (self vs. group), and how visible the behavior is (private vs. public; Shapiro & Neuberg, 2007; Shapiro, 2011). For managers, communicators, and policymakers, the first step is to identify which type of threat is most likely in a given context and then select strategies that match. The overarching objective is to enable safe identity regulation, allowing individuals to engage in PEB without incurring undue social or psychological costs. When the concern is self-focused threat among strong identifiers, progress-rather-than-perfection framing and private milestones (for example, personal trackers in workplaces or campus programs) help reduce inconsistency pressures without undermining standards. When the issue is own-reputation threat under out-group scrutiny, the obstacle is fear of ridicule. In such contexts, strategies should reduce the stigma of the social signal. For example, workplace canteens that automatically highlight sustainable meal options without labeling them as “vegetarian” or “eco-friendly” make it easier for employees to choose them without fear of being mocked. Similarly, public campaigns that emphasize shared benefits, such as cost savings or taste, over moral superiority allow individuals to justify sustainable actions without reputational risk. When group-reputation threats dominate, the anxiety shifts to how one’s actions reflect on the environmentalist movement more broadly. Campaigns that rely only on elite or activist voices risk reinforcing stereotypes of environmentalism as narrow or exclusive. By contrast, highlighting ordinary exemplars, such as teachers, parents, athletes, or local workers, helps broaden who counts as an environmentalist. Credibility is further reinforced when messengers come from the audience’s own social circles, whether rural leaders, community figures, or colleagues. A city campaign that rotates diverse messengers across neighborhoods, genders, and professions conveys that sustainability is a shared civic norm rather than a fringe identity.

The overall principle is straightforward but powerful: before prescribing, diagnose. By tailoring interventions to the specific stereotype threats and conditions individuals face, managers and communicators can dismantle reputational barriers more effectively and create psychologically safe pathways for sustained engagement in PEB.

6. Research Agenda

Building on this synthesis, we finally propose a research agenda organized around four priorities: (1) ambivalence and the “burden of virtue”, (2) threat configurations and conditions, (3) coping as identity regulation, and (4) methodological horizons. Each direction deepens theoretical understanding and provides concrete pathways for empirical inquiry (Figure 4).

First, ambivalence in stereotype content is a defining feature of eco-consciousness. While being principled or trustworthy can be flattering, these portrayals also impose hidden pressures by demanding flawless consistency (Bolderdijk & Cornelissen, 2022; Greenebaum, 2012b). This burden of virtue creates a precarious identity: eco-conscious individuals are admired when consistent but harshly judged when lapses occur. A cyclist who occasionally drives, or a vegan who buys packaged snacks, may face accusations of hypocrisy (Cherry, 2019; Howard, 2023; Seyfi et al., 2025). Future research should examine how individuals internalize or resist this burden. Do they intensify commitment, or retreat to avoid scrutiny? How does ambivalence vary across domains such as food, mobility, or activism, and across relational contexts such as family, workplaces, or online platforms? How do these pressures influence community norms of who qualifies as a “true” environmentalist? Studying ambivalence as a constitutive feature of eco-consciousness can explain why sustainability evokes both admiration and backlash, and why virtue constrains as much as stigma. Two further directions follow from this conditionality. First, because prior work has concentrated on highly visible or radical profiles as activists or vegans, it remains unclear whether the same attributions extend to mainstream green individuals performing routine everyday behaviors. Second, and relatedly, stereotype attribution is rarely examined from the standpoint of the observer: who, in terms of their own sociodemographic profile and informational environment, validates or penalizes green individuals.

Second, our review demonstrates that stereotype threats in sustainability are moral and reputational rather than competence based. Yet they are also conditional: emerging differently depending on identity strength, behavioral visibility, and intersecting identities. Strong identifiers may feel guilt for private lapses (Elgaaied-Gambier & Mandler, 2021), while weaker identifiers may fear ridicule from outsiders (Antonetti & Maklan, 2016; Zane et al., 2016). Activists may worry that their actions tarnish group credibility (Bashir et al., 2013; Burke, 2020). Moreover, although stereotypes are known to shape emotional responses across social domains, the sustainability literature has rarely examined how specific stereotype dimensions—particularly competence, which has received far less attention than warmth—relate to the emotions that affect PEB. Future research should explore how green self-identity and visibility interact across everyday contexts (Bolderdijk & Cornelissen, 2022; Whitmarsh & O'Neill, 2010). Greater attention is also needed to intersectionality, including gender (Brough et al., 2016), class (Barnhart & Mish, 2017), and political ideology (Geiger et al., 2020). Future research should also examine whether specific stereotype dimensions, particularly competence, are associated with the emotions that surround engagement in PEB, and whether these emotions help explain when social perceptions encourage or discourage sustainable action. What cross-cultural variations exist in how eco-consciousness is stereotyped and threatened? Comparative work can illuminate whether stereotype threats are universal or culturally contingent.

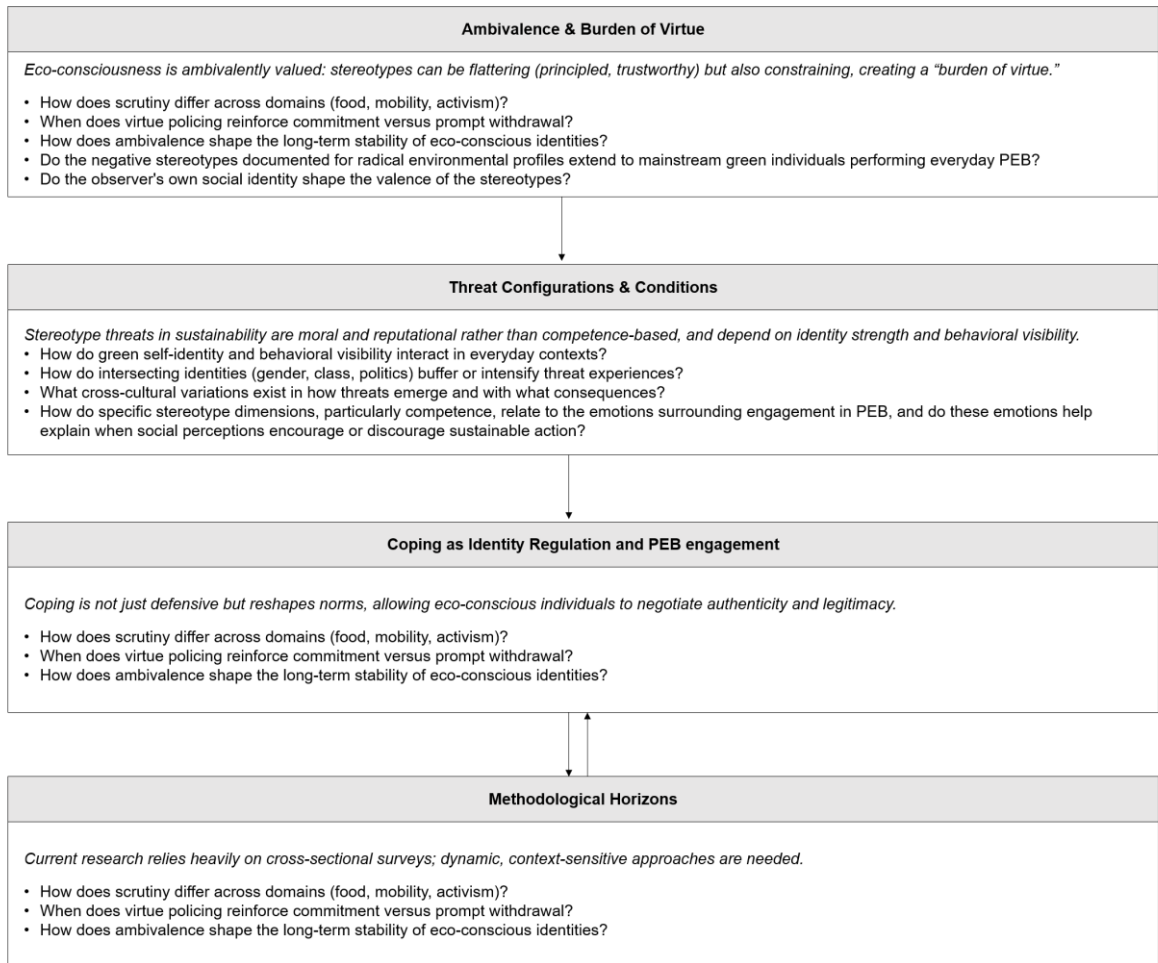
Third, coping is not only a response to threat but also a mechanism through which eco-conscious identities are enacted and contested. Our review highlights three

categories: moral repair (addressing lapses), impression management (protecting reputation), and identity navigation (safeguarding group legitimacy). These strategies protect individuals and groups but also reshape norms of authenticity and legitimacy in sustainability. Future research should examine how coping repertoires evolve and diffuse through peer networks, activist groups, and online communities (Elgaaied-Gambier & Mandler, 2021; Geiger & Swim, 2016; Prosser et al., 2025). How do repeated acts of justification, reframing, or silence accumulate into shared norms of “authentic” environmentalism? Under what conditions does coping sustain engagement versus lead to fatigue, inauthenticity, or withdrawal (Macinnis & Hodson, 2015; Prosser et al., 2025)? How do supportive versus unsupportive networks scaffold coping over time? Studying coping as identity regulation can reveal how micro-level strategies scale into macro-level cultural narratives of sustainability.

Finally, advancing this agenda requires methodological innovation. Much existing research relies on cross-sectional surveys or vignettes that capture static perceptions (Köhler et al., 2025; Koteyko et al., 2013). Yet stereotype threats and coping are dynamic, cumulative, and context sensitive. Future work should employ diary and panel studies to track fluctuations in green self-identity over time, and ethnographic or digital ethnographic methods to observe coping in situ (Hards, 2013; Köhler et al., 2025; Vartanian, 2015). Social media and discourse analysis can capture ridicule, irony, or praise as they circulate in real time, while network analysis can map how reputational risks and coping strategies diffuse within communities (Elgaaied-Gambier & Mandler, 2021; Koteyko et al., 2013). The ecological illustration presented in Section 4.4, while limited in scope, offers a preliminary example of how social listening data can be used to ground this conceptual frameworks in naturally occurring discourse. Such approaches will allow research to move beyond description toward condition-sensitive models that explain not only whether threats occur, but when, for whom, and with what long-term consequences.

Figure 5. Research Agenda

Future Directions: Research Agenda



7. Conclusions

Eco-consciousness is increasingly visible yet remains a socially precarious identity. Our review shows that individuals committed to sustainability face ambivalent social portrayals that both elevate them as principled and expose them to ridicule or suspicion. These dynamics underscore that PEB is not only a matter of values and individual choice, but also a process of identity negotiation shaped by stereotypes, threats, and coping strategies.

A key implication of this review is that sustainability engagement depends as much on social dynamics as on personal conviction. Engaging in PEB requires navigating a complex landscape in which environmental actions may function either as signals of social status or as triggers of social threat. Threats conditioned by identity strength, behavioral visibility, and intersecting social roles help explain why some individuals disengage despite strong environmental values, while coping strategies simultaneously reshape cultural understandings of what counts as authentic environmentalism. By

consolidating fragmented insights across disciplines, this review provides a foundation for cumulative theory and future research on stereotype threats associated with eco-conscious individuals, moving the field toward a more nuanced understanding of how people regulate their identities to sustain PEB in a complex social world.

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Chapter 2

Competence Stereotypes in Climate Change: The Role of Social Perceptions and Emotions in Pro-Environmental Behavior²

Abstract

Society widely recognizes individual engagement in pro-environmental behavior as essential for addressing climate change, yet consistent adoption remains limited. Prior research shows that emotions (e.g., hope and worry) are among the most consistent psychological correlates of pro-environmental engagement, but research has examined them mainly as a function of individual-level antecedents, such as efficacy beliefs, overlooking the broader social perceptions attached to pro-environmental individuals. One such perception is competence, a socially shared evaluation of how capable and effective pro-environmental individuals are seen to be. Although it shares conceptual ground with the efficacy beliefs which are known to drive engagement, competence operates at a different level. Efficacy beliefs are self-referential, capturing whether observers believe they or their group can act effectively, whereas the competence stereotype dimension is a socially shared perception about the people associated with sustainable action, reflecting how capable pro-environmental individuals are perceived to be. Drawing on social psychology and environmental research, we position emotions as one mechanism linking competence as a socially shared perception of pro-environmental individuals to pro-environmental behavior. Using data from a sample of 1,397 participants and structural equation modeling, we find that competence stereotypes are associated with lower negative and higher positive emotions, and that these emotions, in turn, are differentially associated with engagement in pro-environmental behavior, mediating the relationship between competence stereotypes and pro-environmental behavior. Findings have implications for environmental educators, media, communicators, and policymakers seeking to promote sustainable behavior through strategic messaging.

Keywords: stereotypes, pro-environmental behavior, emotions, environmental communication, social cognition

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1. Introduction

The climate change crisis remains one of the most critical challenges of the 21st century. Everyday pro-environmental behavior (PEB) can collectively contribute to meaningful progress in mitigating climate change. However, despite widespread awareness, the consistent adoption of these behaviors remains low (Essiz et al., 2023; Hoffmann et al., 2024). This persistent gap suggests that individual awareness alone is insufficient, underscoring the need to examine the social and psychological processes that shape everyday PEB. Importantly, PEBs are not only individual behavioral choices; they are also socially interpreted actions whose meaning may vary across audiences and contexts (Uren et al., 2021).

Beyond individual appraisals, PEBs carry important social meanings and may function as symbolic social signals associated with identity, status, and competence (Bashir et al., 2013; Griskevicius et al., 2010; Li et al., 2023). In this sense, sustainable actions may be interpreted not only as individual behavioral choices, but also as expressions of belonging to imagined communities of like-minded consumers who share moral responsibilities and behavioral norms (Shaw, 2007). Therefore, individuals engaging in PEBs are socially evaluated and stereotyped as members of this perceived community, shaping how these behaviors are interpreted and emotionally evaluated. While some audiences may perceive pro-environmental individuals as admirable and capable, others may associate them with stereotypes of moral superiority, social deviance, or identity misalignment (Bashir et al., 2013; Brough et al., 2016; Minson & Monin, 2012). We propose that these socially shared perceptions, specifically competence stereotypes, may shape engagement in PEBs through their influence on emotional responses associated with contemplating sustainable action.

While prior research has examined individual and contextual antecedents of climate-related emotions—such as psychological distance (Chu & Yang, 2019) or efficacy beliefs (Weber & Constantino, 2023)—less attention has been devoted to the role of broader social perceptions. Previous research has largely focused on efficacy-based beliefs reflecting perceptions regarding individuals' or groups' capacity to successfully address climate change (Bandura, 1997; Cohen-Chen & Van Zomeren, 2018). The present study instead focuses on competence stereotypes, defined as socially shared perceptions regarding whether a group is viewed as capable and skilled (Cuddy et al., 2008; Fiske et al., 2002). Unlike efficacy beliefs, which reflect perceived capacity for action and often depend on personal or shared group agency (Bandura, 1997, 2000; Magaletta & Oliver, 1999), competence stereotypes reflect broader socially shared evaluations that shape expectations about social groups (Hamilton & Trolier, 1986). Thus, the present study does not examine whether people believe they, or their ingroup, can act effectively; rather, it examines how people perceive pro-environmental individuals in terms of competence, capability, and effectiveness.

In this sense, competence stereotypes may function as social signals that shape perceptions of whether sustainable behaviors are legitimate, feasible, and socially valued. This logic is consistent with research suggesting that climate change is a highly future-oriented context in which emotions help individuals evaluate future possibilities under uncertainty and limited perceived agency (Baumgartner et al., 2008; Roseman, 1996; Wettergren, 2025). Specifically, we examine whether perceiving pro-environmental individuals as competent may shape the emotional responses associated with contemplating engagement in sustainable actions.

However, prior research has reported mixed findings regarding the role of emotions in shaping climate-related action. Positive emotions may foster agency and sustained engagement with climate action (Bury et al., 2020; Ojala, 2023), although some studies suggest that they may also reduce motivation when environmental threats appear less urgent (Hornsey & Fielding, 2016). The literature shows similar inconsistencies for negative emotions. While worry or anxiety may heighten problem awareness and motivate participation (Bouman et al., 2020; Ogunbode et al., 2022), they may also discourage engagement by generating feelings of powerlessness, avoidance, or emotional disengagement when individuals perceive their efforts as ineffective (O'Neill & Nicholson-Cole, 2009). Emerging evidence suggests that these inconsistencies may partly stem from whether emotions are assessed in relation to climate change as an abstract societal threat or in relation to contemplating concrete and self-relevant climate actions (Chapman et al., 2017; Geiger et al., 2021b). Building on this distinction, the present study focuses specifically on emotions associated with contemplating engagement in everyday PEBs. When studies assess emotions in relation to concrete and self-relevant PEBs, positive emotions should facilitate behavioral engagement, whereas negative emotions should reduce it.

We therefore propose that emotions associated with contemplating engagement in PEBs may mediate the relationship between competence stereotypes and behavioral engagement. Specifically, competence stereotypes may shape PEB by increasing positive emotions and reducing negative emotions associated with the perceived possibility and achievability of sustainable action (Baumgartner et al., 2008; Cohen-Chen & Van Zomeren, 2018; Pekrun, 2006; Wettergren, 2025). Importantly, we argue that individual cognitive appraisals do not solely drive these emotional responses; broader, socially shared evaluations of individuals associated with sustainable action may also shape these responses. In this sense, competence stereotypes may influence whether engaging in PEBs is emotionally experienced as meaningful, legitimate, and worthwhile, or instead as ineffective, uncomfortable, or socially undesirable. By positioning emotions as the psychological mechanism linking broader social perceptions to individual behavioral engagement, the present study moves beyond individual-level explanations of climate action. It highlights the role of socially shared symbolic meanings in shaping sustainable behavior.

By testing these relationships through structural equation modelling (SEM) in an online panel of 1,397 Spanish residents, this study contributes to the literature in two main ways. First, it advances research on climate-related emotions by positioning emotions as the psychological mechanism that links broader social perceptions of pro-environmental individuals to behavioral engagement. By elucidating the mediating role of action-specific emotions, the study shows how socially shared evaluations of pro-environmental individuals may translate into engagement in PEBs through the positive and negative emotions associated with contemplating sustainable action. In doing so, the study moves beyond individual-level explanations of climate action and highlights the role of socially shared symbolic meanings in shaping sustainable behavior. Second, the study contributes to this emotional account by examining competence stereotypes as one broader, socially shared perception that may shape these emotional responses, complementing the individual- and contextual-level antecedents on which prior research has concentrated. The findings also offer practical implications for social marketing and climate communication strategies. Specifically, reinforcing perceptions of pro-environmental individuals as competent and capable may help foster more positive emotional responses toward sustainable behaviors while reducing emotional barriers associated with climate engagement.

