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RECEIVED 10 December 2025

REVISED 28 January 2026

ACCEPTED 30 January 2026

PUBLISHED 17 February 2026

### CITATION

Balaskas S and Yfantidou I (2026)  
Cross-national evidence on  
influencer-driven green choice: a  
moderated-mediation model of  
authenticity, parasocial ties, and  
greenwashing exposure.  
*Front. Commun.* 11:1764803.  
doi: 10.3389/fcomm.2026.1764803

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# Cross-national evidence on influencer-driven green choice: a moderated-mediation model of authenticity, parasocial ties, and greenwashing exposure

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**Introduction:** Social media influencers are essential to sustainability communication, but the mechanisms through which their messages convert into environmentally conscious consumer behavior remain under-specified. This research examines two antecedents—perceived influencer authenticity (AUTH) and parasocial relationship (PSR)—within a conditional-process framework that identifies green trust (TRUST) as the proximal mechanism. The design additionally involves two skepticism constructs: perceived greenwashing risk (PGR) at the post level and prior greenwashing exposure (PGE) at the individual level.

**Methods:** Utilizing recall-anchored, cross-national survey data from Greece ( $n = 376$ ) and the United Kingdom ( $n = 331$ ), analyzed through variance-based structural equation modeling (SEM), we examine direct, mediated, and moderated-mediation relationships.

**Results:** AUTH and PSR exhibit positive associations with sustainable purchase intention across the country and pooled samples, while TRUST offers additional explication power. The conversion of TRUST into intention is weakened by PGE, which functions as a late-stage boundary condition. Conditional-indirect analyses indicate that PGR affects intention via TRUST in all samples, with effects diminishing as PGE rises; PSR only shows a moderate negative mediated component via TRUST in addition to its positive direct association with intention in the UK. Cross-national comparability is supported by measurement and structural invariance.

**Discussion:** To maintain the conversion efficiency of trust in green decision-making, the findings suggest prioritizing verifiable, value-congruent authenticity, actively managing both PGR and PGE, and matching influencer content with transparent substantiation practices.

### KEYWORDS

authenticity, cross-national comparison, green trust, greenwashing, influencer marketing, parasocial relationship, prior greenwashing exposure

## 1 Introduction

Social media influencers are central conduits for sustainability messaging, yet the processes by which their content converts attention into green consumer action remain insufficiently specified (Khurana et al., 2025; Kılıç and Gürlek, 2024; Wang and Walker, 2023). Influencers marshal dedicated follower bases whose trust can translate conversation into purchase behavior (Balaskas et al., 2025; Mustapa and Kallas, 2025; Piracci et al., 2024). Prior work shows that credible messengers can shift pro-environmental attitudes and intentions, but credibility alone is often necessary rather than sufficient (Liu and Zheng, 2024; Piracci et al., 2024). A growing stream highlights authenticity—the perception that the creator is sincere and value-consistent—as the catalyst that turns attention into verifiable green action via trust (Bastounis et al., 2021; Chen et al., 2015). At the same time, consumer skepticism is heightened by greenwashing—overstated or fabricated environmental claims—creating a climate where repeated exposure to misleading claims depresses responsiveness, even to well-intended messages (Bastounis et al., 2021; Chen et al., 2015). For influencers, whose person and message are fused, any hint of insincerity or inaccuracy risks reputational and commercial harm (Bastounis et al., 2021; Zhuang et al., 2021). Although many consumers report willingness to pay a premium for genuinely sustainable products, that willingness is contingent on believing the claims (Bastounis et al., 2021; Chen et al., 2015; Mustapa and Kallas, 2025). Regulators—particularly in the EU—are moving toward stricter substantiation, specific disclosures, and scannable evidence, increasing pressure on creators to be transparent without eroding perceived sincerity. Thus, influencer-led green marketing has substantial potential, but success hinges on overcoming doubt, providing verifiable content, and building green trust (Liu and Zheng, 2024; Piracci et al., 2024).

Perceived influencer authenticity (AUTH) and parasocial relationship (PSR) are two mechanisms that are often mentioned in accounts of influencer persuasion for sustainability; however, they are conceptually different and misinterpreted (Diao et al., 2025; Zatwarnicka-Madura et al., 2022; Zhuang et al., 2021). Genuineness, honesty, and value congruence—alignment between stated beliefs and observable behavior, voice consistency over time, and advocacy driven by intrinsic motivation, are reflected in AUTH. Transparent sponsorship, alignment between endorsements and the influencer's ethical persona, and trustworthy information are salient cues that elevate perceived claim credibility and actionability by framing sustainability advice as principled opinion rather than transactional rhetoric (Bastounis et al., 2021; Diao et al., 2025; Zhuang et al., 2021). PSR, on the other hand, indicates the biased attachment that followers have to media personalities. Audiences experience “felt closeness” through self-disclosure, repeated exposure, and sporadic interaction, which can encourage imitation, loyalty, and receptivity (Khurana et al., 2025; Kılıç and Gürlek, 2024; Mustapa and Kallas, 2025). In terms of advertising, a person's kindness and trust can be transferred to the brand; higher PSR is linked to stronger purchase intentions, less uncertainty, and increased confidence in claims, even in eco-lifestyle contexts (Chen et al., 2015; Liu and Zheng, 2024; Piracci et al., 2024).

Integrating these strands, green trust—confidence that a product/brand/message is genuinely “green” and will deliver on its environmental claims, serves as the proximal mechanism linking

influencer cues to downstream behavior. AUTH can build trust by lowering inferences of opportunism and increasing perceived truthfulness; PSR can build trust by lowering perceived risk through relational closeness. Once claim-level trust forms, intentions typically follow (selection, recommendation, and—when added value is perceived—willingness to pay a premium) (Bastounis et al., 2021; Chen et al., 2015; Zhuang et al., 2021). Two fundamental questions for theory and practice are raised by this framing: which pathway has more influence on green trust when AUTH and PSR co-occur, and under what circumstances. In a claim-saturated environment, how should content be designed to maintain trust, which is positioned as the catalyst between behavior and communication, even in the face of high skepticism (Diao et al., 2025; Zatwarnicka-Madura et al., 2022).

While there exists additional research underway on sustainability and influencer marketing, there still remain four gaps. First, mechanism clarity: most studies merely examine AUTH or PSR on their own and fail to contrast their effects. Moreover, only a few studies specify the full chain AUTH/PSR on trust to sustainable outcomes (Bastounis et al., 2021; Khurana et al., 2025). Second, boundary conditions: research scarcely conceptualizes prior greenwashing exposure (PGE) as an individual-level moderator that can attenuate AUTH and PSR on trust when audiences are skeptical. Third, cross-national portability: single-country designs leave open whether mechanisms generalize across distinct regulatory/media ecosystems (e.g., EU vs. post-Brexit United Kingdom) and whether AUTH, PSR, and trust are measurement-invariant. Fourth, ecological realism: vignette experiments dominate, whereas recall-anchored, survey-only designs that capture real exposures and meet SEM standards are scarce. We address these by (i) directly comparing AUTH and PSR in one model, (ii) specifying green trust as the mediator to sustainable purchase intention (and willingness to pay), (iii) testing PGE as a theory-grounded moderator, and (iv) evaluating cross-national invariance using a recall-anchored SEM approach.

The contributions are threefold. Theoretically, we provide a head-to-head test of AUTH vs. PSR within a conditional-process model, clarifying their relative power for green trust and, via trust, intention (Skordoulis et al., 2025). We further employ PGE as a person-level moderator and set trait-like skepticism (PGE) apart from state-like message suspicion (PGR), enabling us to establish a dual-skepticism account (Higuera-Castillo et al., 2024; Kim et al., 2025). Methodologically, an ecologically valid, recall-anchored survey utilizing SEM-ready measures is examined across cross-national samples (United Kingdom, Greece), with multi-group analysis confirming measurement and structural invariance (Glaveli, 2021; Kim et al., 2025; Strycharz and Segijn, 2024). We combine PLS-SEM (moderated mediation, latent interactions, predictive assessment) along with fit checks in our analysis. Practically, if AUTH dominates, creators and brands should focus on value-consistency, explicit disclosure, and claims that can be verified instead of parasocial warmth, especially for high-PGE audiences. The findings quantify the penalty of greenwashing legacies, motivating third-party certification, rigorous substantiation, and careful #ad practices; more broadly, they support accountable green claims (e.g., standardized evidence, machine-readable eco-metadata) to foster trustworthy paths to green choice.

The paper proceeds as follows: section 2 reviews influencer-sustainability literature and develops hypotheses underpinning the

model. Section 3 presents the conceptual framework with relations among AUTH, PSR, trust, PGE, and outcomes. Section 4 details the cross-national survey, measures, sampling (Greece, United Kingdom), and analytic strategy (conditional-process SEM with invariance tests). Section 5 reports measurement validation and hypothesis tests. Section 6 discusses theoretical, practical, and policy implications, limitations, and future research. Section 7 concludes with the study's core contributions to influencer-driven green consumer decision-making.

## 2 Literature review

### 2.1 Influencer persuasion in sustainability

Perceived authenticity and parasocial relationship (PSR) are the two main factors that consistently influence effectiveness in studies on influencer persuasion in sustainability, though the reported effects vary depending on context and operationalization (Kothari et al., 2025). The source-credibility pathway is a recurring theme in the literature, wherein assessments of green claims are influenced by perceived authenticity and credibility, ultimately resulting in pro-environmental intentions, often through mechanisms related to trust (Su et al., 2021; Wu et al., 2025; Wan et al., 2025). In this regard, authenticity is considered an important diagnostic indicator that helps audiences discern whether sustainability messaging represents genuine values or deliberate manipulation.

