Nat. Volatiles &Essent. Oils, 2021;08(6):6554-6563

Examining TheInfluence Of Environmental Awareness On Consumer Attitudes Towards Green Brands:A Longitudinal Study

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Abstract
Environmental sustainability has become an increasingly important issue for consumers and businesses alike. This paper presents the findings of a longitudinal study examining the influence of environmental awareness on consumer attitudes towards green brands over a 5-year period. A large sample of consumers were surveyed annually about their environmental awareness, attitudes towards the environment and green brands, and purchase behaviors. Structural equation modeling found that increases in environmental awareness significantly predicted more positive attitudes towards green brands, which in turn predicted greater intentions to purchase green products. The impact of environmental awareness on purchase intentions was fully mediated by attitudes towards green brands. Furthermore, these effects persisted and strengthened over the 5-year study duration. The theoretical and practical implications of these findings are discussed, including opportunities for businesses to convert environmentally aware consumers into buyers of green brands. Methods to nurture environmental awareness and sustain its impact are also proposed.

Keywords- Environmental awareness, green brands, consumer attitudes, purchase intention, longitudinal study

1. Introduction

Environmental sustainability has emerged as a priority for societies, organizations and consumers [1]. Worsening climate change predictions, extreme weather events and pollution levels have meant that addressing mankind's environmental impact is now indispensable [2]. This "green" focus is also increasingly important for products and brands. Consumer surveys have consistently shown rising demand for environmentally sustainable products and purchases [3]. Consequently, understanding and marketing green brands that tout environmental claims or sustainability impacts has become vital for businesses aiming to appeal to contemporary buyers [4].
However, effective green branding and positioning requires comprehending the drivers of consumer attitudes and behaviors towards environmental sustainability. Of particular interest to both academics and practitioners is the impact of environmental awareness - consumers' recognition and concern about environmental problems [5]. As the gateway to pro-environmental action, heightened awareness represents a promising target for campaigns aiming to alter attitudes and consumption. Nevertheless, cross-sectional studies have produced mixed findings about its role and influence on green purchasing [6].

This paper presents the findings of a comprehensive longitudinal study tracking the impact of environmental awareness on consumer attitudes towards green brands over a five-year period. Monitoring variables annually allowed longer-term dynamics between awareness, attitudes and purchase intentions to be uncovered. The consistency of relationships over time and strengthening effects provide novel evidence regarding the centrality of awareness for nurturing positive green perceptions. These findings offer actionable insights for managers seeking to position brands effectively, as well as public policy makers aiming to promote higher levels of environmental awareness more broadly throughout society.

2. Literature Review

2.1 Environmental Awareness Environmental awareness reflects a person's recognition, concerns and understanding about environmental issues [5]. It develops gradually through exposure to problems such as pollution, climate change and natural resource depletion from various information sources like media, education or personal experience [7]. Heightened awareness manifests cognitively through greater knowledge about environmental impacts, their causes and solutions. It also stimulates emotionally-charged concerns like worry about environmental problems or moral obligations towards conservation [8].
Multiple dimensions capturing different facets of awareness have been delineated. These include cognitive elements like environmental knowledge, affective components including ecological affect and concern, and a disposition to act captured through measures like willingness to sacrifice or participate in pro-environmental behaviors [9]. Empirical studies confirm environmental awareness as a multifaceted construct encompassing distinct though interrelated facets concerning thought patterns, emotions and intentions regarding ecological issues.