2. Hypothesis development

2.1 Competence Stereotypes and PEBs

Competence stereotypes, as conceptualized in the Stereotype Content Model (SCM), refer to socially shared perceptions regarding whether individuals or groups are viewed as capable, effective, and intelligent (Cuddy et al., 2008; Fiske et al., 2002). While environmental research has extensively relied on efficacy beliefs to explain climate-related action, competence stereotypes capture a different social process. Whereas efficacy beliefs reflect perceptions of one's own or one's group's capacity to achieve goals successfully (Bandura, 1997, 2000; Cohen-Chen & Van Zomeren, 2018), competence stereotypes reflect broader social evaluations of the types of individuals associated with PEBs. Prior research demonstrates that competence-related stereotypes and efficacy beliefs constitute conceptually distinct constructs. Although prior research suggests that competence-related stereotypes may shape self-evaluations and efficacy-related responses when stereotype content becomes self-relevant, or individuals incorporate it into their current self-representations (Hansen & Wänke, 2009; Shapiro & Neuberg, 2007), in the present study, we do not assume that observers identify with pro-environmental individuals. Rather, we conceptualize competence stereotypes as broader social signals that shape how people socially interpret sustainable behaviors and the individuals associated with them.

This competence stereotypes conceptualization implies a distinction between the content of a stereotype and its endorsement. Stereotype content is culturally shared and widely recognized, such that most observers can identify how pro-environmental

individuals are commonly portrayed; the extent to which any given observer personally endorses and applies that content, however, varies (Devine, 1989; Hamilton & Trolie, 1986). Indeed, established stereotype-content measures deliberately ask respondents how a group is seen by society rather than for their private opinion, treating individual reports as access points to a shared representation (Cuddy et al., 2008). Our measure follows this logic: it captures the degree to which each observer endorses the socially shared competence stereotype of pro-environmental individuals. Therefore, this individual-level variation is what may allow competence stereotypes to carry different emotional and behavioral consequences across observers while remaining anchored in a shared cultural representation (Li et al., 2023).

These social evaluations may be particularly relevant in the context of climate change because PEBs are socially visible and symbolically meaningful behaviors often associated with identity, morality, social status, and group values (Bashir et al., 2013; Griskevicius et al., 2010; Li et al., 2023). In the present study, we focus specifically on competence-related evaluations of pro-environmental individuals, that is, whether people perceive them as highly competent—competent, capable, effective, and intelligent—or as low in competence—ineffective, naïve, or unrealistic (Cuddy et al., 2008; Fiske et al., 2002; Li et al., 2023). Because sustainable behaviors can function as social signals, these competence-related perceptions may shape whether people interpret PEBs as credible, achievable, and worthy of imitation (De Nardo et al., 2017; Griskevicius et al., 2010; Li et al., 2023).

To illustrate this distinction, consider two observers reacting to the same person who cycles to work and buys local produce. An observer who perceives this person as competent—practical, effective, and knowledgeable about what genuinely reduces environmental impact—may anticipate that similar actions are feasible and worthwhile (Cuddy et al., 2008; Li et al., 2023). By contrast, an observer who perceives the same person primarily through a warmth lens—well-meaning and likeable, yet not necessarily effective—may admire them while doubting that such actions make a real difference, a perception that prior work links to reduced adoption of sustainable options (Antonetti & Maklan, 2016). The present study focuses on the competence-based pathway.

Accordingly, perceiving pro-environmental individuals as competent and capable may reinforce perceptions that climate action is legitimate, feasible, and socially valued. Because individuals partially anticipate the emotional consequences of engaging in PEBs through the social meanings associated with those behaviors, competence stereotypes may shape emotional responses toward sustainable action. Prior research suggests that perceptions of competence are associated with greater trust in successful outcomes, confidence in collective efforts, and more favorable evaluations of action-oriented behaviors (Cuddy et al., 2008; Fiske et al., 2007). In climate-related contexts, perceiving pro-environmental individuals as competent may therefore increase positive emotions—such as optimism, confidence, or satisfaction—associated with contemplating engagement in PEBs. Conversely, when pro-environmental individuals are perceived as

ineffective, unrealistic, or naïve, engaging in PEBs may evoke feelings of anticipated ineffectiveness, emotional discomfort, or disengagement, thereby increasing negative emotions such as worry, anxiety, or disappointment.

Accordingly, we propose the following hypotheses regarding the social antecedents:

H1: (Antecedent): Competence stereotypes of pro-environmental individuals negatively influence negative emotions associated with contemplating engagement in PEBs.

H2: (Antecedent): Competence stereotypes of pro-environmental individuals positively influence positive emotions associated with contemplating engagement in PEBs.

2.2 Emotions as the Mediating Mechanism.

To capture the psychological drivers of PEB, it is necessary to specify the nature and object of the emotions examined. Prior research has reported mixed findings regarding whether positive and negative emotions promote or inhibit climate-related action, and these inconsistencies may partly reflect differences in how emotions have been conceptualized and measured (Brosch, 2021; Chapman et al., 2017; Odou & Schill, 2020). Rather than focusing on abstract, generalized affective reactions to the climate crisis, this study focuses on emotions associated with contemplating engagement in specific PEBs (Geiger et al., 2021b). This distinction is important because emotional responses to climate change do not uniformly promote or inhibit action; their behavioral implications depend on whether individuals experience these emotions as a broad societal threat or as concrete, self-relevant actions. (Chapman et al., 2017; Geiger et al., 2021b; Lagomarsino & Lemarié, 2024; Schneider et al., 2017). Emotions tied to appraisals about the feasibility of future outcomes are especially relevant, including optimism, confidence, satisfaction, worry, disappointment and anxiety (Baumgartner et al., 2008; Roseman, 1996). Unlike emotions tied to self-responsibility, such as guilt, or to attributions of blame, such as anger, these emotions tied to appraisals about the feasibility of future outcomes are particularly sensitive to whether desired outcomes are perceived as possible, achievable, or uncertain (Baumgartner et al., 2008; Roseman, 1996).

In this study, we distinguish between specific positive emotions, namely optimism, confidence, and satisfaction, and specific negative emotions, namely worry, anxiety, and disappointment. Positive emotions associated with contemplating PEBs may facilitate behavioral engagement by reinforcing perceptions that sustainable actions are meaningful, achievable, and personally worthwhile. Prior research suggests that hope, optimism, and related positive emotions can foster agency, goal commitment, and sustained involvement in climate action (Bury et al., 2020; Feldman & Hart, 2018; Ojala, 2012, 2023; Smith & Leiserowitz, 2014). In the context of everyday PEBs, feeling optimistic, confident, or satisfied about engaging in sustainable action may therefore increase individuals' willingness to adopt and maintain such behaviors (Odou & Schill, 2020).

Negative emotions associated with contemplating PEBs may have a different behavioral role. Although worry, anxiety, fear, or guilt can sometimes increase awareness of environmental threats and motivate action (Bouman et al., 2020; Ogunbode et al., 2022), negative emotions may also discourage engagement when individuals perceive their actions as ineffective, emotionally burdensome, or unlikely to generate meaningful outcomes. In such cases, negative emotional responses may foster helplessness, avoidance, or disengagement (Bloodhart et al., 2019; Caraway et al., 2003; O'Neill & Nicholson-Cole, 2009). In the present study, we therefore expect worry, anxiety, and disappointment associated with contemplating PEBs to reduce behavioral engagement (Boluda-Verdú et al., 2022; Innocenti et al., 2023).

Importantly, we do not assume that these emotional responses arise solely from internal individual processes. Building on the argument we developed above, we propose that socially shared competence stereotypes may shape how individuals emotionally evaluate the prospect of engaging in PEBs. When people perceive pro-environmental individuals as competent and capable, sustainable action may appear more legitimate, feasible, and socially valued, because competence conveys capability, effectiveness, and goal achievability (Cuddy et al., 2008; Fiske et al., 2007; Li et al., 2023). Such appraisals are relevant for fostering emotions such as optimism, confidence, and satisfaction, which are sensitive to perceived control, outcome expectancy, and the perceived possibility of successful action (Baumgartner et al., 2008; Cohen-Chen & Van Zomeren, 2018; Pekrun, 2006). Conversely, when pro-environmental individuals are perceived as ineffective, unrealistic, or naïve, contemplating engagement in PEBs may evoke worry, anxiety, or disappointment by making sustainable action appear less effective, less socially rewarded, or more emotionally burdensome since those emotions are sensitive to appraisals of uncertainty, low control, and limited outcome achievability (Baumgartner et al., 2008; Pekrun, 2006; Roseman, 1996).

Accordingly, emotions may constitute a psychological mechanism linking competence stereotypes to behavioral engagement. By translating socially shared evaluations of pro-environmental individuals into action-related emotional responses, positive and negative emotions may help explain why competence stereotypes are associated with greater or lower engagement in PEBs (Geiger et al., 2021b; Odou & Schill, 2020; Schneider et al., 2017).

Thus, we formulate the following hypotheses:

H3: Negative emotions associated with contemplating engagement in PEBs negatively influence behavioral engagement.

H4: Positive emotions associated with contemplating engagement in PEBs positively influence behavioral engagement.

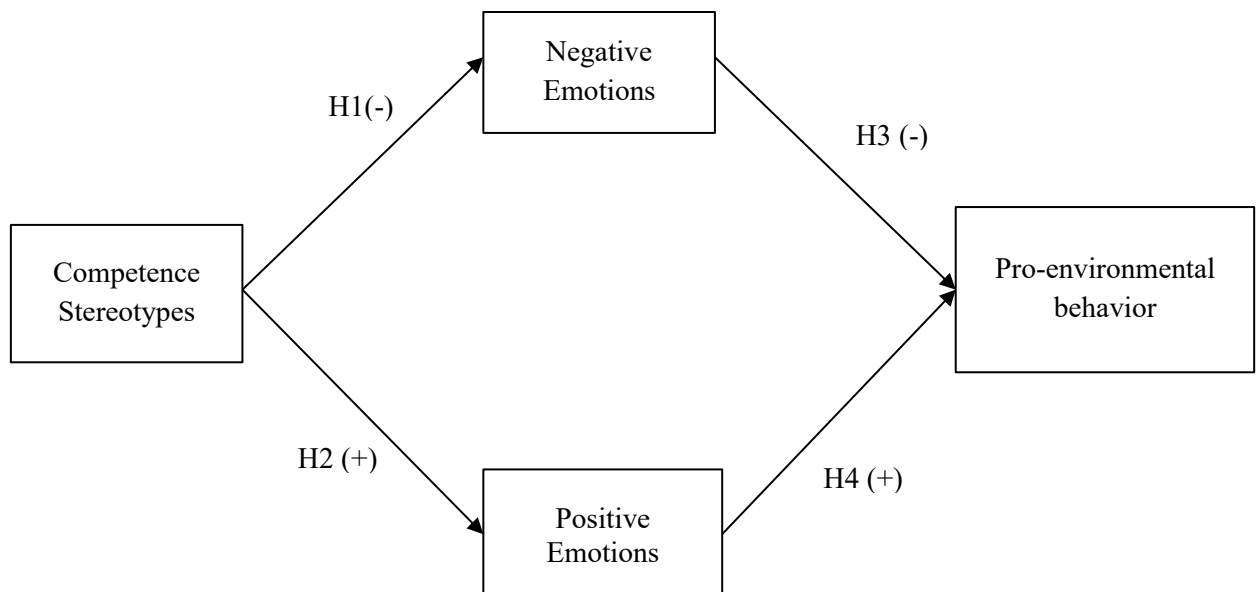
H5a: Positive emotions mediate the effect of competence stereotypes of pro-environmental individuals on contemplating engagement in PEBs.

H5b: Negative emotions mediate the effect of competence stereotypes of pro-environmental individuals on contemplating engagement in PEBs.

2.3 The present study

We examined the extent to which the competence stereotype dimension of pro-environmental individuals is associated with positive and negative emotions, and how these emotions are associated with PEBs (see Figure 6) among a broad sample of individuals. This focus on the relationship between competence stereotypes of pro-environmental individuals as an antecedent of emotions that individuals feel when contemplating PEBs and, therefore, influence PEBs is central to our research, as the literature suggests that perceptions of other capabilities may directly influence emotions and the subsequent behavior (Cuddy et al., 2008; Fiske et al., 2007; Kronberger & Horwath, 2013; Magaletta & Oliver, 1999; Pekrun et al., 2002; Pekrun, 2024).

Figure 6: Model under investigation.



3. Method

3.1 Participants

We collected 2,720 responses³, of which 1,323 were incomplete, leaving 1,397 valid cases for analysis. The final sample comprised 763 women (54.6%) and 634 men (45.4%). The mean age was 47.38 years (SD = 12.46; range 20–86 years). We measured gender as a binary variable (male/female); we did not offer a non-binary response option, which we acknowledged as a limitation of the study design. A total of 61.8% of participants held a university degree, compared with 41% of the national population (INE, 2024).

3.2 Measures

The participants responded to items regarding stereotypes about pro-environmental individuals; emotions they experienced when performing PEBs; and individual, private, and daily PEBs (See Table 6). We collected the data as part of a more extensive survey.

Table 6: Measures, Survey Items

Construct	Label	Survey item (translated)	Scale
Competence stereotypes ($\alpha = .79$)		<i>When you think of a sustainable consumer, how do you imagine him/her? Mark what best reflects your perception.</i>	(1) I strongly disagree – (2) I disagree – (3) Neither agree nor disagree – (4) I agree – (5) I strongly agree
	Competent	Is competent [sustainable consumer]	1–5
	Industrious	Is Industrious [sustainable consumer]	1–5
Negative emotions - composite		<i>When you think about your actions toward sustainability, how do you feel? Please respond by indicating the emotions you feel and those you do not.</i>	
	Disappointment	Disappointment	0/1
	Worry	Worry	0/1
	Anxiety	Anxiety	0/1
Positive emotions - composite		<i>When you think about your actions toward sustainability, how do you feel? Please respond by indicating the emotions you feel and those you do not.</i>	
	Optimism	Optimism	0/1
	Confidence	Confidence	0/1
	Satisfaction	Satisfaction	0/1

³ The data used in chapter 2 is associated with a research project in multinational company in the FMCG sector.

PEB ($\alpha = .78$)		<i>From 1 (never) to 5 (every day). What actions do you take in your daily life to save the planet?</i>	(1) Never (2) Rarely (3) Occasionally (4) Very often (5) Every day
	Energy saving 1	I save energy by reducing washing machine/dishwasher use	1–5
	Energy saving 2	I save energy using short/cold cycles in the washer/dishwasher	1–5
	Waste reduction	I use products that generate no waste or have no packaging	1–5
	Homemade products	I use homemade cleaners or soaps	1–5
	Sustainable labels	I use products with sustainable benefits on the label	1–5

Note. Emotion composites are arithmetic row sums of binary items (0–3).

We measured the *Competence stereotype dimension of pro-environmental individuals* based on previous studies on stereotype dimensions (Cuddy et al., 2008; Fiske et al., 2002; Rosenberg et al., 1968). We measured the extent to which participants labelled pro-environmental individuals as competent and industrious ($\alpha = 0.79$) using a 5-point scale (1 = strongly disagree; 5 = strongly agree).

We measured *Emotions* as observed composite scores based on participants' self-reported emotional reactions when reflecting on their sustainability-related actions (Geiger et al., 2021b). Although the emotion prompt referred broadly to “your actions toward sustainability,” we asked the questions after introducing the specific behaviors (see pro-environmental behaviors below) to ensure that we primed specific PEBs and that most participants considered similar behaviors when responding to these items. To select emotions, we selected emotions from the inventory of positive and negative emotions developed by Baumgartner et al. (2008) that significantly impact PEB (Odou & Schill, 2020; Ramadan et al., 2023). We employed a binary scale (yes = 1, no = 0) to simplify emotional reporting and enhance data accuracy by minimizing complexity and misinterpretation (Bellman, 2007; Fowler, 2009; Reis & Judd, 2014). This approach effectively captures emotional presence without overwhelming respondents with unnecessary gradations (Tourangeau et al., 2000). Therefore, we measured the number of self-reported positive and negative emotions that participants experienced when performing PEBs, ranging from 0–3, using the following prompt: ‘When you think about your actions toward sustainability, how do you feel? Please respond by indicating the emotions you feel and those you do not’ and calculate the sum of the following items: negative emotions (1) worry ($M = 0.67$; $SD = 0.47$), (2) disappointment ($M = 0.35$; $SD = 0.48$), and (3) anxiety ($M = 0.25$; $SD = 0.43$); composite: $M = 0.84$, $SD = 1.04$, range 0–3. Positive emotions include (1) optimism ($M = 0.69$; $SD = 0.46$); (2) confidence ($M = 0.76$; $SD = 0.43$); and (3) satisfaction ($M = 0.66$; $SD = 0.47$); composite: $M = 2.11$, $SD = 1.04$, range 0–3.

We measured *Pro-environmental behaviors* via five items through a list of private and individual everyday PEBs. By focusing on routine and easily accessible PEBs, this study aims to capture behaviors that are less influenced by external barriers such as cost or time, allowing for a more accurate assessment of psychological drivers since external situational barriers less influence low-effort and high-frequency PEBs and are more dependent on intrinsic motivations (Bamberg & Möser, 2007; Kormos & Gifford, 2014; Steg & Vlek, 2009). Moreover, the selected behaviors reflect actionable steps that individuals can readily incorporate into their daily lives, making them relevant for interventions to foster sustainable habits ($\alpha = 0.79$). We obtained responses to these items via a five-point Likert scale ranging from 1 = never to 5 = every day (See table 1).

Control variables: Based on previous studies on the variables that affect PEB, we included gender (Xiao & McCright, 2015) and education level (Meyer, 2015; Semenza et al., 2008) as control variables.

3.3 Analysis

We employed structural equation modelling (SEM) to comprehensively explore these relationships, as it allows us to assess competence's direct and indirect effects on emotions and PEB simultaneously. We built this methodology based on previous research on stereotypes and PEB (Antonetti & Maklan, 2016; Cuddy et al., 2008; Fiske et al., 2002; Geiger et al., 2021b). We used IBM SPSS AMOS 28.0 Graphics to conduct SEM analysis and test the model (see Figure 6). Following the two-step approach (Anderson & Gerbing, 1988), we first evaluated the measurement model and the structural model. We performed bootstrapping with 10,000 resamples to assess the indirect effects and calculated 95% confidence intervals using the bias-corrected percentile method. Prior to structural analyses, we assessed common method variance (CMV) using two complementary approaches: Harman's single-factor test and a single-factor confirmatory factor analysis, following recommendations by Podsakoff et al. (2003).

We employed a reflective measurement model for the two latent constructs — competence stereotypes and PEBs. We operationalized emotions as observed composite scores, consistent with the binary measurement approach we outlined above (Jarvis et al., 2003). This approach is particularly suitable for constructs such as stereotypes and self-reported behavioral frequency, as their assessment relies on observed indicators.

4. Results

4.1 Common Method Variance

Prior to the main analyses, we assessed common method bias. Harman's single-factor test applied to all 13 observed variables yielded a first factor accounting for 24.48% of total variance (below the 50% threshold; Podsakoff et al., 2003). A single-factor CFA

forcing all 13 indicators onto one latent construct yielded poor fit (χ^2 [65] = 2,219.49; CFI = 0.491; TLI = 0.389; RMSEA = 0.154; SRMR = 0.121), confirming distinct constructs.