Through two complementary mechanisms, perceived greenwashing risk (PGR) could diminish the intention toward sustainable purchases. First, in line with the predominant mechanism in the literature, increased perceptions of greenwashing erode green trust by indicating opportunistic or dishonest intentions, which in turn reduces downstream intention (Ha, 2022; Ye et al., 2024). Second, because PGR acts as a risk/avoidance heuristic, it can also have a direct deterrent effect. Even in cases where some baseline trust is maintained, consumers may completely disengage from an option when they expect to be misled in order to avoid moral, financial, or reputational consequences. Evidence that skepticism and motive inferences can inhibit behavioral responses in sustainability advertising beyond purely evaluative judgments supports this reasoning (de Sio et al., 2022; Ye et al., 2024). Therefore, we investigate whether PGR maintains an independent association with sustainable purchase intention in addition to modeling green trust as a crucial mechanism.

Additionally, PSR includes the relational path to persuasion: people who feel a stronger one-sided connection with an influencer are considered usually more credible and have better attitudes and behaviors (Bi and Zhang, 2023). Research shows that PSR rises when people are exposed to the same repeated stimuli over time and feel like they are similar in their minds, not in their demographics. This backs up the idea that closeness in relationships can be a powerful tool for influencers to use when they talk to people (Breves and Liebers, 2025; Breves and Liebers, 2022; Möri and Fahr, 2023). Authenticity and PSR are two different ideas. Authenticity pertains to assessments of the influencer's truthfulness and genuineness, while PSR pertains to perceived interpersonal proximity. Still, it is expected that both will converge on trust as a close mechanism through which influencer cues affect long-term intentions (Su et al., 2021).

The current study is motivated by three tensions in this context. First, prior research often examines PSR or authenticity separately; few studies assess their relative explanatory contributions within a cohesive model, especially when it comes to whether their effects operate via a shared trust mechanism (Omeish et al., 2025). Second, audiences' perceived risk of greenwashing can directly reduce purchase intentions and raise the bar for trust-based persuasion, making sustainability contexts especially prone to skepticism (Chen et al., 2022; Garg and Bakshi, 2024). Third, the variety of stimuli and measurement options complicates synthesis, highlighting the significance of defining a targeted model that uses theoretically related constructs to link influencer cues to intention. Authenticity, parasocial relationship (PSR), perceived risk of greenwashing, and green trust are all examined in this study as key indicators of sustainable purchase intention. Accordingly, we model PGR as both a trust-eroding cue and a direct avoidance heuristic, thus, the following hypotheses are proposed:

*H1: Perceived influencer authenticity (AUTH) is associated with sustainable purchase intention (INTENT).*

*H2: Parasocial relationship with the influencer (PSR) is associated with sustainable purchase intention (INTENT).*

*H3: Perceived greenwashing risk (PGR) is associated with sustainable purchase intention (INTENT).*

*H4: Green trust (TRUST) is associated with sustainable purchase intention (INTENT).*

### 2.2 Green trust as mechanism

According to multiple perspectives (Bhattacharya et al., 2024; Chauhan and Goyal, 2024; Ha, 2022), green trust is a proximal psychological mechanism that converts sustainability communications into downstream behavioral intentions (Bhattacharya et al., 2024; Chauhan and Goyal, 2024; Ha, 2022). Beyond general attitudes toward sustainability, audiences are more inclined to select green options when they perceive environmental claims as reliable, trustworthy, and non-opportunistic (Alhomid, 2025; de Luis García, 2024; Ha, 2022). Combining this information, a meta-analysis of 79 studies reveals that green trust has a strong but context-sensitive relationship with purchase intention and associated outcomes. Trust formation is influenced by both affective and cognitive inputs, such as warmth and identification and claim credibility and evidence quality (Chauhan and Goyal, 2024).

Green trust serves as a crucial link between creator cues and consumer reactions in influencer-mediated sustainability persuasion. For instance, verification signals can improve perceived credibility and trust, with effects dependent on influencer characteristics (e.g., stronger for micro-influencers) (Liao et al., 2024), whereas congruence between influencer type and endorsement style strengthens green purchase intention through trust-related processes (Zhao et al., 2024). Parasocial ties can also result in persuasion through downstream credibility and attitudinal assessments that lead to intention, which is consistent with relational accounts (Bi and Zhang, 2023). All of these streams imply that trust is a mechanism through which cues based on relationships and authenticity gain persuasive impact in green contexts, rather than just a correlate of sustainable intentions.

However, because sustainability messaging is particularly vulnerable to persuasion knowledge and greenwashing concerns, establishing green trust is delicate. Greenwashing cues consistently undermine green image and trust (Ha, 2022), and message framings can backfire when recipients perceive strategic manipulation or assume impression-management motives (Ye et al., 2024). According to related research, environmental knowledge can help build trust, but advertising skepticism undermines intention and trust (de Sio et al., 2022). Crucially, the inconsistent pattern of results across studies points to significant boundary conditions that can either maintain or undermine trust, such as verifiability signals, disclosure policies, identity relevance, and audiences' past experiences with deceptive eco-claims (Ha, 2022; Liao et al., 2024).

The current study advances two clarifications that directly inform our model, building on this evidence. First, influencer antecedents like parasociality and authenticity are frequently studied separately, which restricts conclusions regarding their relative significance for fostering green trust within a cohesive framework (Alhomaid, 2025; Bhattacharya et al., 2024; Ha, 2022). Therefore, we examine the indirect effects of perceived authenticity and parasocial relationships on sustainable purchase intention (and willingness to pay, where applicable) and treat them as concurrent antecedents of green trust. Second, despite the widespread recognition of skepticism and greenwashing concerns, limited study has examined at previous exposure to greenwashing as an individual-level factor influencing how easily trust is formed from influencer cues (de Sio et al., 2022; Román-Augusto et al., 2023; Zhao et al., 2024). Our method clarifies when influencer cues produce resilient green trust and when trust becomes more challenging to establish by combining these mechanisms with boundary conditions—and evaluating cross-national portability through measurement and structural invariance. We developed the following based on the aforementioned:

*H5a:* Perceived influencer authenticity (AUTH) has an indirect effect on sustainable purchase intention (INTENT) through Green trust (TRUST).

*H5b:* Parasocial relationship with the influencer (PSR) has an indirect effect on sustainable purchase intention (INTENT) through Green trust (TRUST).

*H5c:* Perceived greenwashing risk (PGR) has an indirect effect on sustainable purchase intention (INTENT) through Green trust (TRUST).

## 2.3 Greenwashing exposure as boundary condition

Evidence shows that greenwashing operates not only as a message attribute but as an accumulated audience experience that reshapes persuasion (Nazish et al., 2025; Olbermann et al., 2024; Yadav et al., 2025). Features that trigger assumptions of dishonesty or inaccuracy, such as vague claims, impression-management cues, and sponsorship incongruity, consistently erode credibility and trust. This renders consumers to evoke downstream choices via mediators such as green-ad skepticism, brand shame, and even brand hate (Adil et al., 2024). Trust is the fulcrum: pro-environmental signals build intention through green trust but collapse when revealed as whitewash (Munaier et al., 2022). Effects are context-sensitive: green appeals that frame scarcity

can backfire when people perceive they are greenwashing (Ye et al., 2024); some brand-equity models show that green image and trust can hurt a brand indirectly (not directly) (Ha, 2022), and at the firm level, greenwashing and willingness to innovate may follow an inverted-U through performance-feedback dynamics (Lu et al., 2025).

Recent research elucidates mechanisms and moderators. Disaggregating practices and involvement, perceived greenwashing increases skepticism and negatively impacts attitudes through elaboration pathways, with environmental knowledge serving as a moderating factor (Rehman et al., 2025). Building on the Theory of Planned Behavior (TPB), greenwashing can undermine the intention-behavior relationship, contesting models that assume a stable intention-behavior connection (Nazish et al., 2025). Platform signals reinstate thresholds: verification badges boost trust and sharing by transferring institutional credibility, especially for micro-influencers (Liao et al., 2024). On the other hand, sponsorship disclosure also renders messages less credible, especially for human than virtual endorsers, by expectation-violation (Lim et al., 2025). Influence endures when the alignment between influencer and product enhances perceived expertise, especially for products with prominent green features and significant self-disclosure; however, alignment cannot protect unverifiable assertions (Shan and Xu, 2025). Similar “washing” (e.g., diversity-washing) diminishes brand evaluation and purchase intention in ambiguous situations; significantly, heightened parasocial interaction may enhance the identification of washing in these contexts (Olbermann et al., 2024). Endorser class and cause cues (celebrity vs. influencer; cause-related framing; country-of-origin) can enhance advocacy and intention, but only if trust and perceived ethicality are maintained (Kalam et al., 2024).

These patterns collectively indicate that prior exposure to greenwashing (PGE) influences later message reception, resulting in learned resistance that undermines trust, even in the presence of high-quality cues. Nevertheless, the vast majority of studies regard skepticism as either state-based or general, hardly conceptualizing PGE as an individual-level moderator of trust development (Breves and Liebers, 2022; Khanchel et al., 2024; Lim et al., 2025). Our research fills this gap by conceptualizing PGE as a boundary condition that influences green trust and, subsequently, sustainable purchase intention. Using latent interactions and conditional indirect effects, we test whether learned resistance attenuates trust regardless of value-congruent sincerity or relational intimacy. We also distinguish post-level perceived greenwashing risk (state) from PGE (trait) and assess cross-national invariance to determine how media and governance contexts condition mechanism resilience. To this end, the following hypothesis was formed:

*H6:* Prior greenwashing exposure (PGE) moderates the relationship between Green trust (TRUST) and sustainable purchase intention (INTENT) such that the conditional effect of TRUST on INTENT varies by the level of PGE (TRUST × PGE → INTENT).