4.2 Measurement Model

Confirmatory factor analysis (CFA; ML with FIML) yielded good fit (χ^2 [12] = 45.502, $p < .001$; CFI = 0.987; TLI = 0.978; RMSEA = 0.045 [90% CI: 0.031, 0.059]; SRMR = 0.021) (Byrne, 2013; Hair et al., 2021). All standardized factor loadings were significant ($p < .001$) and ranged from 0.50 to 0.83 (see Table 8). Cronbach's alpha was 0.79 for competence stereotypes and 0.78 for PEB. Composite reliability (CR) was 0.79 and 0.82, respectively, both exceeding the 0.70 criterion (Pituch & Stevens, 2016). Average variance extracted (AVE) was 0.65 for competence stereotypes and 0.50 for PEBs, satisfying the .50 threshold and confirming the convergent validity of the scales (Pituch & Stevens, 2016).

4.4 Structural Model

The structural model yielded acceptable fit (χ^2 [41] = 155.486, $p < .001$; GFI = 0.980; IFI = 0.961; TLI = 0.948; CFI = 0.961; RMSEA = 0.045). Table 7 presents the descriptive statistics and correlations. See Table 9 for all path estimates.

Table 7: Descriptive statistics.

	Competence stereotype	Positive emotions	Negative emotions	PEB	Gender	Education level
Competence stereotype						
Positive emotions	.054*					
Negative emotions	-.343**	-.039				
PEB	.199**	.215**	-.119**			
Gender	.015	-.025	.028	.066*		
Education level	.063*	-.073**	-.039	.008	-.005	
Mean	3.70	2.1	0.84	4.16	0.54	6.38
Std. DEV	1.18	1.04	1.04	0.69	0.49	2.27

*, ** Statistics are significant at the 5% and 1% levels, respectively.

Table 8: CFA Measurement Model: Factor Loadings, Reliability, and Validity

Construct / Indicator	Survey label	Std.	α	CR	AVE
Competence stereotypes			.79	.79	.65
	Competent	.83**			
	Industrious	.78**			
PEB			.78	.82	.50
	Energy saving 1	.65**			
	Energy saving 2	.60**			
	Waste reduction	.74**			
	Homemade products	.70**			
	Sustainable labels	.50**			

*, ** Statistics are significant at the 5% and 1% levels, respectively.

The results of the model (see Table 9 and Figure 7) indicate that negative emotion composite scores were significantly and negatively associated with PEBs ($b = -0.094$, $SE = 0.018$, $t = -5.122$, $p < .001$, $\beta = -.153$), supporting Hypothesis 3. These findings indicate that a decrease (increase) in negative emotions corresponds to increased (decreased) engagement in PEBs. In contrast, positive emotion composite scores were significantly and positively associated with PEBs ($b = 0.148$, $SE = 0.019$, $t = 7.862$, $p < .001$, $\beta = .240$), supporting Hypothesis 4. Therefore, an increase (decrease) in positive emotions correlates with increased (decreased) engagement in PEBs.

Competence stereotypes emerged as a significant antecedent to both emotional dimensions. Specifically, competence stereotypes were significantly and negatively associated with negative emotions ($b = -0.371$, $SE = 0.032$, $t = -11.506$, $p < .001$, $\beta = -.387$), supporting Hypothesis 1, and positively associated with positive emotions ($b = 0.064$, $SE = 0.029$, $t = 2.231$, $p = 0.026$, $\beta = .067$), supporting Hypothesis 2. The findings highlight a stronger association between competence stereotypes and negative emotions, suggesting that they were more strongly associated with reductions in negative emotions than with increases in positive emotions.

Table 9: Structural Model Path Estimates

Path	b	SE	t / z	β
Competence $\rightarrow$ Negative emotion (H1)	-0.371	.032	-11.506	-.387**
Competence $\rightarrow$ Positive emotion (H2)	.064	.029	2.231	.067*
Negative emotion $\rightarrow$ PEB (H3)	-0.094	.018	-5.122	-.153**
Positive emotion $\rightarrow$ PEB (H4)	.148	.019	7.862	.240**
Gender (female) $\rightarrow$ PEB	.100	.038	2.629	.077*
Education $\rightarrow$ PEB	.004	.008	0.536	.016

*, ** Statistics are significant at the 5% and 1% levels, respectively.

Finally, we examined the control variables. We observed gender differences, with women reporting significantly higher levels of PEBs than men did ($b = 0.100$, $SE = 0.038$, $t = 2.629$, $p = .009$, $\beta = .077$). However, education did not exhibit a significant relationship with PEBs ($p > 0.05$).

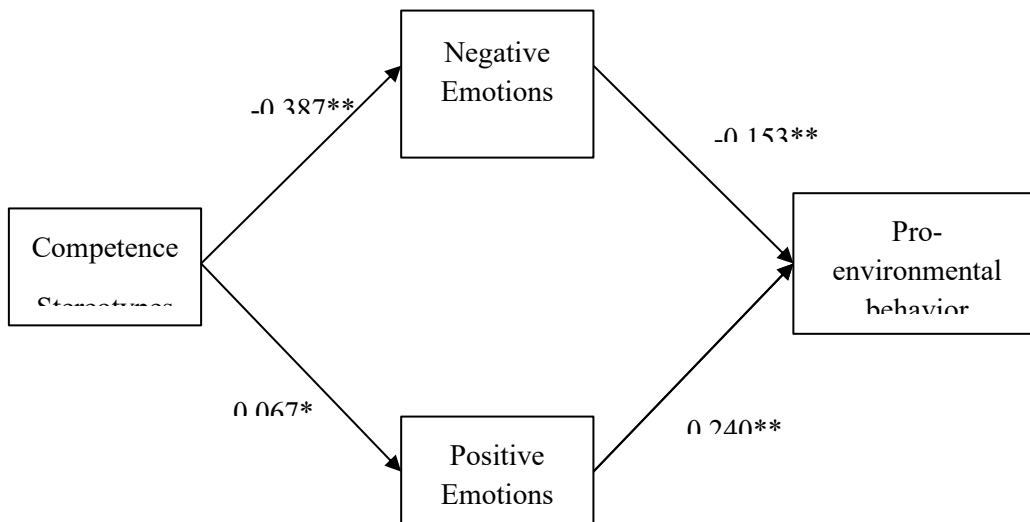
4.5 Indirect Effects.

To assess the mediating role of emotions, we estimated bootstrapped indirect effects using 10,000 resamples with 95% bias-corrected confidence intervals. Both indirect pathways were statistically significant, as evidenced by confidence intervals that excluded zero (Table 10), supporting H5a and H5b. The indirect effect through negative emotions was $b = 0.035$ ($SE = 0.008$, $z = 4.240$, $p < .001$, 95% CI [.020, .053], $\beta = .059$). The indirect effect through positive emotions was $b = 0.009$ ($SE = 0.004$, $z = 2.132$, $p = .033$, 95% CI [.003, .016], $\beta = .016$). The total indirect effect was $b = 0.044$ ($SE = 0.009$, $z = 4.789$, $p < .001$, 95% CI [.027, .064], $\beta = .075$). These findings support H5a and H5b and are consistent with both mediating emotional pathways, with the negative emotion pathway being notably stronger. However, because the study used a cross-sectional design, we cannot infer causality.

Table 10: Bootstrapped Indirect Effects via Emotions

Indirect pathway	b	SE	z	p	95% BC CI	β
Competence $\rightarrow$ Negative emotion $\rightarrow$ PEB (H5b)	.035	.008	4.240	< .001	[.020, .053]	.059
Competence $\rightarrow$ Positive emotion $\rightarrow$ PEB (H5a)	.009	.004	2.132	.033	[.003, .016]	.016
Total indirect effect	.044	.009	4.789	< .001	 [.027, .064]	.075

Figure 7: Results with the standardized regression weight estimates



Note: * Indicates $p < .05$. ** indicates $p < .01$.

5. Discussion

This study aimed to examine whether competence stereotypes of pro-environmental individuals are associated with PEB through positive and negative emotional pathways. Our findings show that when the competence stereotype was higher, there was a reduction in negative emotions and an increase in positive emotions. These emotions, in turn, were associated with PEB, with negative emotions acting as barriers and positive emotions fostering engagement in PEBs. The significant indirect effects further support the proposed mediating role of both positive and negative emotions in the relationship between competence stereotypes and PEB.

Prior research has identified multiple antecedents of emotions, such as psychological distance (Chu & Yang, 2019), perceptions of efficacy (Cohen-Chen & Van Zomeren, 2018; Weber & Constantino, 2023), political trust (Weber & Constantino, 2023), and affective framing (O'Neill & Nicholson-Cole, 2009). However, these studies focused primarily on individual cognitive appraisals and contextual factors, overlooking broader social influences. Our findings extend this literature by suggesting that the competence stereotypes of pro-environmental individuals may function as a distinct social-level antecedent of emotions, associated with both negative and positive emotions regarding PEBs.

This contribution is important because competence stereotypes operate beyond individual or group efficacy perceptions (Bandura, 1997; Cohen-Chen & Van Zomeren, 2018; Cuddy et al., 2008), reflecting broader social appraisals of individuals' ability to contribute to climate action. Unlike self-efficacy, shaped by personal experience, or collective efficacy, which operates within smaller groups with shared goals (Bandura, 2000; Magaletta & Oliver, 1999), competence stereotypes function as external social signals of capability, influencing how individuals emotionally engage with climate change actions. This distinction is important for addressing global challenges such as climate change, which require coordinated efforts across diverse communities. Moreover, evidence suggests that collective-level attributions may be even more influential than individual efficacy in motivating PEBs (Obradovich & Guenther, 2016). Emphasizing the competence stereotype dimension of pro-environmental individuals may foster a sense of collective potential and capability, reducing negative emotions by leading appraisals of environmental challenges to be manageable rather than overwhelming (Brosch, 2021; Lazarus, 1991). From this perspective, competence stereotypes may function as social signals of efficacy, reinforcing the perception that climate change challenges are manageable when addressed by skilled and capable individuals.

Additionally, this study shifts the focus from stereotypes and intergroup emotions (e.g., admiration or pity), which have been widely studied in stereotype research (Antonetti & Maklan, 2016; Cuddy et al., 2008), to stereotypes and emotions. Past research often frames the stereotypes of pro-environmental individuals as barriers to PEBs (e.g., Bashir et al., 2013; Bolderdijk & Cornelissen, 2022; Brough et al., 2016;

White & Dahl, 2006), with a focus on the warmth dimension and its role in perpetuating the ‘green-feminine stereotype’ (Antonetti & Maklan, 2016; Brough et al., 2016). Our findings extend this literature, suggesting that the competence stereotype was associated with lower emotional barriers and higher emotional motivators and, in turn, with higher PEBs.

Moreover, our results show that competence stereotypes were more strongly associated with lower negative emotions than with higher positive emotions. Specifically, individuals who perceive pro-environmental individuals as competent report lower levels of worry, disappointment, and anxiety, which are known to create psychological barriers to action by fostering powerlessness and disengagement (Ogunbode et al., 2022; O’Neill & Nicholson-Cole, 2009). Given that some research has shown that negative emotions exert a stronger deterrent effect on PEBs than positive emotions do in motivating action (Caraway et al., 2003; Geiger & Swim, 2016; Tannenbaum et al., 2015), this finding highlights a pathway through which social perceptions help alleviate emotional resistance to climate change action.

Finally, our findings contribute to ongoing debates regarding the impact of positive and negative emotions on PEBs, highlighting the value of examining emotions directly related to specific PEBs rather than abstract environmental concerns. Prior research shows that the framing of emotions, whether related to climate change broadly or to one’s PEBs, modulates their effect on behavior (Geiger et al., 2021a; Ojala, 2023). Specifically, negative emotions tend to increase PEB engagement when assessed in the context of climate change in general (Bamberg et al., 2018; Bouman et al., 2020; Ogunbode et al., 2022), whereas positive emotions may reduce motivation in that framing (Hornsey & Fielding, 2016; Ojala, 2023). However, studies that examine emotions in relation to individuals’ PEB intentions find the opposite pattern: positive emotions enhance intentions to engage in PEBs (Bury et al., 2020; Geiger et al., 2021b), while negative emotions diminish them (Bloodhart et al., 2019; Caraway et al., 2003; O’Neill & Nicholson-Cole, 2009). Our study aligns with this latter perspective, as we assessed emotions about participants’ self-reported PEBs. Our results confirm that positive emotions promote PEBs, whereas negative emotions act as barriers, reinforcing the importance of measuring emotions within a behavior-specific context. Furthermore, we extend prior work by identifying competence stereotypes as a previously unexamined antecedent of these emotions, suggesting that social perceptions shape the emotional mechanisms that drive sustainability engagement.

5.1 Applications

The results of this study provide several actionable insights for campaign designers, media practitioners, and policymakers aiming to promote individual PEBs by emphasizing competence stereotypes in communication strategies (Li et al., 2023). The media often portray environmentalists through reductive stereotypes, such as ‘tree huggers’ (Bashir et al., 2013), stupid (Ratliff et al., 2017), hypocritical (Minson & Monin, 2012), or even unrealistic (Barnhart & Mish, 2017; Bashir et al., 2013), which may

contribute to barriers that deter engagement in PEBs. Environmental sustainability campaigns and media representations should emphasize pro-environmental individuals as informed, skillful, competent agents with clear environmental motives to stress the competence stereotype dimension in pro-environmental individuals (De Nardo et al., 2017; DiDonato & Jakubiak, 2016; Li et al., 2023), thus potentially reducing negative emotions while increasing positive emotions and supporting higher PEB engagement.

In line with these results, we propose that creating a relatable, competence-oriented character in popular media, free of bias compared with that of ordinary celebrities, could be effective (Quesada Baena et al., 2024; Wright & Nyberg, 2022). A substantial portion of the population regularly consumes television series. For example, Netflix had approximately 300 million subscribers worldwide in 2024 (Statista, 2024). Importantly, these platforms have the power to shape and stress stereotypes and social representations, as the repeated portrayal of a character can establish and solidify stereotypes (Napoli & Ouschan, 2020; Stern et al., 2007; Zanette et al., 2023), including stereotypes about pro-environmental individuals (Raynaud et al., 2024). Moreover, social marketing tools, such as digital media figures, have been shown to influence how audiences engage with prosocial and environmental messages (Chen et al., 2025). Therefore, the repeated portrayal of a pro-environmental character with features of the competence stereotype dimension can reinforce these traits in viewers' minds and help establish positive, socially desirable stereotypes. By presenting pro-environmental individuals through narratives of the competence stereotype dimension, media can reshape stereotypes of pro-environmental individuals as capable, effective agents rather than naïve or ineffective (Atanasova, 2019) and reduce emotional barriers to climate change action.

Second, climate policymakers can leverage the findings to counter these misconceptions by emphasizing competence stereotypes. Research suggests that fostering perceptions of personal and collective efficacy alongside climate threat communication is important for encouraging mitigation and adaptation responses (McLoughlin, 2021). Therefore, competence stereotypes may function similarly. Framing policies that emphasize the competence of pro-environmental individuals and portraying them as informed, skillful, and capable may help reshape public perceptions, reinforcing the idea that climate change actions are effective and achievable. For example, messages could highlight measurable outcomes achieved by pro-environmental individuals, such as successful energy conservation or waste reduction efforts, which align with the competence stereotype dimension (De Nardo et al., 2017; Li et al., 2023).

Finally, prior research has debated whether messages should emphasize the urgency of climate threats or the feasibility of solutions to effectively encourage PEBs (Bouman et al., 2020; Ogunbode et al., 2022; O'Neill & Nicholson-Cole, 2009). Our results contribute to this discussion by demonstrating that when individuals reflect on their PEBs, positive emotions facilitate those behaviors. In contrast, negative emotions act as barriers, suggesting that when addressing emotions tied to PEBs, it is important to

generate positive emotions and neutralize negative emotions, as this leads to action. Thus, competence framing should be considered not only as a perceptual shift but as a potential emotion-regulating tool for use in communication strategies and campaign design. Moreover, emphasizing competence in pro-environmental portrayals may help reduce emotional barriers and enhance the emotional conditions associated with increased engagement in PEBs. While we cannot draw causal conclusions, the observed relationships highlight the potential role of competence framing in emotion-focused message strategies.

5.2 Limitations and future directions

Our study has five main limitations. First, owing to the cross-sectional design, we cannot make causal inferences about the effect of competence stereotypes on emotions and PEBs. While SEM provides a statistically robust model, longitudinal research is necessary to verify whether competence stereotypes are an antecedent of emotions and influence behavior over time. Future experimental designs using controlled priming techniques could test whether enhancing perceptions of competence in pro-environmental individuals leads to measurable reductions in negative emotions and increases in positive emotions, ultimately influencing PEBs. Future research should also examine potential cross-over or unintended emotional effects. Although we theorized competence stereotypes as reducing negative emotions and increasing positive emotions, positive social signals may under certain conditions evoke negative responses such as pressure, skepticism, or discomfort (Acuti et al., 2022; Minson & Monin, 2012; Monin et al., 2008), whereas negative social perceptions may sometimes generate compensatory or reactance-driven motivational responses (Brouwer et al., 2022; Shapiro & Neuberg, 2007). These conditional pathways fall outside the scope of the present cross-sectional study but represent an important direction for future experimental or longitudinal research.

Second, we relied on self-reported measures to assess the competence stereotype dimension, emotions, and PEBs, which may introduce social desirability bias. Participants might have overreported their engagement in PEBs or underreported negative emotions in alignment with perceived social norms (Caputo, 2017; Vesely & Klöckner, 2020). Third, our sample was not educationally representative, although education was not a significant variable in the model. Fourth, we measured gender as a binary variable (male/female), with no non-binary option. This binary measure of gender limits the generalizability of gender-related findings, and future research should adopt more inclusive measurement designs. Future studies with diverse educational backgrounds could help validate these findings across a broader population. Finally, the study measured only a restricted set of PEBs; future studies should encompass a broader range of behaviors, including mobility, food consumption, and building-related practices.

A further consideration concerns the role of the observer. Because competence stereotypes are endorsed to varying degrees across individuals, the emotional and behavioral consequences identified here may depend on who is the observer, for instance, on whether observers identify with or distance themselves from the pro-environmental

group (Fielding & Hornsey, 2016). Examining how observer characteristics shape the attribution of competence stereotypes therefore represents a valuable direction for future research.

In addition to addressing these limitations, future research can examine the role of media and communication in shaping competence stereotypes. While our study did not directly analyze media use, future research could explore how various forms of media, such as social media campaigns, advertisements, or fictional narratives, influence the perceptions of pro-environmental individuals as competent and their subsequent impact on emotions and behaviors. Such studies could provide actionable insights for designing effective sustainability messaging strategies. Second, future research could investigate the interplay between competence stereotypes and other psychological constructs, such as self-efficacy, collective efficacy, or identity. For example, examining how competence stereotypes interact with individuals' self-efficacy or group dynamics could offer a more comprehensive understanding of the mechanisms driving PEB. Finally, exploring cross-cultural differences, including how cultural norms and values shape stereotypes of pro-environmental individuals in different contexts, may provide insights into the variability of competence stereotypes, their emotional impacts, and the effectiveness of targeted interventions for promoting PEBs across diverse populations

References for Chapter 2

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Chapter 3

Conditioned stereotypes and social sanctioning: A neural network analysis of environmental behavior in Spain⁴

Abstract

Although environmental sustainability is widely endorsed as a social norm, engaging in everyday environmental behaviors can still entail social costs. Previous research has mainly examined the stigmatization of radical environmental activists, paying limited attention to whether similar social penalties affect mainstream individuals who adopt routine environmental practices. Addressing this gap, we shift the analytical focus from the environmental actor to the observer, examining how sociodemographic identity traits and informational environments shape the social evaluation of individuals performing everyday environmental behavior in Spain. Methodologically, the study draws on survey data from 1,864 respondents and combines regression analyses with interpretable neural networks. The results show that mainstream green individuals are, on average, socially evaluated positively; however, social validation is conditional and unevenly distributed. Negative stereotype attribution varies across observer profiles defined by gender, age, and social class. The social normalization of sustainability is strongest among middle-income and older observers, although exposure to digital information environments is associated with smaller generational differences in stereotype attribution. Overall, the findings indicate that the social acceptance of everyday sustainability varies according to the observer's identity and informational context, highlighting how social evaluation processes contribute to the uneven normalization of sustainable lifestyles

Keywords: Stereotypes, Environmental Behavior, Observer Identity, Social Evaluation, Neural Networks

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1. Introduction

Environmental sustainability has been established as a normative imperative, driving a global push towards the normalization of pro-environmental behaviors (PEBs) (Zíka et al., 2025). However, despite widespread aspirations to address climate change and the increasing visibility of the green discourse, a persistent dissonance, known in the literature as the green gap, remains between declared positive attitudes and actual behavior (Wittenberg, 2023; Zíka et al., 2025). This failure to translate intention into action extends beyond structural barriers such as affordability or information deficits since those factors cannot explain why individuals reject sustainability even when it is functionally accessible (de Matos et al., 2025; Gifford, 2011; Kollmuss & Agyeman, 2002). This pattern suggests that psychological barriers, including the social dimension of performing PEBs, also influence sustainability-related decisions (Acuti et al., 2022; Besalú et al., 2025). PEBs often function as public signals subject to scrutiny, and individuals frequently avoid them to avert social stigma or protect their group identity (Howard, 2023; Seyfi et al. 2025). Consequently, the anticipation of social judgment acts as a deterrent, inhibiting the widespread adoption of sustainable actions (Miller et al., 2025; Minson & Monin, 2012).

In Spain, environmental awareness has become a standard, with nearly 70% of citizens prioritizing climate action and aspiring to an eco-friendly lifestyle (PwC & Uncommon, 2022). However, the previously mentioned gap remains. For example, recent data shows that 95% of young Spaniards still struggle to translate their concerns into a sustainable lifestyle (Fad Juventud, 2024), and the nation's circularity rate remains at 8.5%, lagging behind the EU average (European Union, 2025). This disconnect is influenced by social signaling, as people often frame practices such as organic consumption as elite, and approximately 13% of the Spanish population adopts PEBs for status recognition (PwC & Uncommon, 2022). Furthermore, the increase in ideological polarization has divided perceptions of ecological measures. Some view them as necessary, others reject them as undesirable threats to current lifestyles, perceiving environmental regulations as barriers to personal freedom and traditional habits (Catena-Fernández & Fernández, 2025; Besalú et al., 2025). When people perceive PEBs as markers of a specific group identity, whether elite or ideological, individuals may reject them to avoid social friction and protect their own social identity (Geiger et al., 2020). Negative stereotyping of environmentally engaged individuals has been consistently documented (Bashir et al., 2013; Brough et al., 2016), with recent evidence showing that these perceptions persist (Kibele et al., 2023; Köhler et al., 2025). Consequently, the Spanish citizen adopting sustainable habits risks associations with negative stereotypes that can trigger active social penalization and inhibit widespread adoption.

While the fear of social stigmatization of performing PEBs is a barrier for the general population, academic literature has disproportionately focused on the figure of the environmental activist, a profile often laden with negative connotations of militancy or eccentricity (Bashir et al., 2013; Köhler et al., 2025; Raynaud et al., 2024). This

emphasis on radical environmental profiles has partially overshadowed the profile of the mainstream green individual, whom we refer to in this study as an ordinary citizen who engages in PEBs such as recycling, water conservation, or green purchasing and who integrates these practices into a conventional lifestyle rather than a political identity (Nascimento & Loureiro, 2024; Stern, 2000). Although these everyday PEBs are distinct from activism, negative evaluations associated with radical environmental actors may nonetheless extend to mainstream citizens who adopt similar practices, exposing them to social sanctions (Acuti et al., 2022; Bolderdijk & Cornelissen, 2022; Pryor et al., 2012).

Moreover, although prior research has extensively analyzed the content of these stereotypes and their consequences for green individuals, it has largely neglected the source of judgment: the observer. By neglecting the profile of the perceiver, previous studies have limited our understanding of why performing the same green behavior is socially accepted by some but rejected by others. This omission matters because perception is not a neutral process, but a symbolic construction filtered through the observer's own identity and social environment (Fielding & Hornsey, 2016), where stigma derived from stereotypes is deployed as a defense mechanism to protect the observer's group identity from perceived threats (Minson & Monin, 2012). Thus, identifying the penalizing observer profile is important to move beyond merely acknowledging that social risks exist to understanding who enforces them. This shift enables us to map the unequal landscape of the ecological transition, by showing how specific social groups actively police the behavior of others to ensure group conformity, constructing eco-friendly lifestyles as a socially validated privilege for some while remaining socially risky and reputationally costly for others (Catena-Fernández & Fernández, 2025; Pearson & Schuldt, 2018). This perspective is grounded in Social Identity Theory (SIT; Tajfel & Turner, 1979; Tajfel, 2010) which provides the main theoretical framework of this study. Consistent with this framework, the sociodemographic traits examined here are treated as bases of social-identity group membership. Gender, age, and social class define salient social categories through which observers draw in-group/out-group boundaries (Tajfel & Turner, 1979; Tajfel, 2010), and these boundaries condition whether mainstream green behavior is read as identity-consistent or identity-threatening.

Literature about green stereotypes also presents methodological limitations. Quantitative research, including experimental survey designs and experiments, has been effective at identifying the universal dimensions of stereotype content ascribed to green individuals (e.g., Li et al., 2023) and the role of sustainable products as signals of social status and altruistic commitment (Borau et al., 2021). However, these approaches often fail to discern the complex heterogeneity across diverse subpopulations or the specific social groups that attribute stereotypes based on intersecting identity markers (Kibele et al., 2023). This limitation arises because existing research has predominantly focused on investigating the content of the stereotypes of radical activists (e.g., Li et al., 2023), the psychological barriers created by the green-feminine stereotype and its impact on gender-identity maintenance (Brough et al., 2016; Otterbring, 2023), or the impact of those

perception in self-reported intentions to perform PEBs (Zika et al., 2025). Consequently, there is a need for more suitable analytical approaches to detect heterogeneity and complex patterns among subpopulations, enabling the identification of non-linear and multidimensional interactions in stereotype attribution. Such approaches will help us to understand which social segments are more likely to validate or, conversely, hinder the social normalization of everyday PEBs.

To address these gaps, we focus on heterogeneity across observer profiles; methodologically, we use an interpretable machine learning step as a diagnostic to inform inferential models. We apply Interpretable Neural Networks (NNs) (NeuralSens; Pizarroso et al., 2022) to disentangle how the interplay of sociodemographic identity traits of the observer—specifically socioeconomic status (Pearson & Schuldt, 2018), gender (Otterbring, 2023) and age (Besalú et al., 2025); as well as the informational channels individuals use to gather information about sustainability (Ghorbani & Xuan, 2018) configure the social lens through which observers perceive the mainstream green individual. In doing so, the present study provides a more nuanced understanding of the social barriers to sustainable lifestyles, and it provides empirically grounded insights that can inform the design of more socially sensitive public policies and communication strategies to enhance the social legitimization of PEBs.

1.1 Stereotype attribution to green individuals

Stereotypes are not neutral descriptions, but cognitive constructions that simplify reality and often offer a distorted view of a social category (Hilton & von Hippel, 1996). Previous research on stereotypes associated with green individuals has revealed a range of positive and negative labels held by the general public (Kibele et al., 2023; Köhler et al., 2025). Positive portrayals include being principled or trustworthy, and those are linked to the increase of PEBs and environmental policy preferences (Kibele et al., 2023). In the same vein, the prevailing negative associations act as a psychological barrier, dissuading the general population from affiliating with the environmental movement due to the fear of social rejection (Kibele et al., 2023). This social rejection manifests as active social penalties enforced by the observer, ranging from interpersonal ridicule and social exclusion to professional discrimination (Brock et al., 2022; Howard, 2023). Often, Social resistance helps observers manage discomfort triggered by others' more principled behavior and justify their own inaction (Bolderdijk & Cornelissen, 2022; Minson & Monin, 2012). The negative stereotypes depict environmental activists as radical or extreme, morally judgmental, and socially disruptive, framing them as confrontational actors whose demands threaten everyday lifestyles and social order (Raynaud et al., 2024; Żuk, 2023).

However, social penalties derived from negative stereotypes may not be exclusive to those assuming a more radical green identity. Drawing on research on stigma-by-association, negative evaluations can be transferred to individuals based on shared behaviors, such that individuals connected to a group defined by particular traits or actions are judged based on those associations even when they are not formal members

(Moss-Racusin et al., 2024; Pryor et al., 2012). Consequently, it is plausible that mainstream citizens adopting everyday PEBs such as green consumption or recycling, also face the risk of being miscategorized under the negative stereotypes associated with radical environmentalists and suffering the same social penalties (Swim et al., 2019; Whitmarsh et al., 2025).

Importantly, the stereotype attribution process is neither automatic nor universal; rather, it is contingent upon the observer's perspective (Blair, 2002; Kelley & Michela, 1980; Hogg & Reid, 2006). According to SIT (Tajfel & Turner, 1979; Tajfel, 2010), individuals evaluate others through comparison processes aimed at favoring their in-group to protect their self-concept. Thus, the penalty is not only a reaction to moral discomfort but also an identity-based defense mechanism (Zane et al., 2016). If environmentalism is perceived as a threat to the observer's in-group norms, for example, by appearing elitist or unmanly, the observer may penalize the individual to reaffirm their own identity and maintain distance from a dissociative out-group (Catena-Fernández & Fernández., 2025; Brough et al., 2016; Kibele et al., 2023). Therefore, by studying the observer profile, we can confirm if specific groups, such as men or working-class individuals, use negative stereotypes against green individuals to distance themselves from a feminine or elitist image (Otterbring, 2023).

1.2 Sociodemographic factors

Social perception often draws on stereotypes and encompasses features, norms, and behaviors associated with a social category (Hogg & Reid, 2006; Tajfel & Turner, 1979). Research consistently characterizes the stereotypes of environmentalists mapped onto specific demographic traits: femininity (Brough et al., 2016), high socioeconomic status (Pearson & Schuldt, 2018), and youth (Farinha & Rosa., 2022). Since observers perceive in part green individuals through the lens of these specific stereotypes, their evaluation is inherently biased by the interaction between these traits and their own demographic position (Kibele et al., 2023; Pinna, 2020). Consequently, the degree of alignment—or perceived discrepancy—between the observer's own identity and the stereotypes plays a role in social judgment (Kibele et al., 2023; Tajfel & Turner, 1979). Therefore, as the observer's profile diverges from these stereotypical traits, the green individual would be increasingly categorized as a dissociative out-group, potentially triggering identity-protective mechanisms such as social rejection to neutralize moral discomfort or refusing to adopt PEBs to avoid being associated with undesirable out-group (Bashir et al., 2013; Catena-Fernández & Fernández., 2025., Köhler et al., 2025; Minson & Monin, 2012).

In Spain, organic products and sustainable alternatives often carry a premium price (PwC & Uncommon, 2022). Therefore, this economic reality creates a symbolic association between sustainability and privilege, reinforcing the stereotypical image of green individuals as highly educated (Kibele et al., 2023). This framing depicts the performance of PEBs not as acts of civic responsibility, but as conspicuous signals of economic capital and social posturing (Greenebaum, 2018; Griskevicius et al., 2010).

Consequently, to distance themselves from this out-of-touch figure (King et al., 2019; Raynaud et al., 2024), observers may penalize green individuals by attributing negative traits and, perceiving them as unconcerned with the economic struggles of the working class (Brock et al., 2022), and interpreting their perceived moral superiority and judgmental attitude as an attack on the majority's way of life (Minson & Monin, 2012; Žuk, 2023). In the same vein, literature suggests that high-income individuals engage in PEBs as a form of conspicuous consumption, signaling both their prosocial intent and their ability to incur high financial costs to affirm their standing within privileged circles (Acuti et al., 2022; Greenebaum, 2018; Li et al., 2023). Rather than viewing these behaviors as pretentious, high-status observers may attribute positive stereotypes to green individuals, perceiving them as cultured or efficient, acknowledging the competence required to manage the perceived financial resources these behaviors demand (Li et al., 2023). Therefore, for this social group, green behaviors serve as a tool for in-group validation, where individuals reinforce their collective identity through shared markers of prestige (Kibele et al., 2023; Uren et al., 2019).

Parallel to class dynamics, the well-established green-feminine stereotype introduces a gendered asymmetry in the identity implications and social costs of PEBs (Brough et al., 2016; Swim et al., 2019; Otterbring, 2023). This stereotype stems from how cultures traditionally associate environmentalism with feminine-coded traits, specifically, the care and nurturing of the environment, thereby situating environmentalism within the feminine role (Borau et al., 2021; Brough et al., 2016). Consequently, due to this cognitive linkage, women are consistently perceived as more typical environmentalists than men (Kibele et al., 2023). Following this female observers would thus be likely to perceive PEBs as identity-consistent, facilitating social validation within their in-group and aligning with expected norms (Borau et al., 2021; Swim et al., 2019). In contrast, male observers may experience this feminine stereotype as a threat to their masculine identity, since men face greater social penalties for engaging in gender-inconsistent transgressions than women (Brough et al., 2016; Swim et al., 2019). Consequently, motivated by the desire to maintain their gender identity, men would be likely to react defensively by rejecting a perceived feminized out-group and become more prone to penalize green individuals in order to reassert traditional masculine norms (Brough et al., 2016; Otterbring, 2023; Swim et al., 2019).

Age dynamics introduce a tension between symbolic representation and the actual green behavior. For example, while market data in Spain indicates that older cohorts are the most intensive consumers of organic products (Ministerio de Agricultura, Pesca y Alimentación, 2024), the stereotypical green individual is perceived as young due to the visibility of youth-led activism and media narratives (Besalú et al., 2025; Fonseca & Castro, 2022). For young observers, this symbolic alignment may foster in-group validation; they tend to rate green individuals more favorably, with higher levels of friendliness and recognizing a shared concern and social identity (Farinha & Rosa, 2022). Conversely, despite their sustainable habits, older observers often dissociate from the green label, and they are likely to penalize this green figure, viewing the stereotyped

young activist as incompetent by lacking the practical experience to address complex issues or careless regarding the stability and traditions valued by older generations (Farinha & Rosa, 2022). By doing so, they distance themselves from a perceived performative identity, framing their own behavior as a quiet civic duty (Howard, 2023; Uren et al., 2019).

The defensive motivation to protect social identity is likely to be exacerbated when the observer's identity conflicts across multiple dimensions (Kibele et al., 2023; Shapiro & Neuberg, 2007). For example, for an older, low socioeconomic status man, the green individual may represent a simultaneous threat to class, gender, and generational standing, increasing the likelihood of derogating the target and avoiding PEBs to prevent identity misalignment (Brock et al., 2022; Otterbring, 2023; Swim et al., 2019). However, this multidimensional threat does not derive solely from identity-demographic traits; instead, informational ecosystems actively construct it by defining what these identities signify since the symbolic environments in which individuals live reinforce social expectations (Besalú et al., 2025; Gerbner & Gross, 1986; Hansen, 2018; Salancik & Pfeffer, 1978). Recent research on hybrid communication environments further suggests that social evaluation processes increasingly unfold across overlapping offline and online contexts, where norms, visibility, and identity cues are negotiated simultaneously (Barron San Blas et al., 2025). Therefore, understanding the observer's rejection of the green individual requires analyzing not only who the observer is but also how their specific informational exposure frames the green narrative that may (or may not) conflict with their social reality (Besalú et al., 2025; Entman, 1993; Geiger et al., 2020).

1.3 Information sources and media

Stereotype formation and attribution operate within a symbolic environment constructed in part by the informational channels that individuals inhabit (Hansen, 2018; Entman, 1993). These sources do not function as objective mirrors of reality; instead, they act as normative filters, shaping public discourse by selecting and amplifying specific narratives that establish the boundaries of legitimate norms and behaviors (Lomas Martínez et al., 2025; Entman, 1993). This process operates through framing, whereby informational channels select certain aspects of a perceived reality and make them more salient to promote a specific evaluation (Gustafson et al., 2022; Mack et al., 2025). Over time, consistent exposure to these messages cultivates a perception of social reality that aligns with the specific representations found in each channel (Madriaza et al., 2025; Raynaud et al., 2024). Therefore, the consumption of distinct information sources may influence the repertoire the observer uses to categorize green individuals (Besalú et al., 2025). For example, green fictional characters in television series are often portrayed as eccentric and abnormal, reinforcing the perception of the green individual as socially deviant (Raynaud et al., 2024).

Traditional media frequently reinforce negative stereotypes that widen the social distance between the environmental movement and the general public (Bashir et al., 2013; Raynaud et al., 2024). Journalistic norms often prioritize conflict and spectacle over

nuanced policy analysis (Mack et al., 2025), newspapers in some contexts frame environmental issues through political polarization (Besalú et al., 2025), and television amplifies this effect by focusing on the visual spectacle of disruptive protests (Hansen, 2018; Köhler et al., 2025). By disproportionately airing confrontational imagery, traditional media narratives solidify the stereotype of the militant activist, portraying environmentalism as inherently hostile or radical (Fielding & Hornsey, 2016; Köhler et al., 2025).

Simultaneously, the commercial landscape may reinforce these negative perceptions towards green individuals. Advertising promotes material acquisition as the standard for social success, implicitly framing the environmentalist's austerity as an eccentric deviation (Barnhart & Mish, 2017; Shrum, 2017). The pervasive issue of corporate greenwashing further compounds this symbolic exclusion (Koo & Loken, 2021; Moreno & Ruiz-Alba, 2021). The use of deceptive environmental claims fosters widespread consumer cynicism (Koo & Loken, 2021), which may spill over into the interpretation of individual actions. Consequently, observers are likely to decode individual PEBs as inauthentic virtue signaling, dismissing the individual as hypocritical or performative (Bolderdijk & Cornelissen, 2022; Sherif & Simon, 2025).