## 2.4 Cross-national considerations

Cross-national research indicates that institutional governance and socio-cultural influences collectively determine audience perceptions of trust and skepticism regarding sustainability messages; however, evidence specific to influencers remains limited (Colleoni et al., 2022; Kim et al., 2025; Strycharz and Segijn, 2024). The UK's ASA/

CAP and CMA combine guidance with active enforcement (like the Green Claims Code and sector sweeps) on the regulatory side. The EU's approach, which is relevant to Greece, focuses on standardized substantiation, third-party verification, and life-cycle disclosure under the Greenwashing and Green Claims Directives. These regimes converge normatively by limiting ambiguous assertions and increasing evidentiary requirements; however, they differ in implementation pace, enforcement relevance, and signal clarity, likely resulting in distinct informational environments for UK and EU audiences. In practice, little is known about whether these differences in regimes lead to systematic changes in how trust is built at the influencer level.

Pandemic-era CSR research indicates that cultural dimensions (individualism/collectivism, power distance, uncertainty avoidance) can influence recall without consistently altering favorability, suggesting that high-salience contexts may diminish cultural disparities (Colleoni et al., 2022). Studies on "dataveillance" in advertising reveal that the U. S. had stronger chilling effects than the Netherlands. This suggests how privacy rules and norms affect how audiences respond to persuasive technologies (Glaveli, 2021; Kim et al., 2025; Strycharz and Segijn, 2024). Reviews of green social media ads show consumers are becoming more aware of greenwashing and how various populations react. Evidence from Greece-based tourism suggests younger followers are more likely to engage with influencers but care less about sustainability. Authenticity and transparency are important for reducing suspicion (Skordoulis et al., 2025).

Macro-level ideology is significant as cross-national studies associate various varieties of populism with climate skepticism at both individual and national levels, influenced by globalization, suggesting that political predispositions could establish thresholds for the acceptance of micro-level influencer cues (Glaveli, 2021; Kim et al., 2025). Consumer reactions to CSR vary even among neighboring nations (e.g., Greece vs. Bulgaria), indicating the necessity of empirical testing before assuming structural equivalence (Ktisti et al., 2022; Nemes et al., 2022). Complementary typologies of greenwashing enhance the assessment of claim quality and verifiability, yet they are infrequently integrated into cross-national influencer research.

Three gaps follow. First, Greece–UK comparisons of influencer sustainability communication are scarce, and measurement-invariance checks are often absent, leaving open whether observed differences reflect construct nonequivalence rather than genuine structural

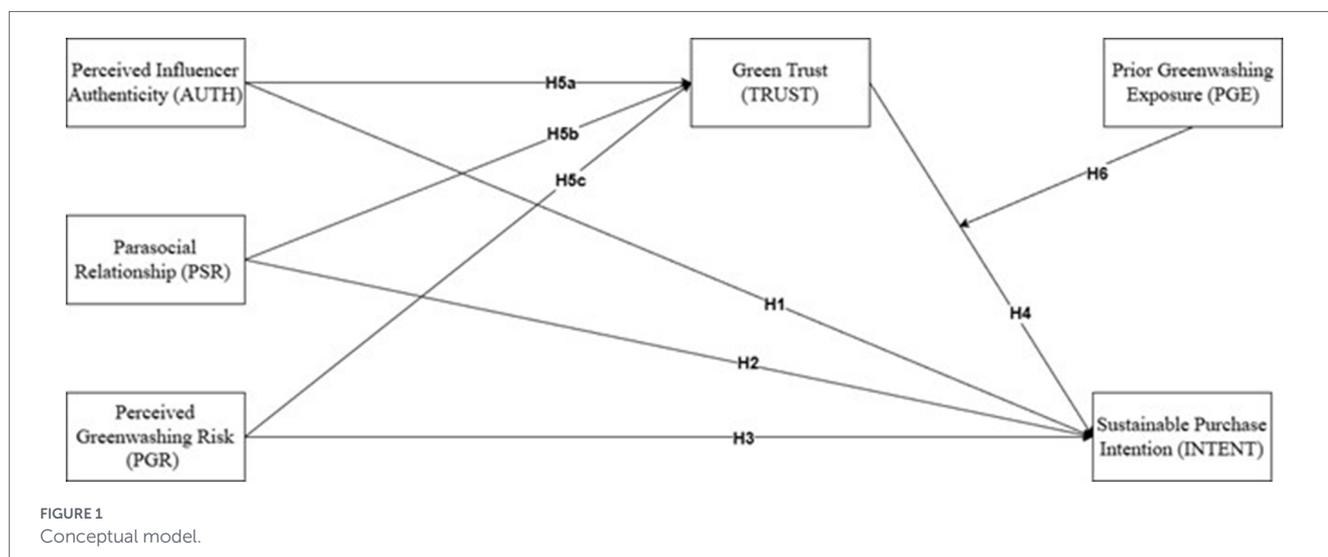
divergence. Second, research seldom juxtaposes institutional context (claim governance, disclosure enforcement) with person-level deception histories (prior greenwashing exposure), though both plausibly set trust thresholds. Third, influencer findings are frequently platform- and cohort-specific, based on small convenience samples, and rarely test moderated mediation. We address these gaps by treating country as a boundary context: we establish measurement equivalence (MICOM) for authenticity, parasocial relationship, and green trust; then test structural invariance of paths and their moderation by prior greenwashing exposure. This strategy converts regulatory divergence (EU-aligned Greece vs. UK domestic enforcement) and socio-cultural heterogeneity into testable propositions about mechanism portability, avoiding cultural stereotyping while identifying when and where influencer-based green persuasion travels. To this end, we pose the research question:

RQ-CN. *Do the measurement properties and structural mechanisms in the model generalize across Greece and the United Kingdom?*

## 3 Methods

### 3.1 Conceptual model and rationale

Our model (Figure 1) explains how sustainability messaging by influencers translates into consumer choice by positing Perceived Influencer Authenticity (AUTH) and Parasocial Relationship (PSR) as distinct antecedents operating through Green Trust (TRUST), with Prior Greenwashing Exposure (PGE) as a boundary condition. Drawing on signaling/attribution accounts (value–claim congruence) and parasocial interaction/trust-transfer logic (relational closeness), AUTH and PSR provide evidentiary and relational routes to claim credibility, respectively. TRUST is treated as the proximal mechanism linking these cues to Sustainable Purchase Intention (INTENT). Because audiences accumulate deception histories, PGE is modeled as a person-level moderator of the AUTH→TRUST and PSR → TRUST links; we additionally control Perceived Greenwashing Risk (PGR) at the post level to separate state suspicion from trait-like exposure. This



design addresses three gaps: (i) few studies pit AUTH and PSR in the same model to adjudicate their relative influence on TRUST; (ii) person-level deception histories are rarely incorporated as moderators of trust formation; and (iii) cross-national measurement/structural invariance is seldom tested. Our recall-anchored, survey-only SEM (Greece, United Kingdom) therefore isolates mechanism, tests boundary conditions, and assesses portability without advancing directional cultural claims.

### 3.2 Data collection and sampling

To investigate conditional processes in sustainable influencer marketing, we conducted a quantitative, cross-sectional online survey (Kesmodel, 2018; Olsen and St George, 2004). Naturally occurring exposures to influencer content (stimulus) were associated with sustainable purchase intention (response) and perceived authenticity, parasocial relationships, and green trust (organism) in accordance with a stimulus-organism-response framework. The design investigated latent interactions, moderated mediation, and SEM requirements for validity and reliability (Campbell et al., 2020; Nyimbili and Nyimbili, 2024; Suen et al., 2014). Purposive, stratified-quota sampling was employed through professional panels in Greece and the UK. Respondents were screened to ensure sure they were active social media users who had recently encountered sustainability-related influencer posts. To estimate the active user base and secure cell sizes for multi-group and invariance tests, country strata applied quotas for age bands (18–29, 30–44, 45–60, 60+), gender, and education.

After e-consent and eligibility checks, participants completed a recall-anchored survey (no experimental stimuli). To standardize context while preserving ecological validity, each respondent selected a creator they currently follow and recalled the most recent post ( $\leq 6$  months) in which the creator recommended or discussed a sustainable product/practice. Respondents reported platform, product category, and approximate date of exposure and provided a one-sentence description to verify the anchor. The questionnaire included: (a) eligibility/screening; (b) 5-point Likert scales for all SEM constructs measured and validated (c) demographics; and (d) quality checks. To mitigate common-method bias, item blocks were separated by brief fillers, items were randomized within blocks, and a short marker scale (social desirability) was included for sensitivity analyses. Inclusion required adults ( $\geq 18$ ) who (i) use at least one influencer-heavy platform (Instagram, TikTok, YouTube, Facebook, X)  $\geq 3$  days/week and (ii) reported a qualifying exposure within 6 months. Pre-registered exclusions removed speeders, inattentive responders (failed instructed-response item), straightliners, suspected duplicates/bots (IP/device, country mismatch), and anchor failures (unable to describe the post or time window violations). Automated panel and in-survey checks enforced criteria.