The contemporary information landscape further reinforces stereotypical interpretations of the green individuals (Arendt, 2023; Cinelli et al., 2021). Digital platforms and social media enable individuals to exert greater control over the messaging they consume, allowing them to tailor their exposure through personalized channels (Arendt, 2023). The echo chamber effect, a process in which algorithmic selection amplifies content consistent with users' prior views while filtering out contradictory information, promotes selective exposure and confirmation bias (Arendt, 2023; Cinelli et al., 2021). Therefore, for observers already inclined to attribute negative (positive) stereotypes toward green individuals, participation in digital spaces can trigger preference-based reinforcement, intensify existing negative (positive) interpretive patterns (Arendt, 2023; Allidina & Cunningham, 2021). This mechanism of selective reinforcement parallels the function of the family as the primary agent of socialization, which constitutes the microsystem that most influences an individual's value system (Kollmuss & Agyeman, 2002). Family acts as a trusted normative filter, transmitting intergenerational values that define acceptable behaviors and social order within a specific group (Alwuqaysi, 2025; Miller et al., 2025; Seyfi et al., 2025). Consequently, both digital algorithms and familial bonds serve to insulate the observer's worldview; by limiting exposure to counter-stereotypical information, these channels stabilize the attribution of specific traits to green individuals, reinforcing the observer's existing alignment or misalignment with the social image of the green individual (Allidina & Cunningham, 2021; Lausi, 2024).

1.4 Research objectives

The preceding literature review establishes that stereotype attribution toward green individuals is a socially constructed process affected by the observer's social

identity and informational context. However, previous studies have extensively profiled the stereotypes associated with high-visibility environmental activists (Bashir et al., 2013; Kibele et al., 2023; Köhler et al., 2025); and they have overlooked whether these attributions transfer to mainstream green individuals performing everyday PEBs. Furthermore, existing research offers limited insight into how specific sociodemographic configurations, such as the intersection of class, gender, or age, interact with informational environments to shape stereotypical attributions. Consequently, a gap remains in identifying which specific social segments penalize (validate) the mainstream green individual, thereby creating social barriers to (facilitating) the widespread normalization of sustainable lifestyles across all social strata.

We expect that observers whose identity configuration misaligns with the green individual stereotypes (e.g., male, lower-income, or older individuals) will be more prone to attribute negative stereotypes as defensive mechanism to protect their group identity and maintain social distinction (Minson & Monin, 2012; Tajfel & Turner, 1979). Regarding the informational environment, we anticipate a divergence based on the channel's logic: reliance on traditional media (TV, advertising, and press) is expected to reinforce negative stereotypes (Shrum, 2017; Raynaud et al., 2024). Conversely, the influence of digital channels and family networks is likely more nuanced. Since these channels function as reinforcing filters that amplify the user's prior views (Arendt, 2023; Cinelli et al., 2021), their impact is likely contingent on the observer's profile. However, given that online channels' content is also more used by younger cohorts (IAB, 2024), who tend to align with green values, we tentatively anticipate that they may facilitate the validation of the social image of the green individual, potentially fostering positive stereotype attribution by highlighting shared concerns rather than conflict (Elgaied-Gambier & Mandler, 2021; Li et al., 2023)

This research has four main objectives:

- 1) To determine whether the negative stereotypes associated with radical environmental activism have generalized to the mainstream green individual in the Spanish context, or if individuals who perform everyday PEBs remain socially validated.
- 2) To determine if the observer's socioeconomic status, gender, and age correlate with stereotype attributions towards mainstream green individuals.
- 3) To identify if the use of different channels of sustainable information is related to positive and negative stereotype attribution towards the mainstream green individual.
- 4) Methodologically, to complement traditional linear modeling by using interpretable neural networks as a diagnostic tool to identify potential complex non-linear and heterogeneous patterns between stereotype attribution, demographic identity traits, and information-channel exposure.

By addressing these objectives, this study seeks to contribute to ongoing debates on the social dimensions of sustainability by documenting how social validation of everyday PEBs varies across demographic groups and informational contexts. Theoretically, by shifting the analytical focus from the radical environmental activist to the mainstream green individual, this study examines whether stigma-by-association extends to ordinary citizens engaging in routine PEBs. In doing so, we aim to identify which specific profiles operate as active barriers to the social acceptance of mainstream green individuals, thereby offering a more granular understanding of social resistance to everyday environmentalism. Methodologically, the combination of regression models and interpretable neural networks enables the detection of heterogeneous and non-linear patterns capturing the complexity inherent in social resistance to environmentalism (Besalú et al., 2025; Ciccía., 2025; Gkargkavouzi et al., 2019).

Practically, this study highlights the relevance of identity-based social validation processes for the design of sustainability communication strategies. Rather than relying on broad awareness campaigns, the findings suggest that communication efforts may benefit from framing everyday PEBs in ways that are less tightly associated with polarized identities and more aligned with values that resonate across social groups. Such approaches may help reduce social reactance and the perceived reputational costs associated with adopting sustainable practices, contributing to the positioning of sustainability as a more transversal social norm. In this sense, addressing these social barriers may support a more inclusive sustainability transition, in which sustainable lifestyles are perceived as socially acceptable across different gender, class, and age groups.

2. Methodology

This study employs a quantitative, cross-sectional, and non-experimental research design to examine the relationship between observers' sociodemographic characteristics and their exposure to sustainability-related information sources, and how these factors are associated with stereotype attribution toward mainstream green individuals. The focus of the study is PEBs that are routine and accessible (e.g., recycling or conserving water) and that are increasingly integrated into daily life (Brick et al., 2017; Zíka et al., 2025).

The study groups the variables into three main blocks: stereotypes toward mainstream green individuals, sociodemographic identity-related traits, and sources of sustainability-related information. To establish a uniform baseline representation of the target individual for all respondents, the survey first presented participants with a set of everyday PEBs. These behaviors included: recycling and proper waste disposal; donating reusable items; giving away items that are no longer needed; reusing products; reusing products whenever possible; water conservation; household energy conservation (lighting and heating/cooling); reducing energy use from household appliances; energy-efficient appliance use; use of low-waste or zero-waste products; use of homemade or traditional cleaning products and use of ecological products. We employed this procedure to ensure

that all participants evaluated a standardized mainstream profile, distinct from radical activism, before answering questions related to stereotypes and information sources.

The dependent variables consisted of a set of adjectives measuring stereotype content. We adapted the stereotype dimensions from related studies (Cuddy et al., 2008; Cuddy et al., 2007; Li et al., 2023). The selection included positive traits that reflected perceived altruism and high status (Borau et al., 2021; Griskevicius et al., 2010; Sherif & Simon., 2025), and negative traits reflecting deviance, lack of practicality, or militancy (Brock et al., 2022; De Groeve et al., 2021; Köhler et al., 2025). Positive and negative stereotype items were analyzed as separate evaluative dimensions. All items were measured using five-point Likert scale (1 = strongly disagree; 5 = strongly agree), introduced with the prompt: “When you think of a sustainable consumer, how do you imagine him/her?”. An exploratory factor analysis supported a multidimensional structure for stereotype attribution, and the factor scores were used for subsequent analyses. We retained two evaluative factors: positive stereotypes (honest, cultured, sociable, efficient, athletic; $\alpha = .74$) and negative stereotypes (incompetent, lazy, cold, evil, careless; $\alpha = .88$).

The independent variables had two categories. First, sociodemographic identity-related traits included age (numeric), gender (male/female) and annual income which we measured on a 14-point ordinal scale (ranging from <15,000 EUR to >250,000 EUR). We included income as a continuous variable in the analysis. Second, we assessed sources of sustainability-related information using the question: “Where do you find information about sustainable habits?” This item generated six dichotomous variables (yes/no) corresponding to the channels identified in the literature review: internet, family, social media, advertising, newspapers, and television

Prior research indicates that social evaluations linked to identity processes often involve non-linearities and conditional patterns that linear models do not fully capture and that researchers may find difficult to hypothesize in advance (Ciccina, 2025; Gkargkavouzi et al., 2019). Accordingly, to capture the complexity inherent in social evaluations (Besalú et al., 2025; Ciccina, 2025) and answer recent calls for integrating machine learning into social science without sacrificing interpretability (Grimmer et al., 2021; Molnar et al., 2020), the analytical strategy employs both regression-based analyses with interpretable neural network models (Pizarroso et al., 2022). In addition, to overcome the limitations associated with black-box NNs and ensure transparency (Hassija et al., 2024), we employ NeuralSens. This post-hoc sensitivity analysis technique computes the partial derivatives of the model output with respect to each input variable at the observation level (Pizarroso et al., 2022). Following this hybrid analytical strategy successfully applied in recent social research, such as in the analysis of entrepreneurial perception (Arroyo-Barriguete et al., 2023) or university dropout prediction (Ortiz-Lozano et al., 2024), this design leverages the capacity of NNs to detect complex non-linear patterns to inform and validate the specification of linear models.

2.1 Data collection and participants

We recruited Spanish residents through an online survey administered using the Toluna panel⁵ during December 2022. We collected a total of 2,720 responses. After excluding incomplete answers ($n = 856$), the final sample consisted of 1,864 valid cases. 50.75% of participants were women, with an average age of 40.51 years ($SD = 15.17$). Participants reported annual income, with the largest share concentrated in low-to-middle income brackets (€20,000–€29,999; 25.38%), close to the national average annual salary in Spain (€28,049; INE, 2025). Although the proportion of participants with a university degree (42.17%) is slightly higher than the national average (41%; INE, 2024), the sample reflects substantial diversity across key sociodemographic characteristics. Participation was voluntary and anonymous, and all respondents gave informed consent prior to participation.

2.2 Procedure: Analytical strategy

We performed statistical analyses using the R programming environment (R Core Team, 2020), utilizing standard packages such as dplyr (Wickham et al., 2022) or car (Fox & Weisberg, 2019) for data management and regression diagnostics, while we employed the NeuralSens package (Pizarroso et al., 2022) specifically for the neural network sensitivity analysis.

We first conducted a descriptive analysis and a comparison of means to examine differences in stereotype attribution as a function of sociodemographic and information-related variables (see Table 11). Normality tests indicated that the dependent variables did not follow a normal distribution. Accordingly, we used non-parametric tests (Mann–Whitney U) to assess group-level differences across categorical independent variables. To evaluate the magnitude of these differences beyond statistical significance, we calculated effect sizes (Cohen's d). Second, we adopted a hybrid analytical strategy combining theory-driven and data-driven approaches (Arroyo-Barriguete et al., 2023). This process consisted of three stages. A) We estimated an initial linear regression model to examine the baseline association between the participant's demographic profile and stereotype attribution. B) We estimated an interpretable neural network model. Unlike linear models that assume a constant effect for each predictor, NeuralSens computes local sensitivities (i.e., marginal slopes) for each observation, yielding a sensitivity distribution for every predictor. Sensitivity plots display these distributions: narrow distributions centered around zero indicate relatively homogeneous effects, whereas wider or multimodal distributions indicate heterogeneous effects across subpopulations. Variables exhibiting higher dispersion were therefore flagged for further inspection, as they suggest non-linear or conditional effects not captured by linear specifications. Three summary metrics were computed: Mean Sensitivity (MS), capturing the average direction of the

⁵ The data used in chapter 3 is associated with a research project in multinational company in the FMCG sector.

effect; Sensitivity Standard Deviation (SSD), identifying potential non-linearities; and Mean Squared Sensitivity (MSS), ranking variable importance. C) Because NNs methodologies do not provide formal hypothesis testing or significance assessment, we applied the insights from the NN (interactions and non-linearities) to guide the functional specification of the corrected linear regression model allowing for formal statistical testing (Arroyo-Barriguete et al., 2023). Importantly, the NN analysis was not used to exhaustively test all possible interactions. Instead, we employed the NNs results to identify a limited set of theoretically plausible non-linearities and interactions, which then guided the specification of the corrected regression models.

3. Results

3.1 Descriptive results and bivariate differences

Descriptive statistics indicate that the mainstream green individual is, on average, perceived positively. Participants attributed significantly higher levels of positive stereotypes ($M = 3.76$, $SD = 0.65$) compared to negative stereotypes ($M = 2.24$, $SD = 1.02$) to the mainstream green individual. However, the attribution of negative stereotypes exhibited considerably higher variability. Age and income were negatively associated with negative stereotype attribution, with older ($\rho = -0.13$, $p < .001$) and higher-income ($\rho = -0.08$, $p < .001$) participants reporting slightly lower levels of negative stereotypes.

The bivariate analysis (Table 11) shows that, while men attributed significantly higher negative stereotypes than women, the magnitude of this difference was small and close to the conventional threshold for negligible effects ($d = 0.21$). Differences by information source were more pronounced. Participants who did not use the internet as a source of information reported significantly higher levels of negative stereotype attribution ($M = 2.57$, $SD = 1.08$) than internet users ($M = 2.12$, $SD = 0.97$), with a medium effect size ($d = 0.45$). A similar but substantively weak pattern was observed for social media use ($d = 0.22$). In contrast, differences associated with the use of television, family, advertising, and newspapers as sources of information, while often statistically significant due to sample sizes, exhibited negligible or small effect sizes ($d < 0.20$).

Regarding positive stereotypes, the bivariate analysis indicates a similar but less pronounced pattern. Consistent with the lower variability observed in the descriptive statistics, group differences were generally minor, pointing to a widespread social consensus regarding the positive perceptions of the green individual. Nevertheless, digital engagement showed the most consistent, though modest, associations with positive stereotype attribution. Users of social media ($M = 3.87$, $SD = 0.65$) and the internet ($M = 3.81$, $SD = 0.64$) attributed significantly more positive stereotypes than non-users, with the respective effect sizes ($d = -0.27$ and $d = -0.26$, respectively). Conversely, gender, family, ads, newspapers, and television exhibited negligible effect sizes ($d < 0.20$).

Table 11. Descriptive statistics, Bivariate Correlations, and Group comparisons of stereotype attributions by gender and media exposure

		n	Positive stereotypes			Negative stereotypes		
			Mean (SD)	Difference	Cohen's d	Mean (SD)	Difference	Cohen's d
Gender	Male	918	3.73 (0.65)	W= 412.457	-0.09 (negligible)	2.14 (1.03)	W= 490.493***	0.21 (small)
	Female	946	3.79 (0.65)			2.36 (1.00)		
Internet	Yes	1347	3.81 (0.64)	W= 295.570***	-0.26 (small)	2.12 (0.97)	W= 433.442***	0.45 (medium)
	No	517	3.63 (0.66)			2.57 (1.08)		
Social media	Yes	648	3.87 (0.65)	W= 323.841 ***	-0.27 (small)	2.10 (1.02)	W= 447.76 ***	0.22 (small)
	No	1216	3.70 (0.64)			2.32 (1.02)		
News- paper	Yes	303	3.85 (0.65)	W= 211.639**	-0.17 (negligible)	2.12 (1.04)	W= 259.809**	0.14 (negligible)
	No	1561	3.74 (0.65)			2.27 (1.02)		
Family	Yes	455	3.82 (0.68)	W= 290.492**	-0.13 (negligible)	2.35 (1.08)	W= 300.250*	-0.13 (negligible)
	No	1409	3.74 (0.64)			2.21 (1.00)		
TV	Yes	482	3.79 (0.60)	W= 324.699	-0.06 (negligible)	2.12 (0.99)	W= 365.928**	0.17 (negligible)
	No	1382	3.75 (0.66)			2.29 (1.03)		
Ads	Yes	593	3.82 (0.63)	W= 344.536 ***	-0.13 (negligible)	2.15 (1.00)	W= 408.398 **	0.14 (negligible)
	No	1271	3.73 (0.65)			2.29 (1.03)		

(Stereotypes: 1-5 Scale) * $p < .05$, ** $p < .01$, *** $p < .001$.

3.2 Negative stereotype attribution

Table 12 shows the results of the sequential analytical procedure for negative stereotypes as DV. We estimated an initial linear regression model to establish baseline correlations. Younger respondents ($b = -0.13$, $p < .001$), men ($b = -0.17$, $p < .001$), and individuals who do not use the internet ($b = -0.40$, $p < .001$) or social media ($b = -0.14$, $p < .01$) as information sources were significantly associated with negative stereotype attribution.

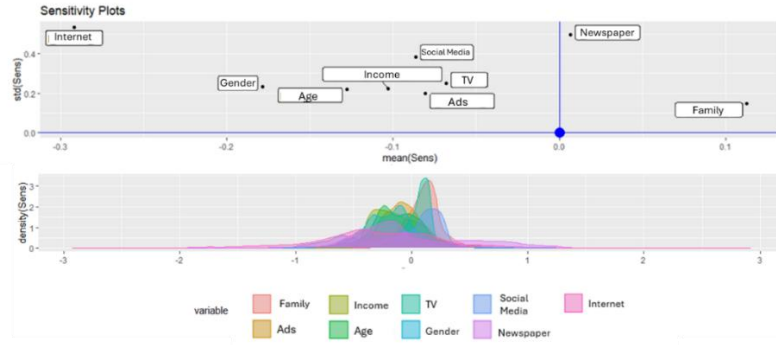
Table 12. Negative stereotypes as DV: Results of the regression models (initial and corrected) and NNs

	Regression Models				Neural network model (9-2-1)		
	Initial Model		Corrected Model				
Negative Stereotypes	b	SE	B	SE	Mean sensitivity	Sensitivity SD	Mean squared sensitivity
Constant	0.44***	0.05	0.43***	0.05			
Age	-0.13***	0.02	-0.33***	0.04	-0.12	0.21	0.25
Gender	-0.17***	0.04	-0.18***	0.04	-0.17	0.23	0.29
Income	-0.03	0.02	-0.10*	0.03	-0.10	0.22	0.24
Internet	-0.40***	0.05	-0.42***	0.05	-0.29	0.53	0.60
Family	0.11*	0.05	0.11*	0.05	0.11	0.14	0.18
Social media	-0.14**	0.04	-0.12*	0.05	-0.08	0.38	0.39
Ads	-0.06	0.05	-0.05	0.05	-0.08	0.19	0.21
Newspaper	-0.00	0.06	-0.02	0.06	-0.01	0.49	0.49
TV	-0.07	0.05	-0.06	0.05	-0.06	0.24	0.25
Income2			0.04**	0.01			
Interaction Age-Internet			0.26***	0.05			
Interaction Age-social media			0.09	0.05			

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

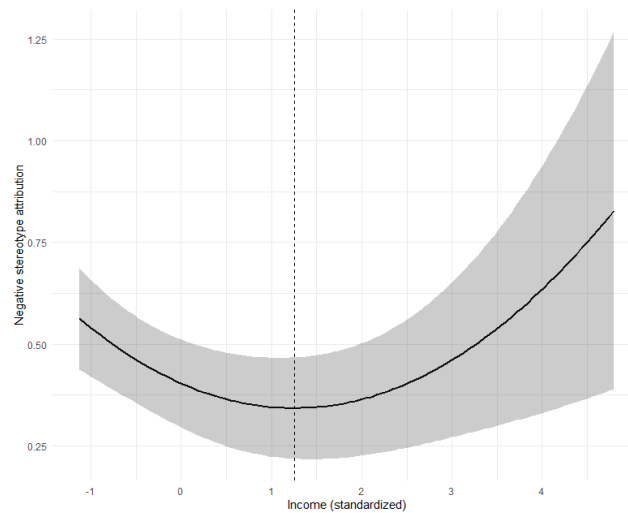
To examine potential non-linearities and heterogeneous effects, an interpretable neural network model (9–2–1) was estimated. The sensitivity analysis revealed greater dispersion for internet (SSD = 0.53) and social media (SSD = 0.38) since showed high sensitivity standard deviations, indicating variability in their impact across respondents. To visually analyze this heterogeneity, we examined the sensitivity distribution plots (Figure 8), which had wide dispersions rather than narrow peaks, indicating that their associations with negative stereotype attribution varied across observations (Pizarroso et al., 2022; Ortiz-Lozano et al., 2024). Similarly, income (SSD = 0.22) and newspaper as a source of information (SSD = 0.49), which were non-significant in the initial linear model, presented a potential non-linear pattern. These multi-modal distributions indicate that the influence of internet and social-media use on negative stereotype attribution is not uniform across the sample. For some observers exposure to these channels is associated with stronger negative attribution, while for others it is associated with weaker or even reversed attribution. A narrow, single-peaked distribution would have implied a homogeneous effect; the observed dispersion instead points to subgroups responding in opposite directions, which is precisely the heterogeneity that the linear model alone could not detect, and which motivates the interaction and non-linear terms examined below.