The target was  $N \approx 600$  ( $\approx 300$  per country), set to exceed  $\approx 10:1$  observations-to-parameter ratios for SEM, enable multi-group comparisons, and achieve 0.80–0.90 power for small-to-moderate structural effects, latent interactions ( $PGE \times AUTH; PGE \times PSR \rightarrow TRUST$ ), and conditional indirect effects. For single-country analyses,  $N \geq 400$  was maintained to stabilize bootstrap intervals for moderated mediation (Janadari et al., 2016; Kock and Hadaya, 2018; Wagner and Grimm, 2023). A pilot ( $n \approx 60$ –80 per country) confirmed variance in AUTH/PSR, clarity of instructions, and item comprehension; minor wording refinements followed cognitive interviews. In the main study, internal consistency ( $\alpha$ , composite reliability), convergent validity

( $AVE \geq 0.50$ ), and discriminant validity (HTMT) were assessed; low-loading reflective items were retained only if construct reliability and AVE remained adequate. Cross-context comparability was examined via MICOM (configural/compositional invariance; equality tests) and corroborated with multi-group checks (Carranza et al., 2020; Götz et al., 2010; Ringle et al., 2015). The protocol received institutional ethics approval. Participation was voluntary; no direct identifiers were collected in-survey. Panel providers handled contact separately. Data were anonymized/pseudonymized, stored on encrypted drives, and processed under GDPR principles (lawfulness, transparency, purpose limitation, data minimization, storage limitation, integrity/confidentiality). Only competent adults were enrolled; no vulnerable groups were targeted. Overall, the survey-only plan delivers ecological validity of recalled exposures, sufficient power for moderated mediation, cross-national comparability, and adherence to contemporary standards of measurement quality and research ethics.

### 3.3 Measurement scales

All focal constructs were assessed using multi-item, 5-point Likert-type scales (1 = strongly disagree, 5 = strongly agree) tailored to the influencer/sustainability context and anchored to the respondent's most recent experience (Supplementary Table S1). Perceived Influencer Authenticity (AUTH) 5 items, adapted from (Campagna et al., 2023; Ilicic and Webster, 2016) measured value congruence, sincerity, and consistency (e.g., “This creator appeared authentic in that post”; “The message aligned with the creator's typical values/persona”). Parasocial Relationship (PSR), 5 items, adapted from (Rubln et al., 1985; Sokolova and Kefi, 2020) measured felt closeness and one-sided intimacy (for example, “I feel as if I know this creator”; “I would miss this creator if they quit posting”). Perceived Greenwashing Risk (PGR) with 4 items (Chen and Chang, 2013; Hameed et al., 2021) assessed message-level distrust (e.g., “This post might be exaggerating its credentials of being sustainable”; “There is a possibility the claims are not so accurate”). Green Trust (TRUST), 4 items adapted from (Chen, 2010) assessed belief in environmental claims/brand performance (e.g., “I believe the environmental claims in that post”). PGR items were reverse-coded so that higher values indicate lower perceived greenwashing risk (i.e., higher perceived claim credibility). Prior Greenwashing Exposure (PGE) (4 items, Mohr et al., 1998) has assessed learned experience with misleading green claims (e.g., “In the last 12 months I have frequently been confronted with sustainability promises that afterwards proved misleading”). Sustainable Purchase Intention (INTENT), 4 items, (Higuera-Castillo et al., 2024; Spears and Singh, 2004), has measured intention to buy based on the endorsement (e.g., “I intend to buy this sustainable product”). They were forward-back translated and reconciled with the committee and conceptual equivalence cognitive interviews; reliability (Cronbach's  $\alpha$ , composite reliability), convergent validity (AVE), and discriminant validity (HTMT) were assessed before structural analyses.

### 3.4 Sample profile

In total, 707 social media users from Greece ( $n = 376$ ) and the UK ( $n = 331$ ) participated (Table 1). The majority of respondents were between the ages of 25 and 44, had relatively high levels of education (Bachelor's degree or above), and the gender composition was similar across nations. In general, followers reported having a well-established relationship with the focal influencer: 74.9% of respondents in the UK and 78.2% of respondents in Greece had followed the influencer for at

TABLE 1 Sample characteristics by country (n, %).

Demographic	Category	Greece (n = 376)	UK (n = 331)
Gender	Female	167 (44.4)	133 (40.2)
	Male	209 (55.6)	198 (59.8)
Age	18–24	48 (12.8)	50 (15.1)
	25–34	100 (26.6)	96 (29.0)
	35–44	102 (27.1)	83 (25.1)
	45–54	84 (22.3)	71 (21.5)
	55+	42 (11.2)	31 (9.4)
Education	Secondary/high school	116 (30.9)	119 (35.9)
	Bachelor's	146 (38.8)	119 (35.9)
	MSc and above	114 (30.3)	93 (28.1)
Duration following influencer	<3 months	82 (21.8)	83 (25.1)
	3–11 months	121 (32.2)	110 (33.2)
	1–2 years	142 (37.8)	111 (33.5)
	3+ years	31 (8.2)	27 (8.2)
Eco-label familiarity	Very low	56 (14.9)	67 (20.2)
	Low	108 (28.7)	72 (21.8)
	Moderate	75 (19.9)	90 (27.2)
	High	99 (26.3)	71 (21.5)
	Very high	38 (10.1)	31 (9.4)
Exposure to sustainability influencer content	Never	47 (12.5)	44 (13.3)
	Rarely	81 (21.5)	66 (19.9)
	Sometimes	147 (39.1)	125 (37.8)
	Often	63 (16.8)	66 (19.9)
	Very often	38 (10.1)	30 (9.1)
Purchased from influencer recommendation	No	140 (37.2)	117 (35.3)
	Yes	236 (62.8)	214 (64.7)

least 3 months, with approximately one-third reporting a duration of 1–2 years. Overall, respondents' familiarity with eco-labels ranged from moderate to high, and the majority had previously bought a product based on an influencer's recommendation. Both samples were frequently exposed to influencer content about sustainability. In Table 1, complete counts and percentages are presented.

## 4 Data analysis and results

Variance-based structural equation modeling was implemented in SmartPLS 4 (v4.1.1.4) to analyze the data. Since PLS-SEM emphasizes maximizing explained variance in endogenous constructs, which supports predictive assessment, it was chosen for use in business and social science applications (Hair and Alamer, 2022; Sarstedt et al., 2021). Multi-Group Analysis (MGA) was used to assess potential heterogeneity in order to compare structural paths among subpopulations and identify context-specific variations that traditional regression was unable to capture (Hair et al., 2006; Stevens, 2002). The

computation of path coefficients, standard errors, and reliability indices was done in accordance with established protocols (Hair and Alamer, 2022). The minimal threshold for convergent validity for reflective measures was determined to be indicator loadings  $\geq 0.70$ . This approach rendered it feasible to test the structural model rigorously and carefully assess the suggested mechanisms both within and between respondent groups.

### 4.1 Common method bias

We utilized (Podsakoff et al., 2012) methods to check for common method bias. Harman's single-factor test (unrotated principal factor analysis) revealed that the first factor explained only 26.491% of the total variance, which is much lower than the standard 50% threshold. This means that CMB is not likely to affect the results. Clear reporting of these diagnostics bolsters construct validity and the reliability of interconstruct relationships by alleviating apprehensions regarding systematic measurement error (Podsakoff et al., 2003, 2012).

### 4.2 Measurement model

In accordance with (Hair et al., 2016; Hair and Alamer, 2022), evaluation commenced with the reflective measurement models, evaluating composite reliability (CR), indicator reliability, convergent validity, and discriminant validity before interpreting the structural paths. Outer loadings, which represent the variance in each item explained by its latent construct, were employed to operationalize indicator reliability (Hair Jr et al., 2014). Loadings  $\geq 0.70$  were deemed satisfactory in accordance with Wong (2013) and Chin (1998), yet item removal was not automatic due to common social-science constraints (Chin, 2009). Instead, decisions were made based on (Hair Jr et al., 2014) advice: indicators with loadings between 0.40 and 0.70 were only removed if doing so significantly improved CR or AVE, which improved psychometric quality without hurting content validity. By following these rules and using (Gefen and Straub, 2005) decision logic, the model was cleaned up by getting rid of AUTH5, PSR5, and PGE4 (loadings  $< 0.50$ ) for both overall and country-specific data. Table 2 shows that this simple improvement made the measurements better (CR, AVE) without making the coverage of the constructs worse.

We utilized Cronbach's alpha,  $\rho_A$ , and composite reliability (CR) to assess for reliability. The CR values for all focal constructs (AUTH, INTENT, PGE, PGR, PSR, TRUST) met or came close to the 0.70 benchmark, which indicates that the internal consistency was satisfactory (Gefen and Straub, 2005; Henseler et al., 2015). As anticipated,  $\rho_A$  values resided between alpha and CR, typically being  $\geq 0.70$ , thereby reinforcing reliability in both the overall and country-specific samples (Henseler et al., 2015, 2016). Convergent validity was confirmed whereas the average variance extracted (AVE) surpassed 0.50, in certain cases where AVE was marginally below 0.50, a composite reliability (CR) greater than 0.60 satisfied, the Fornell–Larcker acceptability criterion (Fornell and Larcker, 1981). The Fornell–Larcker test confirmed that discriminant validity was legitimate as the square root of each construct's AVE was higher than its inter-construct correlations. The HTMT ratios were all below the conservative 0.85 threshold (Henseler et al., 2015, 2016). Overall, the measures demonstrate strong internal consistency and construct validity. Full statistics for alpha,  $\rho_A$ , CR, AVE, inter-construct correlations, and HTMT are reported in Tables 3, 4.

TABLE 2 Factor loading reliability and convergent validity.