Figure 8. Negative stereotypes: Sensitivity distribution



Consistent with the hybrid analytical strategy described above, interaction and non-linear terms were considered when (i) the diagnostic NN analysis indicated heterogeneous associations across respondents, and (ii) the resulting patterns could be coherently interpreted within the study's theoretical framework. Therefore, we first included the term income squared (Income^2) which yields a positive and statistically significant coefficient ($b = 0.04, p < .01$), consistent with a non-linear association between income and negative stereotype attribution. Figure 9 illustrates this pattern, with lower average levels at intermediate income values and higher levels toward both ends of the distribution.

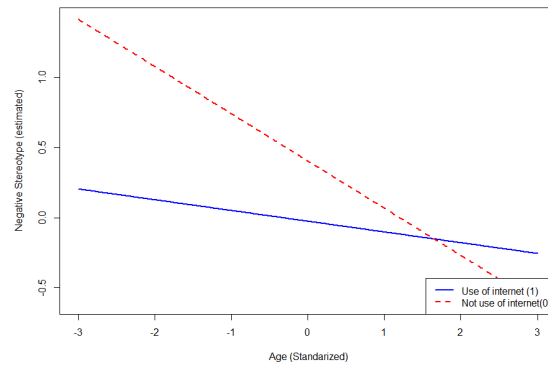
Figure 9. Estimated levels of negative stereotype attribution across the income distribution based on the quadratic income specification.



Second, we introduced the interaction terms for internet and social media with age since those had a high SSD. The interaction between age and internet use was significant ($b = 0.26, p < .001$), indicating that age-related differences differed between internet users and non-users. As illustrated in Figure 10, among individuals who do not use the internet as a source of information, age is strongly correlated with the attribution of negative

stereotypes. Younger participants have more negative perceptions of green individuals, which decline markedly with age ($b = -0.33$, $p < .001$). However, for internet users, this age gap disappears, resulting in lower levels of negative attributions regardless of the observer's age. In contrast, the interaction between age and social media use did not reach statistical significance. This interaction term was retained based on theoretical considerations (Fietkiewicz et al., 2016) and following the NN-guided model specification strategy (see Section 2.2; Arroyo-Barriguete et al., 2023). Finally, although the NN attributed high SSD values to newspaper use, this did not translate into significant interaction effects within the linear modeling framework. We explored interaction specifications involving newspaper use (e.g., age $\times$ newspaper, income $\times$ newspaper) but lacked both theoretical justification and statistical robustness in the linear regression model; therefore, we did not retain the interactions in the final corrected regression model.

Figure 10. Age differences in negative stereotype attribution by internet use



3.3 Positive stereotype attribution

We followed the same sequential analytical procedure to positive stereotypes as a dependent variable. The initial regression model (Table 13) indicated that the use of digital channels—specifically internet ($b = 0.20$, $p < .001$) and social media ($b = 0.18$, $p < .001$)—along with family ($b = 0.12$, $p < .05$) and gender ($b = 0.09$, $p < .05$) were positively associated with the attribution of favorable traits to the mainstream green individual. The other variables did not show statistically significant associations.

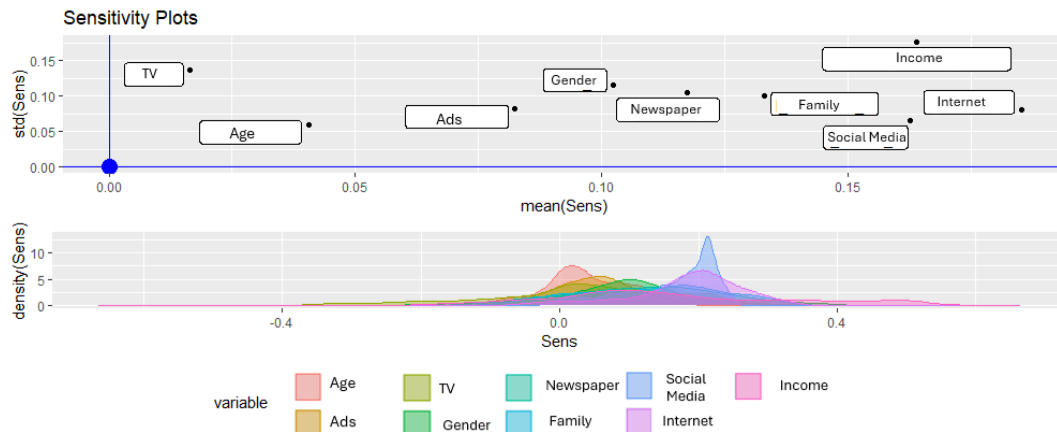
Table 13. Positive stereotypes as DV: Results of the regression models (initial and corrected) and NNs

	Regression Models				Neural network model (9-3-1)		
	Initial Model		Corrected model		Mean sensitivity	Sensitivity SD	Mean squared sensitivity
Positive Stereotypes	b	SE	b	SE			
Constant	-0.32***	0.05	-0.30***	0.05			
Age	0.04	0.02	-0.04	0.02	0.04	0.06	0.07
Gender	0.09*	0.04	0.10*	0.04	0.10	0.11	0.15
Income	0.11***	0.02	0.14***	0.04	0.16	0.17	0.24
Internet	0.20***	0.05	0.20***	0.03	0.18	0.08	0.20
Family	0.12*	0.05	0.12*	0.05	0.13	0.10	0.16
Social media	0.18***	0.05	0.18***	0.05	0.16	0.06	0.17
Ads	0.06	0.05	0.06	0.05	0.08	0.08	0.12
Newspaper	0.06	0.06	0.06	0.06	0.12	0.10	0.15
TV	-0.02	0.05	-0.02	0.05	0.01	0.13	0.13
Income2			-0.02	0.01			
Interaction Age-Internet			-0.30***	0.05			

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

We estimated an interpretable NNs model (9–3–1) to examine the relative importance and dispersion of the variables. Sensitivity analysis from the neural network model identified income as the variable with the highest mean squared sensitivity (MMS =0.24) meaning that income showed greater relevance within the model compared to other variables. The sensitivity distribution plots (Figure 11) show wide and non-unimodal dispersions for income, internet, and social media, whereas age and television present narrower distributions centered around zero sensitivity values.

Figure 11. Positive stereotypes: Sensitivity distribution



Guided by the sensitivity analysis, we estimated an alternative corrected regression specification including a quadratic income term to assess whether the observed

heterogeneity in income sensitivity could be captured parametrically. As reported in Table 13, the squared income coefficient is not statistically significant, and overall model fit remains unchanged. This indicates that, while income exhibits heterogeneous effects across observations, this heterogeneity is not adequately captured by a quadratic specification. The corrected model therefore confirms the robustness of the linear specification for positive stereotype attribution.

4. Discussion and conclusions

This study aimed to shift the analytical focus from the radical environmental activist to the mainstream green individual, examining how observers' social identities and informational environments shape the social evaluation of mainstream green individuals. Overall, the findings suggest that the Spanish population socially normalizes sustainable practices; however, this normalization remains unevenly negotiated across social groups, indicating that the social acceptance of sustainability is contingent upon who observes and evaluates individuals who display these behaviors.

Addressing the first objective, we anticipated that negative stereotypes attributed to radical activists might extend to everyday sustainable citizens, drawing on the concept of stigma-by-association (Pryor et al., 2012; Swim et al., 2019). However, the present results suggest that this transfer is incomplete. Consistent with recent work on the normalization of sustainability, the mainstream green individual is, on average, evaluated more positively than negatively and is not predominantly perceived through lenses of deviance (Kibele et al., 2023; Köhler et al., 2025; Li et al., 2023). Importantly, this does not imply the absence of social risk. Rather, the coexistence of generally positive evaluations with substantial dispersion in negative stereotype attribution indicates that everyday PEBs, while widely endorsed at the normative level, remain unevenly validated in social interaction, meaning that the acceptance of this social norm varies across situations and audiences (Bicchieri, 2016; Lamont & Molnár, 2002). In this sense, sustainability-related practices in Spain are not fully taken for granted: they may be broadly legitimate in public discourse yet remain socially negotiable and, in some contexts, socially risky.

Regarding the second objective, our work shows that social validation of the green individual in Spain is not universal, reinforcing the idea that the social barrier to PEB engagement does not stem from generalized rejection, but from targeted forms of derogation that serve identity-protective functions (Besalú et al., 2025; Catena-Fernández & Fernández, 2025; Minson & Monin, 2012). Gender differences in the attribution of negative stereotypes are consistent with the green feminine stereotype, whereby environmental concern is perceived as misaligned with masculine norms, prompting defensive derogation rather than a lack of positive recognition (Kibele et al., 2023; Otterbring, 2023). However, this pattern cannot be fully disentangled from potential ideological confounds, since men in Spain are, on average, more likely to hold conservative positions on environmental issues (Besalú et al., 2025), which may

independently contribute to negative stereotype attribution. More substantively, the detection of non-linear income effects for negative stereotype attribution challenges the common assumption that higher socioeconomic status uniformly predicts social validation of sustainability (Griskevicius et al., 2010; Kennedy & Johnston, 2018; Pearson & Schuldt, 2018). Instead, in Spain, the middle class appears as the primary site of social normalization, while both lower- and higher-income groups exhibit greater social resistance. For lower-income observers, this pattern is consistent with research on symbolic exclusion and perceived elitism (Johnstone & Tan, 2015; Reid et al., 2015). Lower-income individuals may be more likely to perceive PEBs as signals of an inaccessible or elitist lifestyle and stigmatizing the green individual may function as a defensive strategy to protect self-worth and neutralize the social identity threat posed by a lifestyle they cannot afford to emulate (Catena-Fernández & Fernández, 2025; Seyfi et al., 2025). For higher-income groups, one plausible interpretation resonates with Bourdieu's logic of distinction, whereby once PEBs lose their exclusivity, they may be symbolically devalued or reframed as performative middle-class norms (Bourdieu, 1984; De Nardo et al., 2017; Kennedy & Johnston, 2018). As an alternative interpretation, these negative attributions may reflect an ideological alignment in which high-income segments associate environmental discourse with threats to economic freedom and industrial growth, thereby derogating the green individual as a symbolic representative of opposing political values (Besalú et al., 2025; Žuk, 2023). Given the increasing political polarization of environmental issues in Spain (Besalú et al., 2025; Catena-Fernández & Fernández, 2025), this ideological interpretation may be particularly relevant for the Spanish context, although the absence of political orientation data in this study prevents a definitive adjudication between these two accounts. The absence of political orientation reflects a constraint of the data source rather than an analytical choice since the survey was designed as part of a broader data-collection effort that did not include a measure of political ideology. The relevance of this variable became increasingly apparent during the analysis, particularly when interpreting the quadratic income effect and the heterogeneous influence of newspaper exposure, both of which point to an ideological dimension that the present data cannot directly capture. Given the well-documented role of political ideology in shaping responses to sustainability—from the differential effectiveness of morally congruent appeals (Kidwell et al., 2013) to the partisan derogation of eco-conscious out-groups (Hoffarth & Hodson, 2016)—its incorporation as an observer characteristic represents a priority for future research building on this design.

Age-related patterns in negative stereotype attribution indicate that the association between age and negative stereotype attribution is conditional on the informational environment, rather than operating uniformly across age groups. While prior research documents a tension between older cohorts' sustainable practices and their reluctance to identify with the green label (Cherry, 2019; Howard, 2023), the present findings show that this disconnect may depend on the informational environment. Digital information exposure is associated with weaker generational differences, suggesting that exposure to contemporary sustainability narratives may facilitate the reframing of environmentalism

from a youth-led or disruptive movement into a shared civic norm (Elgaaied-Gambier & Mandler, 2021; Fonseca & Castro, 2022). Conversely, non-digital users may be more susceptible to traditional media frames that prioritize conflict and portray activists as militant or extreme (Bashir et al., 2013; Mack et al., 2025; Žuk, 2023).

The third objective was to examine the role of information sources as environments shaping stereotype attribution. Rather than exerting uniform effects, information channels operate as contextual filters whose influence depends on the observer's broader social identity. Digital information exposure, including the internet and social media, emerged as the most consistent correlate of lower negative stereotype attribution. We should not interpret those results as evidence that digital exposure directly causes more favorable perceptions; instead, and in line with selective exposure frameworks and the echo chamber effect (Arendt, 2023; Cinelli et al., 2021), digital environments may function as spaces that reinforce existing orientations toward sustainability. In this sense, in the Spanish population, individuals who rely on digital channels may be already likely to perceive PEBs as more socially legitimate or normalized (Madriaza et al., 2025). Similarly, family played a limited role, suggesting that this source primarily reinforce existing orientations rather than actively shaping social evaluations of mainstream green individuals (Moreno & Ruiz-Alba, 2021; Seyfi et al., 2025). Newspapers, however, exhibited highly heterogeneous effects: while average linear models suggested irrelevance, the neural network analysis suggests a substantial variation across profiles. This pattern is consistent with evidence that traditional press coverage of environmental issues is ideologically and narratively fragmented (Besalú et al., 2025) and suggests that newspaper exposure interacts with unobserved factors in this study, such as political orientation, in shaping stereotype attribution (Arendt, 2023; Besalú et al., 2025).

Finally, the findings provide evidence to support the fourth objective of the study. Several theoretically meaningful patterns in negative stereotype attribution, most notably the non-linear income effects and the interaction between age and internet, would have remained hidden under conventional linear modeling. By combining interpretable NNs with inferential models, this study suggests the usefulness of methodological approaches that allow the exploration of non-linear and conditional patterns without sacrificing interpretability (Arroyo-Barrigüete et al., 2023; Ciccía, 2025; Pizarroso et al., 2022). This hybrid strategy allows for a more nuanced representation of how social perceptions surrounding sustainability are unevenly constructed across social groups, moving beyond average effects to reflect the fragmented and contested nature of social evaluations.

In sum, the findings suggest that the social normalization of everyday environmental practices cannot be assumed, even in contexts where sustainability is widely endorsed as a social norm. Rather than facing uniform acceptance, individuals engaging in mainstream PEBs remain subject to selective and identity-based social evaluation costs due to persistent negative stereotyping (Catena-Fernández & Fernández, 2025; Kibele et al., 2023; Sherif & Simon, 2025). From a policymaker perspective, this

implies that sustainability communication strategies may benefit from moving beyond universal messaging (Besalú et al., 2025; Guijarro, 2022) and instead taking into account how environmental cues are interpreted across different social groups and informational environments. Communication approaches that decouple everyday environmental practices from polarized or elitist identities may help reduce the reputational costs associated with adoption and foster a more socially inclusive ecological transition. In addition, the findings highlight the relevance of considering dissemination channels, cautioning against assumptions of homogeneous media effects or reliance on one single channel as a stable lever of social normalization. Identical sustainability-related signals may be interpreted differently across audiences and informational environments (Arendt, 2023; Mack et al., 2025). Taken together, these findings underscore the practical relevance of multi-channel and context-sensitive approaches that remain attentive to differences across social groups (Besalú et al., 2025; Moreno & Ruiz-Alba, 2021; Seyfi et al., 2025).

Finally, the study presents several limitations. First, the study's cross-sectional design does not permit causal inference. While the results showed systematic associations between informational environments and stereotype attribution, we cannot disentangle whether exposure to specific information contexts actively reshapes social evaluations or whether individuals with pre-existing interpretative orientations selectively engage with specific information sources. Future research using experimental or longitudinal designs could more directly assess how changes in informational exposure affect stereotype attribution over time. Second, some theoretically relevant moderators were not measured. In particular, political orientation (Catena-Fernández & Fernández, 2025; Swim & Geiger, 2018) and trust in media (Mack et al., 2025; Suldovsky et al., 2019) may further condition how sustainability-related information is interpreted, as prior research shows that ideological alignment and perceived source credibility affect environmental evaluations (Besalú et al., 2025; Kibele et al., 2023). Incorporating these variables could help disentangle whether the effects observed, especially for traditional media, reflect differences in political worldviews or media trust. Finally, the study focuses on stereotype attribution toward a standardized profile of a mainstream green individual engaging in everyday, low-visibility PEBs. While this design choice enhances internal validity by ensuring that all participants evaluated the same behavioral profile, it may reduce ecological validity, since in everyday life observers do not encounter standardized profiles but rather interpret specific individuals' behavior through multiple contextual cues such as appearance, social class signals, or setting (Fiske et al., 2002). Furthermore, it limits the ability to distinguish how stereotype attribution may vary across different types of sustainable actions, particularly along the continuum from private practices to highly visible behaviors. Future research could explicitly compare these profiles to delineate better the boundary conditions under which stigma-by-association extends from radical environmentalism to everyday sustainability practices.

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Conclusion

This thesis aimed to explore how stereotypes, social judgments, and observer-based evaluations shape the conditions under which pro-environmental behavior is enacted, perceived, and sustained. More specifically, it addressed one dimension of the barriers to sustainable transition (Köhler et al., 2019; White et al., 2019) that has remained insufficiently explored: the social and interpersonal costs that eco-conscious individuals face when their behavior becomes subject to evaluation by others (Bashir et al., 2013; Bolderdijk & Cornelissen, 2022; Minson & Monin, 2012), or when it generates identity-related tensions for themselves (Howard, 2023; Markowski & Roxburgh, 2019; Prosser et al., 2025). To address this objective, the thesis developed three complementary studies—a theory-driven integrative review and two empirical investigations—each examining a different dimension of the social dynamics surrounding pro-environmental behavior.

Addressing the research questions outlined in the introduction, Chapter 1 resolved the theoretical fragmentation in existing knowledge on stereotypes, stereotype threats, and coping among eco-conscious individuals. Through a theory-driven integrative review of 75 empirical studies, the chapter identified three recurring stereotype clusters (moral superiority, social deviance, and identity misalignment), showing that the stereotypes attributed to eco-conscious individuals follow patterned themes across behaviors and disciplines rather than being isolated or domain-specific (RQ1.1). It further demonstrated that these stereotypes generate both self-focused and group-focused threats, which are conditioned by the visibility of the behavior and the strength of green self-identity (RQ1.2). In response, individuals mobilize three categories of coping strategies -moral repair, impression management, and identity navigation- which the review reconceptualized as sophisticated forms of identity regulation rather than simple disengagement (RQ1.3). A complementary ecological illustration, drawn from naturally occurring online discussions, provided preliminary observational resonance for these conceptual patterns: across Reddit threads concerning veganism, climate advocacy, and voluntary simplicity, all three stereotype clusters, both threat configurations, and all three coping categories were recognizable in unsolicited discourse, suggesting that the framework captures socially meaningful dynamics beyond researcher-elicited designs alone. These processes carry downstream consequences for sustainable engagement, including fatigue, perceived inauthenticity, behavioral concealment, and withdrawal (RQ1.4).

Chapter 2 shifted the focus to emotions as one psychological mechanism through which these social perceptions shape sustainable action. Drawing on survey data and structural equation modelling, it found that socially shared perceptions of pro-environmental individuals as competent are significantly associated with lower negative and higher positive emotions (RQ2.1). Furthermore, these emotions partially mediate the relationship between competence stereotypes and self-reported pro-environmental

behavior, revealing that competence stereotypes primarily function by reducing emotional barriers rather than merely amplifying positive anticipation (RQ2.2).

Finally, Chapter 3 shifted the analytical focus from the environmental actor to the observer. Using survey data and combining regression analyses with interpretable neural networks, it found that mainstream green individuals performing everyday pro-environmental behaviors attract predominantly positive stereotypes on average. This indicates that the negative evaluations typically documented for radical activists (e.g., Bashir et al., 2013; Klas et al., 2019; Köhler et al., 2025) have not fully generalized to ordinary citizens (RQ3.1). However, this positive evaluation is conditional: negative stereotype attribution varies across observer profiles defined by gender, age, and social class, with middle-income and older observers showing the strongest social validation (RQ3.2). Digital information channels (internet and social media) emerged as the most consistent correlates of lower negative and higher positive stereotype attribution (RQ3.3). Lastly, the combination of regression and neural network analyses revealed heterogeneous and non-linear patterns, including a U-shaped relationship between income and negative stereotype attribution, and an interaction between age and internet use that reduces generational differences (RQ3.4).

What emerges from these three studies, taken together, is a comprehensive understanding of the social conditions surrounding pro-environmental behavior that no single chapter could have produced on its own. By linking the recurrent patterns of stereotypes to their emotional consequences for sustainable action and the identity-based conditions under which observers enforce them, this thesis moves beyond fragmented approaches. In particular, the move from Chapter 2 to Chapter 3 reflects an underlying logic: because socially shared stereotypes are endorsed unequally across perceivers, establishing the emotional mechanism through which they shape sustainable action (Chapter 2) naturally raises the question of who endorses them and under what conditions (Chapter 3). The two studies are thus not parallel but sequential, tracing the same construct from its behavioral consequences to its social distribution. Prior research had firmly acknowledged that social dynamics and anticipated judgments play a role in shaping pro-environmental engagement (e.g., Acuti et al., 2022; Bolderdijk & Cornelissen, 2022; Fritsche et al., 2018; Swim & Geiger, 2018), but had examined these components—stereotype content, emotional consequences, and observer-based evaluation—largely in isolation. What this thesis adds is not the general claim that social factors matter, but a highly specific account of *how* they operate. It demonstrates that social barriers function through identifiable stereotype structures that recur across behaviors and disciplines; through a specific, yet under-researched, stereotype dimension (competence) that shapes the emotional conditions of sustainable action (Li et al., 2023); and through observer-level conditions that reveal these social dynamics to be unequally distributed across social groups (Pearson et al., 2018). These findings provide contributions on the theoretical, methodological, and managerial levels, which the following sections develop in detail.

1. Theoretical contributions

This thesis contributes to several streams of literature through three interconnected theoretical advances that reshape how the social dynamics surrounding eco-conscious behavior are understood in social psychology, environmental psychology, and consumer research. The first contribution lies in extending stereotype threat theory into the moral-symbolic domain of sustainability. Stereotype threat theory was originally developed in competence-based contexts—such as academic performance, STEM participation, or athletic achievement—where the central concern is that awareness of a negative group stereotype undermines task performance under evaluation (Spencer et al., 2016; Steele & Aronson, 1995). This thesis shows that stereotype threats in the sustainability domain operate differently. Rather than undermining competence, they target moral integrity, social reputation, and collective legitimacy. By applying the Multi-Threat Framework (Shapiro & Neuberg, 2007; Shapiro, 2011) to environmental sustainability, the thesis consolidates dispersed findings from across disciplines into three recurrent stereotype clusters and maps how these clusters generate distinct threat configurations depending on the source and target of the threat. This represents an extension of the Multi-Threat Framework beyond its original competence-based boundaries. Importantly, this research also reconceptualizes coping not as simple disengagement, which has been the predominant framing in prior sustainability research (Bashir et al., 2013; Brough et al., 2016), but as identity regulation: a set of strategies through which individuals manage moral integrity (moral repair), protect their public image (impression management), and safeguard the credibility of the broader environmental group (identity navigation). This reconceptualization addresses a gap identified in the literature (Geiger & Swim, 2016; Swim & Geiger, 2018) and provides a more differentiated account of why individuals respond to the same stereotype in qualitatively different ways depending on their identity strength, behavioral visibility, and social context. Empirically building on this theoretical foundation, the thesis shows that these social perceptions have measurable downstream consequences for the emotional conditions surrounding sustainable action and that these identity-based threats are highly conditional, distributed unevenly across intersecting observer profiles (Pearson et al., 2018). By validating the framework's emphasis on conditionality and intersectionality, this research moves the literature beyond the assumption of uniform social penalties.

The second contribution concerns the role of emotions as one mechanism that connects social perceptions of pro-environmental individuals, specifically the competence stereotype dimension, to PEB. Prior research on the stereotypes of eco-conscious individuals has focused predominantly on the warmth dimension of the Stereotype Content Model (Fiske et al., 2002), emphasizing the image of the green individual as well-intentioned but often socially irritating or impractical (Antonetti & Maklan, 2016; Bashir et al., 2013). This focus produced important insights, notably the identification of the green-feminine stereotype and its deterrent effect on male consumers (Brough et al., 2016; Swim et al., 2020), but it left the competence dimension largely

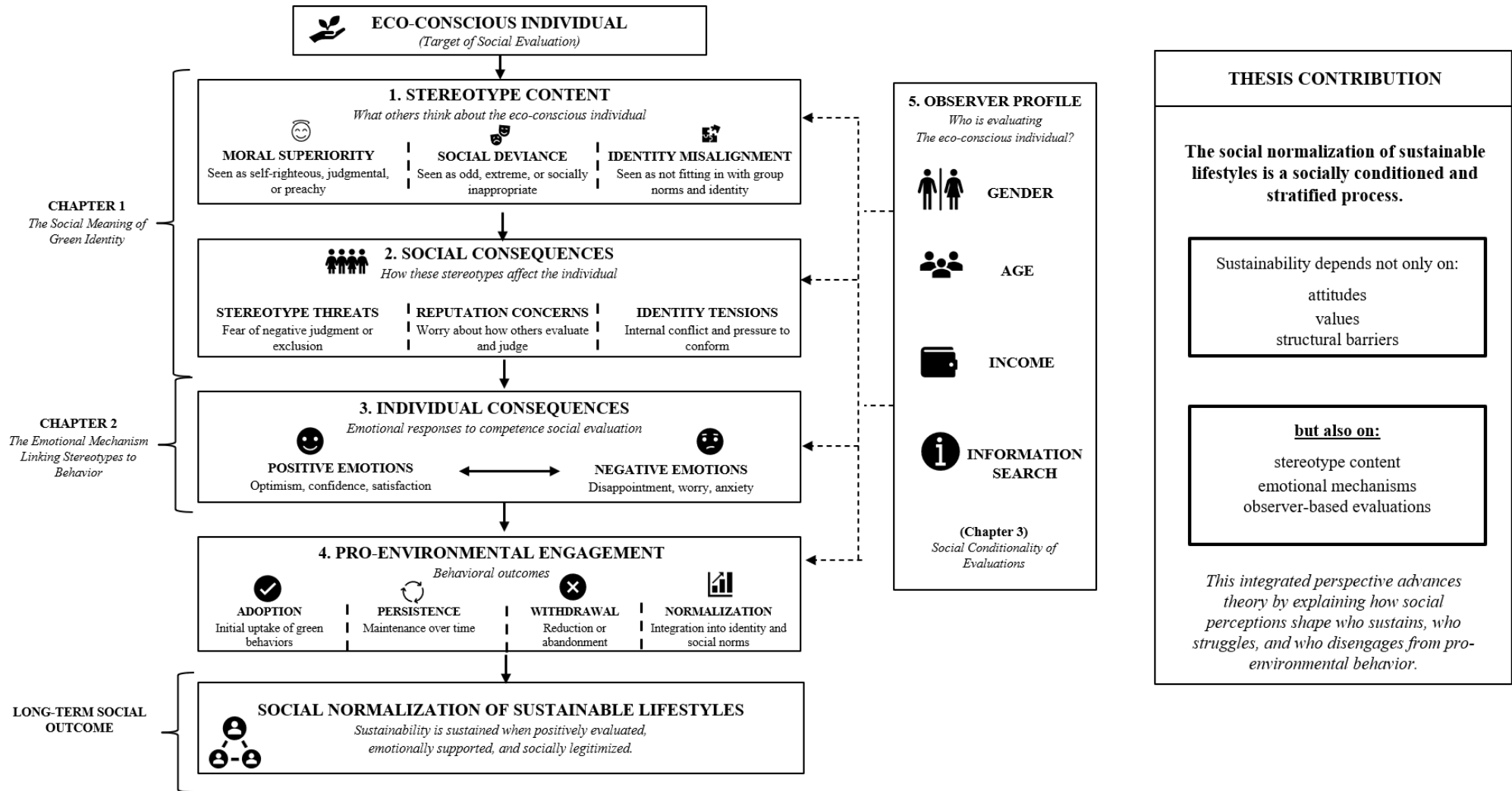
unexplored (Li et al., 2023). This thesis addresses this gap directly. By showing that emotions mediate the relationship between social perceptions of pro-environmental individuals and PEB, and that perceiving green individuals as competent is associated with lower negative and higher positive emotions, the research identifies an emotional mechanism that links a social-level perception to behavioral engagement, distinct from the individual- and contextual-level predictors (such as personal risk assessment, self-efficacy, or psychological distance) that prior studies on emotions had primarily examined (e.g., Chu & Yang, 2019; Ojala et al., 2021; Weber & Constantino, 2023). This finding is theoretically significant since whereas prior work has treated stereotypes primarily as barriers to engagement—triggering dissociation, avoidance, or social stigma (Bashir et al., 2013; Bolderdijk & Cornelissen, 2022; Minson & Monin, 2012)—this research shows that specific stereotype dimensions can also function as facilitating conditions. Specifically, competence stereotypes help reduce emotional barriers and foster a collective sense that environmental challenges are achievable. The nuance that stereotypes can simultaneously constrain and facilitate sustainable engagement, depending on the evaluative dimension involved, was not apparent in the existing literature and only becomes visible when the analysis moves beyond the warmth dimension that has long dominated prior research.

The third contribution concerns the analytical shift from the environmental actor to the observer, demonstrating that the social evaluation of everyday pro-environmental behavior is socially stratified. Prior research has extensively profiled the stereotypes attributed to high-visibility environmental activists (Bashir et al., 2013; Hoffarth & Hodson, 2016; Köhler et al., 2025) but has paid limited attention to two related questions: whether similar attributions extend to mainstream green individuals performing routine pro-environmental behaviors, and how the observer's own social profile shapes these evaluations. This thesis addresses both gaps. By showing that mainstream green individuals attract predominantly positive stereotypes on average, but that this evaluation is conditional on the observer's gender, age, social class, and informational environment, this research shows that the social normalization of everyday sustainability is not a uniform process. Drawing on Social Identity Theory (Tajfel & Turner, 1979) as the main theoretical lens, the findings provide empirical support for the argument that stereotype attribution toward green individuals functions as an identity-maintenance mechanism in the sustainability domain (Fielding & Hornsey, 2016; Minson & Monin, 2012). Specifically, observers whose identity configuration is more distant from the stereotypical green individual profile—such as men, younger individuals, and those with lower incomes—are more prone to attribute negative stereotypes as a way of maintaining social distinction and protecting their in-group identity. This finding responds directly to theoretical calls in the literature for greater attention to intersecting identities in shaping the evaluation of pro-environmental behavior (Barnhart & Mish, 2017; Brough et al., 2016; Pearson et al., 2018). It also extends the empirical scope of the sustainability stereotypes literature beyond radical activists to ordinary green citizens, showing that while the stigma associated with radical environmentalism has not fully generalized, the

social acceptance of everyday sustainability remains fundamentally conditional and segmented.

Collectively, these theoretical advances converge to produce an integrated account of the social dynamics surrounding pro-environmental behavior. Rather than viewing the social costs of sustainability as isolated hurdles, this thesis shows that they operate as a unified, stratified matrix of social evaluation. Specifically, the thesis establishes that the social meaning of everyday sustainability is shaped simultaneously by how behavior is categorized (Fiske et al., 2002; Tajfel & Turner, 1979), the specific emotional barriers those categories produce for the actor (Li et al., 2023), and the intersectional identity of the observer making the judgment (Pearson et al., 2018; Swim & Geiger, 2018). When these layers are examined jointly, the assumption of a uniform transition toward sustainable lifestyles is challenged. Central to this account is the finding that stereotypes do not operate exclusively as barriers. While the warmth dimension generates threats, social costs, and coping burdens (Chapter 1), the competence dimension is associated with reduced emotional barriers and more supportive conditions for sustainable engagement (Chapter 2). This dual-valence dynamic—whereby stereotypes simultaneously constrain and facilitate pro-environmental behavior depending on the evaluative dimension involved—represents a theoretical contribution, as it was not apparent in prior research that had examined stereotype dimensions in isolation. Ultimately, the thesis reveals that the normalization of pro-environmental behavior is a relational process where the reputational costs and emotional rewards of being green are distributed unevenly across social groups (Rettie et al., 2014).

Figure 12. The Social Dynamics of Pro-Environmental Behavior



2. Methodological contributions

This thesis offers two main methodological contributions. The first concerns the operationalization and measurement of emotions in relation to specific pro-environmental behaviors, rather than to climate change in the abstract. Prior research demonstrates that the framing of emotions fundamentally modulates their relationship with behavior: negative emotions tend to increase engagement when assessed in the context of climate change broadly but can decrease it when tied to specific behavioral intentions, whereas positive emotions display the reverse pattern (Geiger et al., 2021; Ojala, 2023). By framing the measurement of emotions in relation to engagement in everyday pro-environmental behaviors, rather than to climate change in the abstract, this research captures the behavioral relevance of these affective states more precisely. This behavior-anchored framing allowed the study to detect the differential mediating roles of positive and negative emotions, formally tested through the indirect-effect hypotheses (H5a, H5b). We note that pro-environmental behavior was modeled as an aggregate construct; the present design therefore establishes these mediating roles at the level of overall behavioral engagement rather than for individual behaviors, and disaggregated, behavior-specific analyses remain a direction for future work. This measurement choice is not only a design decision but has consequences for understanding how social perceptions translate into pro-environmental action, offering a replicable approach for future studies examining the emotional conditions of sustainable engagement.

The second methodological contribution lies in the integration of traditional regression analysis with interpretable neural networks (NeuralSens; Pizarroso et al., 2022). This dual approach responds to a prevailing methodological limitation in the quantitative literature on environmental stereotypes, which has excelled at identifying average trends but has often struggled to capture complex, non-linear heterogeneity across diverse subpopulations (Kibele et al., 2023; Köhler et al., 2025). By deploying neural network sensitivity analysis as a diagnostic tool to inform the functional specification of regression models (Arroyo-Barrigüete et al., 2023), this thesis detects multidimensional patterns that would have remained obscured in standard linear modeling—notably, the U-shaped relationship between income and negative stereotype attribution, and the interactive effect between age and internet use. This diagnostic application of interpretable machine learning, in which neural networks inform rather than replace theory-driven inference, provides a robust and replicable strategy for researchers studying complex social phenomena where heterogeneity across observer profiles is expected but difficult to specify in advance.

3. Managerial and societal contributions

This thesis also offers contributions to various stakeholders, including sustainability communicators, public institutions, media professionals, and educators, by providing a more specific understanding of the social barriers that may hinder the

adoption of sustainable lifestyles. The main practical application concerns the design of environmental sustainability communication. This thesis shows that the social meaning attached to eco-conscious individuals shapes whether others anticipate environmental action as feasible or discouraging, and that this social meaning varies depending on who is evaluating. This has a direct consequence for how sustainability is communicated: strategies that target the general population uniformly may be less effective than strategies that are sensitive to the intersecting social identities of the audiences they seek to reach (Pearson et al., 2018; Swim & Geiger, 2018). The finding that younger, lower-income, and male observers are more likely to attribute negative stereotypes to mainstream green individuals suggests that these segments require distinct messaging approaches. For instance, framing sustainable options in terms of shared practical benefits—such as cost savings, health, or convenience—rather than relying on moral or identity-based appeals can help mitigate defensive reactions and reputational concerns (Brough et al., 2016; De Nardo et al., 2017). Furthermore, the finding that gathering information in environmental digital information sources is associated with smaller generational differences in negative stereotype attribution offers a practical lead: online channels may function as dynamic spaces where sustainability narratives can be reframed and negotiated for audiences that traditional media does not reach effectively (Elgaaied-Gambier & Mandler, 2021).

On a related note, this thesis provides actionable guidance for how pro-environmental individuals are represented in public discourse. Current media portrayals tend to emphasize the warmth dimension of green individuals as well-intentioned but impractical, eccentric, or socially difficult (Antonetti & Maklan, 2016; Bashir et al., 2013; Raynaud et al., 2024). This thesis shows that social perceptions of competence matter for the emotional conditions under which others consider environmental action, and that these emotional conditions are one mechanism through which such perceptions shape engagement. Representations that emphasize the knowledge, skills, and effectiveness of pro-environmental individuals—rather than their moral commitment alone—could help reduce emotional barriers and foster engagement (Li et al., 2023). This insight is relevant for media professionals, advertisers, and educators involved in shaping public perceptions of environmental actors. More broadly, the threat-specific analysis developed in this thesis offers practitioners a diagnostic tool: rather than addressing social resistance to sustainability as a single, monolithic problem, communicators and policymakers can identify which specific type of threat is operating in a given context—whether self-focused inconsistency pressures, reputational risk under out-group scrutiny, or concerns about group credibility—and tailor their interventions accordingly.