Constructs	Overall sample						Greece					United Kingdom				
	Items	$\lambda$	Alpha	rho_A	CR	AVE	$\lambda$	Alpha	rho_A	CR	AVE	$\lambda$	Alpha	rho_A	CR	AVE
Perceived influencer authenticity	AUTH1	0.807	0.818	0.824	0.879	0.645	0.807	0.808	0.820	0.873	0.632	0.812	0.827	0.826	0.886	0.660
	AUTH2	0.794					0.748					0.844				
	AUTH3	0.780					0.797					0.746				
	AUTH4	0.832					0.827					0.843				
Sustainable purchase intention	INTENT1	0.823	0.816	0.830	0.891	0.731	0.804	0.834	0.837	0.901	0.752	0.833	0.795	0.819	0.879	0.709
	INTENT2	0.916					0.914					0.919				
	INTENT3	0.822					0.880					0.768				
Prior greenwashing exposure	PGE1	0.880	0.804	0.827	0.883	0.717	0.888	0.797	0.818	0.880	0.710	0.873	0.810	0.837	0.887	0.724
	PGE2	0.797					0.827					0.769				
	PGE3	0.860					0.811					0.905				
Perceived greenwashing risk	PGR1	0.821	0.864	0.874	0.901	0.647	0.829	0.855	0.865	0.896	0.633	0.810	0.875	0.883	0.909	0.666
	PGR2	0.761					0.756					0.769				
	PGR3	0.833					0.814					0.858				
	PGR4	0.767					0.744					0.795				
	PGR5	0.836					0.830					0.844				
Parasocial relationship	PSR1	0.898	0.898	0.919	0.927	0.761	0.914	0.912	0.939	0.937	0.787	0.869	0.879	0.886	0.916	0.732
	PSR2	0.895					0.908					0.865				
	PSR3	0.865					0.882					0.858				
	PSR4	0.829					0.843					0.829				
Green trust	TRUST1	0.831	0.871	0.893	0.913	0.727	0.828	0.864	0.918	0.909	0.718	0.827	0.883	0.896	0.920	0.744
	TRUST2	0.927					0.935					0.933				
	TRUST3	0.933					0.944					0.931				
	TRUST4	0.700					0.646					0.746				

TABLE 3 HTMT ratio.

Complete							
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST	PGE × TRUST
AUTH							
INTENT	0.670						
PGE	0.509	0.681					
PGR	0.077	0.064	0.082				
PSR	0.731	0.543	0.414	0.077			
TRUST	0.144	0.269	0.117	0.436	0.094		
PGE × TRUST	0.118	0.122	0.090	0.043	0.061	0.093	

Greece sample							
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST	PGE × TRUST
AUTH							
INTENT	0.723						
PGE	0.505	0.575					
PGR	0.102	0.055	0.087				
PSR	0.763	0.594	0.420	0.075			
TRUST	0.084	0.156	0.091	0.444	0.071		
PGE × TRUST	0.112	0.131	0.114	0.052	0.132	0.051	

UK sample							
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST	PGE × TRUST
AUTH							
INTENT	0.603						
PGE	0.508	0.789					
PGR	0.082	0.114	0.105				
PSR	0.694	0.478	0.409	0.107			
TRUST	0.256	0.397	0.158	0.426	0.174		
PGE × TRUST	0.281	0.175	0.075	0.044	0.254	0.191	

### 4.3 Structural model

We evaluated coefficients of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and the significance of path estimates to test the structural model. The model explained a moderate proportion of variance in the pooled sample ( $R^2$ : TRUST = 0.155; INTENT = 0.532). Subsample analyses indicated similar explanatory power for Greece ( $R^2$ : TRUST = 0.163; INTENT = 0.467) and a greater variance explained for the UK ( $R^2$ : TRUST = 0.169; INTENT = 0.629). Cross-validated redundancy indicated that out-of-sample predictive relevance was supported in all cases: pooled ( $Q^2$ : TRUST = 0.148; INTENT = 0.470), Greece ( $Q^2$ : TRUST = 0.146; INTENT = 0.430), and the UK ( $Q^2$ : TRUST = 0.149;  $Q^2_{\text{predict INTENT}} = 0.513$ ). Collectively, these indices indicate adequate explanatory capacity and robust predictive performance across contexts. Hypotheses were evaluated for

the statistical significance of inter-construct paths through non-parametric bootstrapping, yielding path coefficients and standard errors (Hair et al., 2011). We applied bias-corrected, one-tailed bootstraps based on 10,000 resamples to obtain accurate confidence intervals for the indirect effects (Preacher and Hayes, 2008; Streukens and Leroi-Werelds, 2016). These approaches validate the model's structural adequacy and predictive validity. Table 5 illustrates all of the results.

Hypotheses were tested for the statistical significance of inter-construct paths using nonparametric bootstrapping to obtain path coefficients and standard errors (Hair et al., 2011). Indirect effects were estimated with bias-corrected, one-tailed bootstraps based on 10,000 resamples to yield precise confidence intervals (Preacher and Hayes, 2008; Streukens and Leroi-Werelds, 2016). These procedures support the model's structural adequacy and predictive validity. Full results appear in Table 5.

TABLE 4 Fornell and Larcker criterion.

Complete						
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST
AUTH	0.803					
INTENT	0.568	0.855				
PGE	0.404	0.573	0.846			
PGR	0.017	0.037	-0.020	0.804		
PSR	0.646	0.481	0.352	0.052	0.872	
TRUST	-0.009	0.211	0.069	0.389	-0.034	0.853

Greece sample						
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST
AUTH	0.795					
INTENT	0.605	0.867				
PGE	0.403	0.480	0.843			
PGR	0.034	-0.002	-0.046	0.795		
PSR	0.690	0.534	0.367	0.061	0.887	
TRUST	0.064	0.121	0.058	0.400	0.049	0.847

UK sample						
Constructs	AUTH	INTENT	PGE	PGR	PSR	TRUST
AUTH	0.812					
INTENT	0.517	0.842				
PGE	0.399	0.661	0.851			
PGR	-0.005	0.077	0.008	0.816		
PSR	0.595	0.420	0.335	0.036	0.855	
TRUST	-0.094	0.307	0.086	0.382	-0.139	0.863

TABLE 5 Hypotheses testing.

Hypothesis	Path	Overall sample				Greece				United Kingdom			
		Coeff. ( $\beta$ )	SD	t-value	p-value	Coeff. ( $\beta$ )	SD	t-value	p-value	Coeff. ( $\beta$ )	SD	t-value	p-value
H1	AUTH $\rightarrow$ INTENT	0.335	0.034	9.746	0.000	0.373	0.049	7.566	0.000	0.295	0.050	5.927	0.000
H2	PSR $\rightarrow$ INTENT	0.148	0.037	4.023	0.000	0.163	0.056	2.931	0.002	0.162	0.048	3.361	0.000
H3	PGR $\rightarrow$ INTENT	-0.049	0.029	1.683	0.046	-0.053	0.041	1.282	0.100	-0.053	0.039	1.356	0.088
H4	TRUST $\rightarrow$ INTENT	0.199	0.034	5.861	0.000	0.095	0.051	1.864	0.031	0.314	0.049	6.392	0.000

AUTH, perceived influencer authenticity; PSR, parasocial relationship; PGR, perceived greenwashing risk; TRUST, green trust; INTENT, sustainable purchase intention.

In the total sample, perceived influencer authenticity (AUTH) significantly predicted sustainable purchase intention (INTENT),  $\beta = 0.335$ ,  $SE = 0.034$ ,  $t = 9.75$ ,  $p < 0.001$ , thereby supporting H1. The parasocial relationship (PSR) exhibited a strong association with INTENT,  $\beta = 0.148$ ,  $SE = 0.037$ ,  $t = 4.02$ ,  $p < 0.001$ , thereby supporting H2. Perceived greenwashing risk (PGR) demonstrated a minor negative impact on INTENT,  $\beta = -0.049$ ,  $SE = 0.029$ ,  $t = 1.68$ ,  $p = 0.046$ ; consequently, H3 garnered limited support in the overall

data. Green trust (TRUST) positively predicted INTENT,  $\beta = 0.199$ ,  $SE = 0.034$ ,  $t = 5.86$ ,  $p < 0.001$ , thereby supporting H4. Consequently, all hypotheses were validated for the overall sample. Estimates for each country were in line with the overall results. In Greece, AUTH ( $\beta = 0.373$ ,  $SE = 0.049$ ,  $t = 7.57$ ,  $p < 0.001$ ) and PSR ( $\beta = 0.163$ ,  $SE = 0.056$ ,  $t = 2.93$ ,  $p = 0.002$ ) were able to predict INTENT (H1–H2 supported). PGR was not significant ( $\beta = -0.053$ ,  $SE = 0.041$ ,  $t = 1.28$ ,  $p = 0.100$ ), providing no Greek support for H3. TRUST exhibited a

diminished yet significant correlation with INTENT ( $\beta = 0.095$ ,  $SE = 0.051$ ,  $t = 1.86$ ,  $p = 0.031$ ), thereby corroborating H4. Consequently, only H3 was unsupported for the Greek sample, whereas H1, H2, and H4 were supported. AUTH ( $\beta = 0.295$ ,  $SE = 0.050$ ,  $t = 5.93$ ,  $p < 0.001$ ) and PSR ( $\beta = 0.162$ ,  $SE = 0.048$ ,  $t = 3.36$ ,  $p < 0.001$ ) again predicted INTENT in the UK (H1–H2 supported). PGR was not significant ( $\beta = -0.053$ ,  $SE = 0.039$ ,  $t = 1.36$ ,  $p = 0.088$ ), thus not supporting H3. TRUST had a stronger effect on INTENT ( $\beta = 0.314$ ,  $SE = 0.049$ ,  $t = 6.39$ ,  $p < 0.001$ ), which supports H4. Likewise, in the UK sample, H3 was not corroborated, whereas H1, H2, and H4 were confirmed. Overall, the results indicate that both “being real” (AUTH) and “being close” (PSR) influence intention, and TRUST provides another direct way to INTENT. Learned skepticism (PGE), on the other hand, makes it more challenging for TRUST to turn into intention in both countries. This shows that there is a boundary at the decision stage (Table 6).