The integrative review (Chapter 1) also yields practical guidance. By organizing the stereotypes feared by eco-conscious individuals into three recurrent clusters and linking each to distinct threat configurations and coping responses, it gives communicators and educators a diagnostic vocabulary: rather than treating social resistance to sustainability as a single problem, practitioners can identify whether a given audience is responding to moral-superiority, social-deviance, or identity-misalignment concerns, and whether the threat is self- or group-focused, and then design messages that

pre-empt the specific coping response (moral repair, impression management, or identity navigation) most likely to be triggered. This threat-specific framing offers a structured alternative to one-size-fits-all sustainability messaging, grounded directly in the review's findings.

Beyond sustainability communication, this research informs organizations and public institutions that the normalization of sustainable practices is not only a matter of promoting individual behavior change; it also requires attending to how the people who adopt those behaviors are socially perceived (Bolderdijk & Jans, 2021; Rettie et al., 2014). The thesis shows that the ecological transition carries an unequal social landscape: the reputational and interpersonal costs of acting sustainably fall more heavily on certain observer-actor configurations than on others (Catena-Fernández & Fernández, 2025; Pearson et al., 2018). This finding is relevant for policymakers working on transition frameworks (Swim & Bloodhart, 2018). It suggests that the social acceptance of sustainable lifestyles cannot be assumed to be uniform, as specific social groups—due to their intersecting identities and socioeconomic realities—face disproportionately higher interpersonal risks when adopting green practices (Seyfi et al., 2025; Swim & Geiger, 2018). Ultimately, addressing these barriers requires recognizing that removing structural and economic constraints to sustainable behavior is insufficient on its own (Gifford, 2011; Kollmuss & Agyeman, 2002); policymakers must also actively reshape the social conditions and normative environments under which that behavior is evaluated (Bolderdijk & Cornelissen, 2022; Fritsche et al., 2018).

4. Limitations

This thesis has several methodological and scope-related limitations that should be acknowledged. First, the integrative review is inherently bounded by the search strategy, the specified inclusion criteria, and the state of the empirical literature at the time of the analysis. Furthermore, the ecological illustration conducted via social listening was intentionally limited in scope. It was designed to provide observational resonance rather than a systematic or exhaustive analysis of online environmental discourse, meaning that the findings from these digital environments cannot be broadly generalized.

A second and more significant limitation concerns the cross-sectional research design employed in the empirical chapters (2 and 3). Because the data were collected at a single point in time, it is not possible to definitively establish causal relationships between the constructs examined. For instance, although structural equation modelling allows for the examination of theoretically specified associations, the finding that competence stereotypes are associated with lower negative emotions does not prove that perceiving pro-environmental individuals as competent causes a reduction in emotional barriers. The reverse direction—that individuals who already experience fewer negative emotions about sustainability are more inclined to perceive green individuals favorably—cannot be entirely discarded. Similarly, the documented correlations between observer

profiles, informational environments, and stereotype attribution must be interpreted as patterned associations rather than strict causal pathways.

A third limitation is the reliance on self-reported measures to assess both behavior and social perceptions. In contexts where environmental sustainability is broadly endorsed as a social norm, participants may be prone to overreport their engagement in pro-environmental behaviors or underreport their negative perceptions of green individuals (Caputo, 2017; Kormos & Gifford, 2014; Vesely & Klöckner, 2020). This social desirability bias is a persistent challenge in survey-based research on morally sensitive topics (e.g., Johnstone & Tan, 2015). Consequently, this bias should be borne in mind when interpreting effect sizes, particularly regarding the high average positive evaluations of mainstream green individuals, as normative pressures may have partially inflated these favorable attributions.

A fourth limitation concerns the geographical scope of the empirical work. The empirical investigations in this thesis were conducted exclusively using Spanish samples. While Spain provides a highly relevant context for the study of sustainability perceptions—characterized by high environmental awareness alongside a persistent gap between attitudes and actual behavior (Fad Juventud, 2024; PwC & Uncommon, 2022)—the findings may not seamlessly transfer to other cultural, political, or economic settings. Stereotype attribution is intricately shaped by cultural norms, media landscapes, and the degree of political polarization surrounding environmental issues, all of which vary significantly across countries (e.g., Ghorbani & Xuan, 2018; Li et al., 2023). Consequently, the specific observer dynamics and social sanctions identified in chapters 2 and 3 may reflect cultural idiosyncrasies of the Spanish context and cannot be assumed to hold elsewhere without cross-cultural replication.

Finally, a fifth limitation stems from the scope of the constructs examined. Specifically, political orientation was not measured in the assessment of observer profiles, despite being a highly likely moderator of stereotype attribution toward green individuals. This omission is particularly notable given that environmental issues have become increasingly politically polarized, with political ideology often dictating in-group conformity and the subsequent derogation of eco-conscious out-groups (Besalú et al., 2025; Geiger et al., 2020; Hoffarth & Hodson, 2016; Žuk, 2023). The absence of this variable limits the explanatory scope of the findings regarding how ideological alignment intersects with sociodemographic traits to shape social evaluation.

5. Future research lines

The specific empirical and theoretical findings of this research already point to distinct avenues for future research; this concluding section outlines the broader research directions that emerge from the thesis as a unified whole. Specifically, four main directions are distinguished: establishing causal relationships, extending the theoretical

constructs examined, broadening the scope of populations and contexts, and investigating the social dynamics of sustainability in institutional settings.

The first future research direction concerns the methodological need for longitudinal and experimental designs to establish causal relationships that cross-sectional data inherently cannot confirm. Future experimental studies could test whether exposure to competence-framed representations of pro-environmental individuals produces measurable changes in emotions and behavioral intentions, providing a stronger causal basis for the emotional mechanisms identified in this research. Similarly, longitudinal designs are essential to track how stereotype attribution and its emotional consequences evolve as sustainability norms shift over time within a given society. Such approaches would help clarify whether the intersectional observer profiles documented in this thesis—particularly the generational differences—are stable features of the social landscape or whether they dynamically adapt as environmental discourse becomes more mainstream (Milfont et al., 2021).

A second direction involves extending the theoretical constructs examined by directly testing two key boundary conditions highlighted in the conceptual framework: the visibility of pro-environmental behavior and the strength of green self-identity (Brick et al., 2017; Whitmarsh & O'Neill, 2010). The thesis suggests that stereotype threats manifest differently depending on whether a behavior is publicly observable or privately enacted, and whether the individual strongly identifies as environmentally committed or holds a weaker green identity. Strong identifiers may experience self-focused threats, such as guilt over perceived inconsistency, while weaker identifiers may face reputational threats from out-group scrutiny (Bolderdijk & Cornelissen, 2022; Elgaaied-Gambier & Mandler, 2021). Yet, the empirical interplay between these two conditions—specifically how visibility and identity strength jointly configure the type of threat experienced and the coping strategy selected—remains an open question. Future research could manipulate behavioral visibility and measure green identity strength to test which threat configurations emerge under various combinations, and how these, in turn, shape emotional responses and behavioral outcomes. On a related note, the coping strategies conceptualized as identity regulation throughout this research deserve dedicated empirical attention. The specific conditions under which individuals select one strategy over another, and how these strategies evolve over time or diffuse through peer networks and online communities, present rich opportunities for future qualitative and experimental work (e.g., Elgaaied-Gambier & Mandler, 2021; Geiger et al., 2019).

A third direction concerns the populations and contexts not covered by the current research. Cross-cultural replication remains an important priority. Because the empirical investigations were conducted exclusively within a Spanish context, the generalizability of these findings to countries with different levels of environmental concern, distinct media landscapes, and varying degrees of political polarization around climate issues remains to be established (e.g., Ghorbani & Xuan, 2018; Li et al., 2023). Future research should also incorporate political orientation as a central variable, given its documented

role in moderating stereotype attribution and out-group derogation toward eco-conscious individuals (Besalú et al., 2025; Geiger et al., 2020; Hoffarth & Hodson, 2016). Additionally, given the present focus on everyday pro-environmental behaviors performed by mainstream green individuals, it is important to investigate whether the dynamics documented here extend to more visible or radical forms of environmental engagement. Whether the observer profiles that penalize or validate green behavior shift when the behavior in question is highly disruptive or activist in nature is a question that warrants rigorous empirical investigation (Feinberg et al., 2020; Köhler et al., 2025).

A fourth and final direction concerns the role of institutional and organizational contexts in shaping the social conditions under which sustainability is evaluated. The findings demonstrate that interpersonal and reputational barriers to pro-environmental behavior are socially stratified; however, these barriers do not operate in isolation from the institutional environments in which individuals live and work (Bolderdijk & Jans, 2021; Ruepert et al., 2016). Future research could examine how workplaces, schools, and local communities either mitigate or exacerbate the conditions under which pro-environmental behavior becomes socially risky or rewarding. For instance, organizational norms and green leadership practices may moderate whether competence-based perceptions of pro-environmental individuals translate into supportive or hostile emotional climates for sustainability engagement (Faraz et al., 2021; Mouro & Duarte, 2021). Ultimately, understanding how institutional and structural environments interact with the interpersonal dynamics documented in this research would help bridge the gap between individual-level social psychology and the broader macro-level literature on sustainability transitions (Köhler et al., 2019; White et al., 2019).

References for Introduction and Conclusion.

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Appendices

Appendix A. List of keywords used for the literature search

The final 20 keywords related to sustainability were environmentalist* OR 'climate change' OR 'voluntary simplicity' OR minimalis* OR sustainab* OR ethic* OR 'responsible consumer' OF 'responsible consumption' OF green* OR 'environmental consciousness' OR 'pro-environmental' OR recyc* OR reused OR eco-friendly OR 'fair trade' OR vegan* OR ecolog* OR 'mindful consumer' OR 'mindful consumption' OR vegetari*, and the 9 keywords related to stereotyping were stereot* NOT (Stereotactic OR stereotests OR stereotypy) OR prejudi* OR discrimination OR stigma OR favo*ritism OR favo*rability OR 'Stereotype content model' OR 'judgment* of others' OR 'judge others' NOT (health* OR animal* OR marineOR autism OR workplace OR self- sustainability OR 'stigma-receptivity' OR racism OR racial OR HIV OR genetics).

Appendix B. Final list of selected articles

Journal	No. of articles	%	Articles
Journal of Environmental Psychology	5	6,67	Geiger et al. (2020); Geiger & Swim (2016); Ratliff et al. (2017) ; Li et al. (2023) ; Köhler et al., (2025)
Appetite	4	5,33	Bolderdijk & Cornelissen (2022); De Backer et al. (2020); Vartanian (2015) De Groeve et al., (2021)
Group Processes & Intergroup Relations	3	4	Swim & Geiger (2018); Bagci et al. (2021); MacInnis & Hodson (2015)
Psychology and Marketing	3	4	Antonetti & Maklan, (2016); Borau et al. (2021); Pinna (2020)
Environmental Communication	3	4	Fonseca & Castro (2022); Stewart & Clark (2011); Klas et al. (2019)
Food Culture & Society	2	2,67	Greenebaum (2018); Greenebaum (2012a)
Journal of Business Ethics	2	2,67	Johnstone & Tan (2015); Shang & Pelozo (2016)
Journal of Consumer Psychology	2	2,67	Zane et al. (2016); White & Dahl (2006)
Australasian Marketing Journal	1	1,33	Tan et al. (2016)
Asian Journal of Social Psychology	1		Liu et al., (2025)
Baltic Journal of Management	1	1,33	Otterbring (2023)
Communication studies	1	1,33	Paxman (2021)
Deviant Behavior	1	1,33	Lindblom & Jacobsson (2014)
Discourse and Society	1	1,33	Buttny & Kinefuchi (2020)
East European Politics	1	1,33	Žuk (2022)
Ecological Economics	1	1,33	Elgaaied-Gambier & Mandler (2021)
Energy Research & Social Science	1	1,33	Reid et al. (2015)
Environment and Behavior	1	1,33	Sadalla & Krull (1995)
Environment Systems and Decisions	1	1,33	De Nardo et al. (2017)
Environmental Sociology	1	1,33	Brown (2025)
European Journal of Social Psychology	1	1,33	Bashir et al. (2013)
Feminist Media Studies	1	1,33	Tran (2022)
Frontiers in Communication	1	1,33	Geiger & Swim (2018)
Frontiers in Psychology	1	1,33	Kibele et al. (2023)
Global Environmental Change-Human and Policy Dimensions	1	1,33	Lewandowsky et al. (2015)
Human Organization	1	1,33	Chikowore (2025).
Humanity & society	1	1,33	Greenebaum (2012b)
Identity	1	1,33	Mannarini et al. (2024)
International Journal of Consumer Studies	1	1,33	Zabkar & Hosta (2013)
Journal of Business Research	1	1,33	Nguyen et al. (2014)
Journal of Consumer Culture	1	1,33	Vrijssen et al., (2025)
Journal of Consumer Research	1	1,33	Brough et al. (2016)
Journal of Macromarketing	1	1,33	Barnhart & Mish (2017)
Journal of Marketing Management	1	1,33	Raynaud et al., (2024)
Journal of Personality and Social Psychology	1	1,33	Griskevicius et al. (2010)
Journal of Social Psychology	1	1,33	DiDonato & Jakubiak (2015)
Journal of Sustainable Tourism	1	1,33	Seyfi et al., (2025)
Local Environment	1	1,33	Hards (2013)

PLOS ONE	1	1,33	Kutlaca et al. (2020)
Polar Record	1	1,33	Burke (2020)
Political Psychology	1	1,33	Prosser et al. (2025)
Proceedings of the National Academy of Science	1	1,33	Pearson et al. (2018)
Psychological Review	1	1,33	Fritsche et al. (2018)
Public Understanding of Science	1	1,33	Suldoovsky et al. (2019)
Qualitative Market Research	1	1,33	Napoli & Ouschan (2020)
Science communication	1	1,33	Stenhouse & Heinrich (2019)
Sex Roles	1	1,33	Swim et al. (2020)
Social Currents	1	1,33	Miller et al., (2025)
Social Psychology and Personality Science	1	1,33	Minson & Monin (2012)
Social Sciences Basel	1	1,33	Farinha & Rosa (2022)
Sociological Perspectives	1	1,33	Cherry (2019)
Sociological Research Online	1	1,33	Brock et al. (2022)
Sustainability	1	1,33	Castro & Rosa (2023)
The British Journal of Sociology	1	1,33	Cole & Morgan (2011)
The Geographical Journal	1	1,33	Koteyko et al. (2013)
The Sociological Review	1	1,33	Howard (2023)
Transportation Research Part A: Policy and Practice	1	1,33	Graham-Rowe et al. (2012)
Transportation Research Part D – Transport and Environment	1	1,33	Anfinsen et al. (2019)
Transportation Research Part F – Traffic Psychology and Behavior	1	1,33	King et al. (2019)
Total	75		

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Appendix C. Additional details on ecological illustration via social listening

This appendix provides additional information on the selection and coding of the Reddit material used for the ecological illustration reported in Chapter 1, Section 3.5. Consistent with the purpose of that section, the online material was used as a theory-guided and non-exhaustive illustration of the review's conceptual patterns rather than as a standalone empirical study.

The broader screened pool comprised 109 threads and 3,874 comments. From this pool, we purposively retained 15 threads and 652 comments covering diverse PEBs and socially evaluative contexts. The final illustrative dataset was drawn from four subreddits: r/vegan, r/climateskeptics, r/simpleliving, and r/changemyview.

The retained threads were selected to capture variation in:

- the type of PEB under discussion,
- the form of social evaluation involved, and
- the salience of stereotype-related threat and coping dynamics.

The included material covered cases involving veganism, voluntary simplicity, climate-related disagreement, interpersonal concealment, anticipated judgment, moral dissonance following behavioral lapses, in-group boundary enforcement, and strategic self-presentation.

The Reddit material was coded deductively using categories derived from the review's MTF. At the thread level, each post was coded along the following dimensions: stereotype cluster, threat target, threat source, green self-identity strength, behavioral visibility, and coping type.

The thread-level codebook used the following distinctions:

- **Stereotype cluster:** moral superiority, social deviance, identity misalignment, mixed, none, or unclear;
- **Threat target:** self, group, both, unclear, or none;
- **Threat source:** self, in-group others, out-group others, mixed, unclear, or none;
- **Identity strength:** high, moderate, low, or absent/unclear;
- **Visibility:** high/public, moderate/interpersonal, low/private, or unclear;
- **Coping type:** moral repair, impression management, identity navigation, mixed, other emergent, none, or unclear.

At the comment level, interactions were coded for: comment function, social content, response type, and interactional effect.

Comment functions included categories such as advice, support, evaluation, norm enforcement, and other interactional roles. Social content captured evaluative themes such as hypocrisy/inconsistency, excessive rigidity, insufficient commitment, identity mismatch, and group reputation concern. Response types included justification, reframing, defiance, and related forms of reply. We coded interactional effects such as defuses, escalates, or neutral. We used the comment-level coding to examine how stereotype-related dynamics were reinforced, softened, negotiated, or resisted in interaction.

Keyword families and pre-coding indicators used for the social listening procedure

MTF dimension	Keyword family	Function	Representative terms
<i>Environmental sustainability</i>	Core sustainability terms	Screening gate (required for all threads)	vegan*, vegetarian*, plant-based, climate change, global warming, carbon, emission*, renewable*, net zero, zero waste, recycl*, compost*, electric vehicle*, EV*, eco-friendly, sustainable, sustainability, green
	Recipe exclusion (vegan subreddits only)	Screening gate (exclusion unless social signals present)	recipe*, ingredient*, meal prep, what i ate, calorie*, macros, protein, air fryer, oven, bak*
<i>Green self identity</i>	Identity labels	Screening gate + coding	as a vegan, I'm vegan, as an environmentalist, I'm an environmentalist, eco-conscious, environmentally conscious, climate activist, activist, activism
	Identity centrality markers	coding (Identity)	for [N] years, part of my identity, who I am, my identity
	Soft identity markers	coding (Identity)	I try to, I'm trying to, I care about the environment, reduce my, cut down on
<i>Behavioral visibility</i>	Visibility context terms	Screening gate + coding	at work, coworker*, boss, my family, my parents, my mom, my dad, my friend*, partner, girlfriend, boyfriend, roommate*, in public, at school, on social media, online
<i>Social interaction</i>	Interaction indicators	Screening gate + coding	argu*, debate*, confront*, judg*, mock*, made fun of, called me, got called, people say, they say, downvot*, told me, said to me, they told

MTF dimension	Keyword family	Function	Representative terms
<i>Coping</i>	General coping terms	coding	I try to, I try not to, I keep it to myself, I don't mention, I don't talk about, I stay quiet, I hide, I just ignore, I let it go, I pick my battles, I changed the subject, I explain, I told them, I respond, I set boundaries, I educate, I don't argue
	Avoidance terms	coding	I avoid, I avoided, I'm avoiding
	Withdrawal / burnout terms	coding	burnt out, burned out, exhausted, tired of, so tired, can't deal, can't handle, I'm done, I give up, I don't have the energy, drains me, overwhelming, I quit, I withdrew