#### 4.4 Mediation analysis

We examined the indirect effects of authenticity (AUTH), parasocial relationship (PSR), and perceived greenwashing risk (PGR) on sustainable purchase intention (INTENT) through green trust (TRUST) utilizing bias-corrected bootstrapping with 10,000 resamples. The indirect effects were assessed independently for the total sample and by nation. So, H5c was supported for the whole sample, but H5a and H5b were not. In the overall sample, the indirect effect of AUTH  $\rightarrow$  TRUST  $\rightarrow$  INTENT was not significant, with  $\beta = 0.007$ ,  $SE = 0.009$ ,  $t = 0.75$ , and  $p = 0.225$  (H5a not supported). The PSR  $\rightarrow$  TRUST  $\rightarrow$  INTENT pathway was not significant,  $\beta = -0.015$ ,  $SE = 0.010$ ,  $t = 1.60$ ,  $p = 0.055$  (H5b not supported). On the other hand, the PGR  $\rightarrow$  TRUST  $\rightarrow$  INTENT indirect effect was significant and positive,  $\beta = 0.078$ ,  $SE = 0.014$ ,  $t = 5.43$ ,  $p < 0.001$  (H5c supported). This sign should be interpreted in light of the coding of PGR: higher scores reflect lower perceived likelihood of greenwashing (i.e., greater perceived claim credibility). Accordingly, the positive indirect effect indicates that lower perceived greenwashing risk increases TRUST, which in turn increases INTENT. This indicates that the way individuals perceived about risk at the post-level affected INTENT indirectly through TRUST.

In the same way, H5c was supported, but H5a and H5b were not. In Greece, neither AUTH  $\rightarrow$  TRUST  $\rightarrow$  INTENT ( $\beta = 0.006$ ,  $SE = 0.007$ ,  $t = 0.87$ ,  $p = 0.193$ ) nor PSR  $\rightarrow$  TRUST  $\rightarrow$  INTENT

( $\beta = -0.002$ ,  $SE = 0.007$ ,  $t = 0.28$ ,  $p = 0.390$ ) achieved statistical significance (H5a, H5b not supported). The indirect effect from PGR to TRUST to INTENT was significant, with  $\beta = 0.038$ ,  $SE = 0.021$ ,  $t = 1.82$ , and  $p = 0.035$  (H5c supported). Conversely, the UK sample corroborated H5c and H5b, while H5a was not substantiated. In the United Kingdom, the indirect effect of AUTH  $\rightarrow$  TRUST  $\rightarrow$  INTENT was not significant, with  $\beta = -0.001$ ,  $SE = 0.022$ ,  $t = 0.04$ , and  $p = 0.486$  (H5a not supported). The PSR  $\rightarrow$  TRUST  $\rightarrow$  INTENT indirect effect was significant and negative,  $\beta = -0.047$ ,  $SE = 0.022$ ,  $t = 2.18$ ,  $p = 0.015$  (H5b supported, negative sign), indicating that, after accounting for other paths, the TRUST-mediated component of PSR was detrimental to INTENT. The indirect effect from PGR to TRUST to INTENT was important and positive, with a value of  $\beta = 0.122$ ,  $SE = 0.022$ ,  $t = 5.51$ , and  $p < 0.001$  (H5c supported). Overall, mediation via TRUST was consistently observed for PGR (H5c) in all samples, absent for AUTH (H5a), and sample-contingent for PSR (H5b; significant and negative in the UK only).

#### 4.5 Moderation and conditional indirect effects

We examined whether prior greenwashing exposure (PGE) influences the relationship between green trust (TRUST) and sustainable purchase intention (INTENT) (Table 7). The addition of the interaction term (PGE  $\times$  TRUST) enhanced the explained variance in INTENT across all samples: the overall model  $R^2$  rose from 0.398 to 0.532 ( $\Delta R^2 = 0.134$ ), in Greece from 0.403 to 0.467 ( $\Delta R^2 = 0.064$ ), and in the United Kingdom from 0.432 to 0.629 ( $\Delta R^2 = 0.197$ ), signifying significant incremental predictive power.

In line with H6, the moderation was negative and statistically significant in each sample, indicating that higher PGE diminishes the positive correlation between TRUST and INTENT (Overall:  $\beta = -0.130$ ,  $SE = 0.024$ ,  $t = 5.36$ ,  $p < 0.001$ ; Greece:  $\beta = -0.098$ ,  $SE = 0.047$ ,  $t = 2.10$ ,  $p = 0.018$ ; UK:  $\beta = -0.118$ ,  $SE = 0.031$ ,  $t = 3.85$ ,  $p < 0.001$ ). Simple-slope patterns show that the TRUST  $\rightarrow$  INTENT effect is strongest when PGE is low and gets weaker as PGE gets higher (Figure 2).

#### 4.6 Conditional indirect effects (moderated mediation)

PGE moderates the TRUST  $\rightarrow$  INTENT path, therefore any TRUST-mediated paths to INTENT are conditional on PGE. So,

TABLE 6 Bias-corrected bootstrap indirect effects for mediation hypotheses in the overall sample and by country.

Hypoth.	Paths	Overall sample				Greece				United Kingdom			
		Coeff. ( $\beta$ )	SD	t-value	p-value	Coeff. ( $\beta$ )	SD	t-value	p-value	Coeff. ( $\beta$ )	SD	t-value	p-value
H5a	AUTH $\rightarrow$ TRUST $\rightarrow$ INTENT	0.007	0.009	0.754	0.225	0.006	0.007	0.866	0.193	-0.001	0.022	0.036	0.486
H5b	PSR $\rightarrow$ TRUST $\rightarrow$ INTENT	-0.015	0.010	1.597	0.055	-0.002	0.007	0.278	0.390	-0.047	0.022	2.178	0.015
H5c	PGR $\rightarrow$ TRUST $\rightarrow$ INTENT	0.078	0.014	5.429	0.000	0.038	0.021	1.816	0.035	0.122	0.022	5.511	0.000

AUTH, perceived influencer authenticity; PSR, parasocial relationship; PGR, perceived greenwashing risk; TRUST, green trust; INTENT, sustainable purchase intention. PGR is coded such that higher values indicate lower perceived likelihood of greenwashing (i.e., higher perceived claim credibility); therefore, positive indirect effects for PGR reflect the pathway: lower perceived greenwashing risk  $\rightarrow$  higher TRUST  $\rightarrow$  higher INTENT. Indirect effects significant at  $p < 0.05$  are interpreted as evidence of mediation.

TABLE 7 Late-stage moderation (PGE × TRUST) on INTENT and model fit by country.

Metric	Greece	United Kingdom	Overall
$R^2_{\text{INTENT}}$ (base)	0.403	0.432	0.398
$R^2_{\text{INTENT}}$ (+ interaction)	0.467	0.629	0.532
$\Delta R^2$	0.064	0.197	0.134
H6: PGE × TRUST → INTENT, $\beta$ (SE)	-0.098 (0.047)	-0.118 (0.031)	-0.130 (0.024)
<i>t</i> -value	2.10	3.85	5.36
<i>p</i> -value	0.018	<0.001	<0.001

indirect effects obtained through TRUST (such as authenticity, a parasocial relationship, or a perceived risk of greenwashing) become weaker as PGE rises. Consequently, formal conditional indirect estimates must be interpreted at representative PGE levels (e.g., low/mean/high); under this framework, larger mediated effects are anticipated at low PGE and smaller effects at high PGE, consistent with the negative PGE × TRUST interaction. We assessed the conditional indirect effects of AUTH, PSR, and PGR on INTENT through TRUST at three levels of PGE, employing the PROCESS tool of SMART-PLS4. In the overall sample, only the PGR → TRUST → INTENT pathway was significant and decreased with higher PGE [low PGE:  $b = 0.135$ , 95% BCa CI (0.102, 0.169),  $p < 0.001$ ; mean PGE:  $b = 0.089$ , CI (0.064, 0.117),  $p < 0.001$ ; high PGE:  $b = 0.043$ , CI (0.013, 0.075),  $p = 0.012$ ]. At any PGE level, AUTH and PSR did not have any indirect effects that were significant.

In Greece, the PGR → TRUST → INTENT indirect was significant at low and mean PGE but not at high PGE. This shows that the effect gets weaker as PGE increases [low:  $b = 0.077$ , CI (0.027, 0.135),  $p = 0.009$ ; mean:  $b = 0.045$ , CI (0.013, 0.085),  $p = 0.019$ ; high:  $b = 0.013$ , CI (-0.022, 0.055),  $p = 0.282$ ]. Indirects through AUTH and PSR were not significant. We observed two patterns in the UK sample. Initially, the relationship PGR → TRUST → INTENT exhibited substantial positive indirect effects that diminished yet remained significant as PGE escalated [low:  $b = 0.175$ , CI (0.131, 0.225),  $p < 0.001$ ; mean:  $b = 0.133$ , CI (0.096, 0.178),  $p < 0.001$ ; high:  $b = 0.091$ , CI (0.047, 0.144),  $p = 0.001$ ]. Second, PSR → TRUST → INTENT led to negative conditional indirect effects across all PGE levels [low:  $b = -0.074$ , CI (-0.124, -0.025),  $p = 0.006$ ; mean:  $b = -0.057$ , CI (-0.101, -0.020),  $p = 0.010$ ; high:  $b = -0.039$ , CI (-0.085, -0.012),  $p = 0.033$ ]. Indirects through AUTH were not significant.

In conjunction with the previously reported significant PGE × TRUST interaction, these findings suggest late-stage moderated mediation: mediated effects conveyed through TRUST are most pronounced when audiences indicate reduced prior greenwashing exposure and diminish as PGE increases. This attenuation is most consistent for PGR in both countries; in the UK, PSR also has a small negative mediated effect that gets weaker (but stays the same) as PGE rises.

Figure 3 shows a clear pattern of moderated mediation in the late stage. As PGE goes up, the PGR → TRUST → INTENT indirect effect goes down (downward line). In Greece, it goes from 0.077 to

a nonsignificant 0.013, and in the UK, it goes from 0.175 to 0.091 (all significant). So, TRUST has the strongest effect on PGR when PGE is low and the weakest effect when PGE is high. In the UK, PSR → TRUST → INTENT is negative at all PGE levels (CIs exclude 0) and gradually becomes less negative as PGE increases. There were no significant conditional indirects through AUTH. In general, the mediated effects of TRUST are strongest for low-PGE audiences yet become weaker when they have experienced greenwashing before (Table 8).

## 4.7 Cross-national multi-group results (Greece vs. United Kingdom)

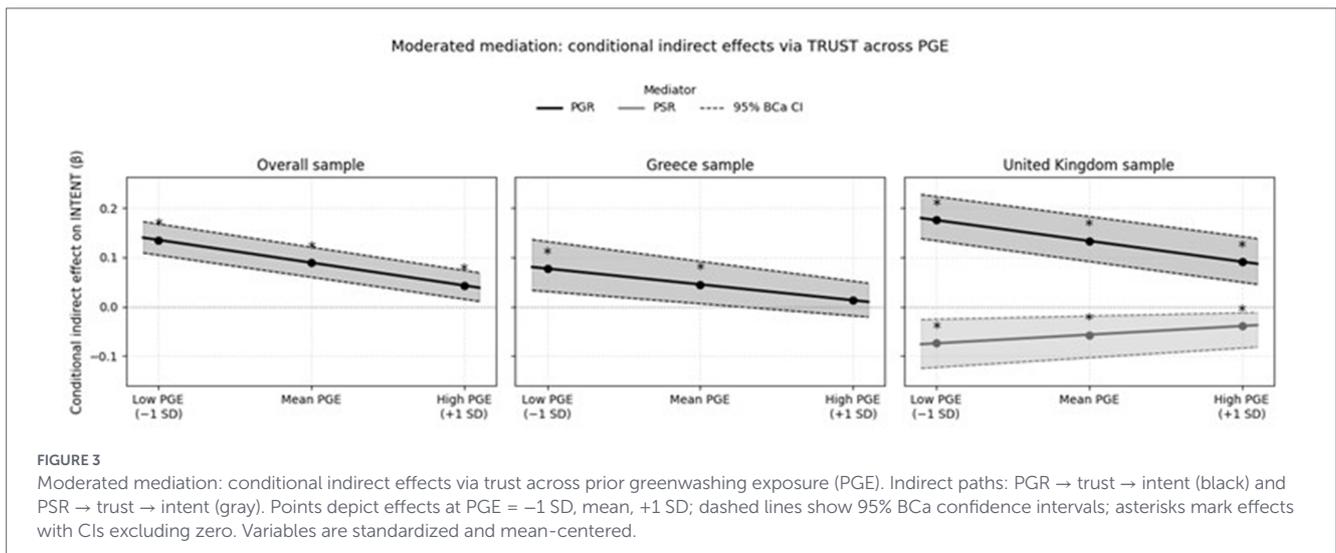
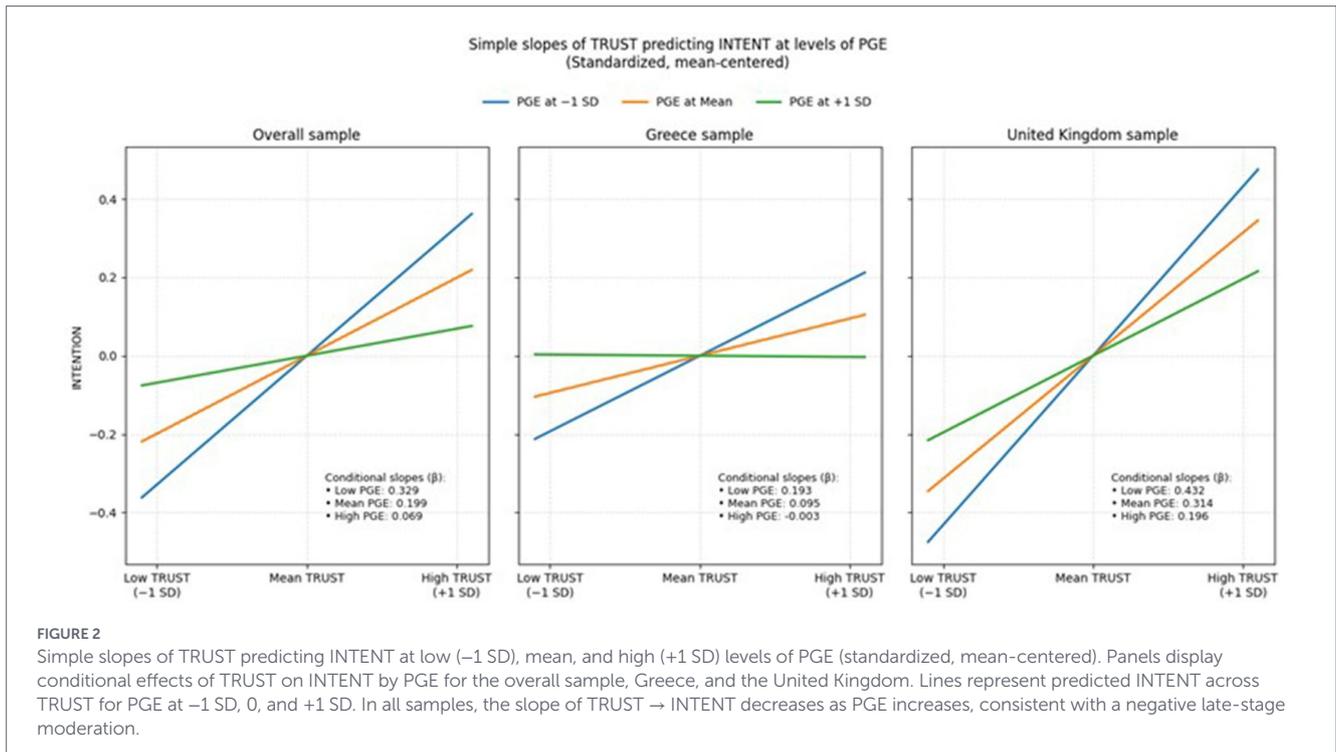
Prior to comparing paths, we examined measurement invariance. Configural and compositional invariance were validated, facilitating meaningful multi-group comparisons of structural relationships. Multi-group tests revealed that PGE → INTENT and TRUST → INTENT were significantly weaker in Greece compared to the UK ( $\Delta\beta = -0.199$ ,  $p = 0.001$ ;  $\Delta\beta = -0.219$ ,  $p = 0.001$ ). Additionally, the indirect effect of PGR → TRUST → INTENT was also diminished in Greece ( $\Delta\beta = -0.084$ ,  $p = 0.003$ ). On the contrary, the indirect path from PSR to TRUST to INTENT was stronger in Greece ( $\Delta\beta = +0.046$ ,  $p = 0.019$ ); the difference from PSR to TRUST was small ( $\Delta\beta = +0.131$ ,  $p = 0.056$ ). In overall, trust is a stronger predictor of intention in the UK, while PSR-based trust transmission is stronger in Greece (Table 9).

## 5 Discussion

With green trust (TRUST) as the proximal mechanism and prior greenwashing exposure (PGE) as a boundary condition, this study set out to determine how “being real” (perceived influencer authenticity, AUTH) and “being close” (parasocial relationship, PSR) translate sustainability communication into green consumer choice. We find a consistent pattern across two national contexts (Greece, UK) using variance-based SEM with nonparametric bootstrapping (Hair et al., 2011) and bias-corrected (BCa) procedures for indirect effects: AUTH and PSR are both direct, positive predictors of sustainable purchase intention (INTENT), TRUST adds incremental explanatory power, and learned skepticism (PGE) consistently reduces the payoff of TRUST at the decision stage. Additionally, conditional indirect effects show that while PSR has a minor negative mediated component in the UK, which is consistent with persuasion-knowledge activation, over-familiarity, and expectation-violation dynamics in disclosure-salient contexts, post-level perceived greenwashing risk (PGR) functions via TRUST.

### 5.1 Mechanisms: distinct routes to intention, a shared hinge in trust

The notion that AUTH and PSR are non-redundant antecedents of sustainable choice is first supported by the direct effects. AUTH → INTENT and PSR → INTENT are both positive and significant across the pooled sample and within each country, with AUTH generally being the stronger predictor (H1–H2). This aligns with research demonstrating that parasocial ties increase receptivity and perceived benevolence, which can permeate endorsed claims (Bi and Zhang, 2023; Liu and Zheng, 2024; Ye et al., 2024), as well as work positioning authenticity as value-congruent, evidence-compatible signaling that



lowers inferences of opportunism and raises claim credibility (Bastounis et al., 2021; Chen et al., 2022; Wan et al., 2025). According to meta-analytic evidence, green trust is a proximal driver of green purchase intentions net of attitudes (Chauhan and Goyal, 2024; Ha, 2022). Additionally, TRUST directly predicts INTENT in both countries (H4).

At the same time, mediation patterns illustrate how these paths operate when trait- and state-level skepticism are employed together. The PGR → TRUST → INTENT path is strongly positive (in general and by country). This means that when people think a certain post is less likely to involve greenwashing, TRUST carries that evaluation into intention. This is consistent with research on claim credibility, verifiability, and institutional signals (like verification badges) as factors that affect trust (Liao et al., 2024; Román-Augusto et al., 2023).

Although AUTH has a strong direct effect on INTENT, the AUTH → TRUST → INTENT path is not significant. This suggests that once PGE and PGR are included in the model, authenticity may exert a sufficiency-type heuristic (“real enough to act”) rather than operating primarily through trust. According to persuasion-knowledge theories, in highly commercialized or contested green contexts, relational closeness can invite scrutiny or attribution of impression-management. In our specification, TRUST is explained primarily by post-level claim diagnostics (PGR), with learned skepticism (PGE) further shaping how trust translates into intention, which may leave limited incremental variance for AUTH to explain within the trust equation. In this manner, authenticity appears to work primarily as a cue for sufficiency and value alignment (“real enough” and in line with my standards), directly affecting INTENT instead of through building more trust

TABLE 8 Significant conditional indirect effects at levels of PGE.

Sample	Mediator (X)	PGE level	Indirect effect (b)	95% BCa CI	P-value
Overall	PGR	-1 SD	0.135	[0.102, 0.169]	< 0.001
	PGR	Mean	0.089	[0.064, 0.117]	< 0.001
	PGR	+1 SD	0.043	[0.013, 0.075]	0.012
Greece	PGR	-1 SD	0.077	[0.027, 0.135]	0.009
	PGR	Mean	0.045	[0.013, 0.085]	0.019
	PGR	+1 SD	0.013	[-0.022, 0.055]	0.282
United Kingdom	PGR	-1 SD	0.175	[0.131, 0.225]	< 0.001
	PGR	Mean	0.133	[0.096, 0.178]	< 0.001
	PGR	+1 SD	0.091	[0.047, 0.144]	0.001
United Kingdom	PSR	-1 SD	-0.074	[-0.124, -0.025]	0.006
	PSR	Mean	-0.057	[-0.101, -0.020]	0.010
	PSR	+1 SD	-0.039	[-0.085, -0.012]	0.033

PGE, Prior Greenwashing Exposure; PGR, Perceived Greenwashing Risk; PSR, Parasocial Relationship; AUTH, Perceived Influencer Authenticity (no significant conditional indirects in any sample). All estimates are unstandardized; variables for PROCESS were mean-centered within country.

TABLE 9 Significant cross-national multi-group path.

Path/indirect effect	$\Delta\beta$ (GR-UK)	$p$ (two-tailed)
PGE → INTENT	-0.199	0.001
TRUST → INTENT	-0.219	0.001
PSR → TRUST	+0.131	0.056
PGR → TRUST → INTENT (indirect)	-0.084	0.003
PSR → TRUST → INTENT (indirect)	+0.046	0.019

Negative  $\Delta\beta$  indicates a smaller coefficient in Greece than in the UK; positive  $\Delta\beta$  indicates a larger coefficient in Greece.

once PGR and PGE are taken into account. This does not imply that authenticity is unrelated to trust in general; rather, it suggests that in the presence of stronger state- and trait-skepticism indicators, AUTH contributes chiefly through a direct evaluative route.

The UK exhibits a small negative mediated component for PSR (PSR → TRUST → INTENT) (Ye et al., 2024). One interpretation is that a stronger PSR renders commercial intent and “ought-to-be-authentic” standards more significant. When closeness is high, audiences may expect the influencer to be more consistent and open, so any ambiguity in green claims or disclosure cues is seen as a violation of those expectations, which lowers TRUST even though affinity remains the same. This mechanism aligns with over-familiarity accounts (where proximity alters perceptions from “relatable” to “strategic persona”) and with persuasion-knowledge activation (where awareness of persuasive intent induces discounting), resulting in a minor negative trust-channel effect. The fact that PSR still has a positive direct effect on INTENT means that there are two opposite mechanisms at work: warmth and familiarity, which assist individuals in arriving at choices directly, and a trust-channel penalty, which works against it when people are skeptical. This mediated penalty is significant as it is exclusive to the UK, which may reflect heightened attention to disclosure and advertising-intent cues, resulting in a more sensitive trust calculus in the presence of high PSR.

## 5.2 Dual skepticism: trait PGE versus state PGR

A crucial contribution is the concurrent analysis of trait-like PGE and state-like PGR. PGR, assessed at the post level, indicates that reduced perceived risk fosters trust growth, subsequently enhancing intention (positive mediation). PGE—accumulated experience with misleading green claims—does not aim to foster trust in our specification; instead, it diminishes the benefits of trust at the final stage (H6). Adding the PGE × TRUST interaction significantly raises the explained variance in INTENT ( $\Delta R^2 = 0.134$  overall; 0.064 Greece; 0.197 United Kingdom), and the interaction is negative in both countries. Simple-slope patterns show that TRUST → INTENT is steepest when PGE is low and flattens out as PGE goes up. The conditional indirects work the same way: PGR → TRUST → INTENT is most powerful low PGE and weakest at higher PGE (still significant overall and in the United Kingdom, but not in Greece). These findings collectively endorse a late-stage moderated mediation: even when trust is established, its transformation into intention is less effective among audiences with extensive histories of deception. This dual-skepticism framework aids in reconciling inconsistent findings in the literature by differentiating state suspicion regarding a particular post (PGR) from trait resistance grounded in previous experience (PGE) (de Sio et al., 2022; Nazish et al., 2025; Rehman et al., 2025; Skordoulis et al., 2025).

## 5.3 Cross-national portability and differences

Once configural and compositional invariance are confirmed, cross-national contrasts can be effectively analyzed. Two systematic differences became apparent. First, TRUST has a more significant connection to INTENT in the UK than in Greece, and PGE has a stronger relationship to INTENT in the UK. These patterns align with an information environment influenced by more disclosure-salient and enforcement-visible advertising norms, including proactive UK enforcement (ASA/CAP/CMA) and the prominence of the Green Claims Code, which may increase the diagnostic weight placed on

trust judgments and heighten sensitivity to “learned” greenwashing history. Second, the mediated PGR → TRUST → INTENT path is less potent in Greece, while the PSR-based mediation is stronger there. One interpretation posits that UK audiences depend more on claim-quality signals and penalize PSR through the trust channel under skepticism, whereas Greek audiences attribute greater significance to relational cues in establishing trust once measurement equivalence is guaranteed. These variations are consistent with research demonstrating that governance regimes and socio-cultural priors co-produce responses to persuasive technologies and green messages (Colleoni et al., 2022; Kim and Wang, 2024; Strycharz and Segijn, 2024). However, we are careful not to over-attribute to regulation or culture alone. The findings render it obvious that TRUST is a proximal hinge whose marginal impact depends on PGE, while AUTH and PSR are parallel, partially independent routes to intention. By (a) directly contrasting AUTH and PSR in one model, (b) identifying PGE as a late-stage moderator rather than a generic covariate, and (c) illustrating moderated mediation in which the magnitude, and occasionally the sign, of indirect effects varies with learned skepticism, this expands conditional-process perspectives in sustainability persuasion. The PSR result in the UK aligns with persuasion-knowledge theories: in a context where commercial intent and disclosure cues are more likely to be foregrounded, greater perceived closeness can amplify scrutiny and make trust more vulnerable to perceived ambiguity, while warmth directly reinforces intention.

## 6 Implications for practice

Evidence suggests that creators and brands should use a proof-first authenticity strategy, especially in high-PGE segments. This involves making claims that can be verified, providing third-party evidence, offering life-cycle information easy to scan, and transferring credibility at the platform level (for example, through verification) to raise TRUST’s baseline (Liao et al., 2024; Román-Augusto et al., 2023). PSR is nevertheless useful for attracting people’s attention and receptivity, but warmth without proof can hurt trust among users who are skeptical, as seen most clearly in the UK results. PGE’s audience segmentation is useful as trust-led narratives can easily move low-PGE groups, while high-PGE segments need more evidence, claim traceability, and a better match between the product and the influencer’s area of expertise. The results support moves toward standardized eco-metadata and enforceable substantiation that lower ambient skepticism and bring forward the conversion efficiency of trust. This is in line with EU trends and the UK’s approach of enforcement plus guidance.

## 7 Conclusion, limitations, and future research

In conclusion, authenticity and parasocial connection are important for sustainable decision-making, but trust is crucial, and its success depends on audiences’ histories with greenwashing. While learned resistance (PGE) hinders the conversion of trust into action, post-level risk assessments (PGR) positively influence trust and intention. The architecture generalizes across Greece

and the UK, while differing in magnitude in ways that are consistent with informational climate and enforcement salience. In practical terms, it implies that influencer sustainability campaigns should be anchored by proven authenticity rather than just warmth, especially for high-skeptic segments. Theoretically, identifying moderation at the late decision stage and modeling dual skepticism (state vs. trait) clarifies when otherwise potent cues lose their effectiveness and how to increase green trust conversion efficiency.

Several constraints merit acknowledgment. First, the design is cross-sectional and recall-anchored; panel designs or field experiments that alter disclosure regimes or claim verifiability over time would corroborate causal claims. Second, the dependent variable is intention rather than verified behavior; external validity would be improved by incorporating behavioral telemetry (click-through, basket data) or incentive-compatible choice. Third, we modeled a person-level moderator (PGE); additional boundary conditions such as identity centrality, environmental knowledge, or regulatory literacy could be included in future research. Fourth, broader samples (such as non-European contexts or markets with weaker consumer protection) would test portability under different governance and cultural priors, even though we established measurement/structural invariance for Greece and the UK. Lastly, given documented variations in how verification, disclosure, and “machine heuristic” cues shape trust, creator heterogeneity (micro vs. macro; human vs. virtual) should be investigated within the same conditional-process framework (Breves and Liebers, 2025; Chen et al., 2022; Kalam et al., 2024; Kim and Wang, 2024).

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by this study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee (REC), University of Patras, Greece (protocol code 14045; approval date 26 August 2022). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

## Author contributions

SB: Data curation, Software, Methodology, Investigation, Writing – original draft, Supervision, Visualization, Resources, Conceptualization, Validation, Formal analysis, Writing – review &

editing, IY: Writing – review & editing, Conceptualization, Supervision, Project administration, Methodology.

## Funding

The author(s) declared that financial support was not received for this work and/or its publication.

## Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The author(s) declared that Generative AI was not used in the creation of this manuscript.

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fcomm.2026.1764803/full#supplementary-material>

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