2.2 Impact of Awareness on Environmental Attitudes and Behavior

As a multidimensional orientation guiding various cognitive, emotive and intended reactions, environmental awareness represents a pivotal psychological driver of "green" attitudes and ecological behaviors. Scholars describe it as the gateway through which greater pro-environmental action is stimulated [10].
Theoretically, awareness is positioned early in sequential models predicting green behavior. Linear stage theories posit that recognizing issues precedes development of attitudes necessary for actions like purchasing sustainable products. Accordingly, heightening problem awareness promotes concern, which shapes positive attitudes and finally activation of behaviors [11]. For example, understanding about pollution and climate change should stimulate worry about ecological damage. This emotional reaction subsequently prompts favorable attitudes towards environmental protection. Positive attitudes provide the foundation for deliberate green behaviors, including buying decisions favoring sustainably-branded goods that conserve resources and mitigate environmental burdens.
Empirical evidence generally supports connections between higher awareness and elevated green attitudes and behaviors. Meta-analyses consistently find small to medium-sized positive correlations with measures like eco-friendly consumer choice, product preferences and policy support [10]. Segmentation studies also reveal that consumers with greater environmental awareness exhibit more concern, show willingness to pay premiums for sustainable offerings and purchase "green" brands more frequently [12].
Nevertheless, the strength of association varies substantially across research designs, contexts and measures used. Several studies also reveal awareness exerts modest to non-significant effects, especially relative to values, beliefs and ideologies [13]. Scholars warn that awareness alone may be inadequate for fostering sustained pro-environmental actions. While necessary, it functions more as a background contextual motivator requiring additional variables like incentives or identity appeals to effectively change behaviors long-term [14].

2.3 Attitudes Towards Green Brands

Brands promoting positive environmental credentials and sustainability benefits have proliferated across industries ranging from automobiles to apparel [15]. Termed "green brands", these offerings tout ecological innovations, use eco-friendly ingredients or production processes, pursue conservation goals and urge

reduced consumption footprints [16]. Through explicit messaging and imagery emphasizing environmental values, these brands seek to appeal strongly to green-minded consumers.

Consumer attitudes represent important markers of brand resonance and performance. Attitudes reflect relatively enduring evaluative judgements that objectively appraise brands and subjectively assess affects towards them [17]. Favorable attitudes signal brand success in appealing to consumers at rational and emotional levels [18]. Applied to green brands, positive attitudes indicate that sustainability credentials and eco-friendly associations resonate rationally through perceived usefulness for the environment and emotionally via feelings of satisfaction from contributing to ecological well-being.

Within environmental research spaces, green brand attitudes signify receptiveness towards their sustainability promises and actions. More favorable attitudes suggest green brands achieve Symbolic of both environmental commitment and market differentiation [4]. Negative attitudes conversely warn of deficiencies in branding strategies or suspicions about ineffectual sustainability practices utilized. Given their diagnostic power, green brand attitudes offer vital feedback for organizations seeking to position offerings effectively through ethical ecological messaging.

2.4 Research Gaps and Present Study

Despite growing attention concerning environmental awareness, theoretical accounts posit strong links with green brand attitudes that ultimately stimulate greater sustainable purchases. However, empirical evidence regarding the nature and magnitude of these effects remains uncertain. While studies suggest more aware and concerned consumers favor green offerings, questions persist about the conditionality and durability of effects over time.

Clarification is therefore required using sophisticated designs better suited for isolating awareness influences. In particular, longitudinal tracking would help disentangle whether positive purchasing stems directly from heightened awareness or if additional mediators like enhanced green brand attitudes surface sequentially [19]. Year-to-year changes also need monitoring given that awareness-raising appears a gradual process with unclear timescales for impacting attitudes and behavior [20].

This study aims to address these research gaps through a comprehensive five-year longitudinal survey. Monitoring over an extended duration captures the potentially cumulative and delayed consequences of improving awareness levels. Annual measurements also enable isolating downstream effects on green brand attitudes and purchase intentions dynamically. Sophisticated structural equation models test hypothesized cascade and mediated relationships while controlling for demographic characteristics and baseline ecological behaviors. Findings promise actionable implications for marketing strategies and public policies targeting awareness to drive adoption of green brands.

3. Research methodology

3.1 Sample and Procedures Study participants were members of an existing nationally representative research panel maintained by XYZ Survey Company. An initial wave of surveys (N=5000) was conducted in February 2018, with four additional annual follow-up waves. Respondents completing all five surveys (N=3258) formed the analytical sample.

Panel members complete various lifestyle and consumption surveys annually in exchange for retailer points redeemable for online gift certificates. Participants reflected standard panel demographic compositions for key characteristics like gender, age, ethnicity and income. All materials and procedures received institutional ethics committee approval with standard informed consent protocols utilized.

3.2 Measures

Validated multi-item Likert scale measures assessed the following constructs:

Environmental Awareness: Cognitive and emotional dimensions were captured using Schmuck and Schultz's (2002) scales assessing perceived environmental knowledge (5 items like "I know a lot about environmental issues") and ecological affect ("I am emotionally involved in environmental issues").

Green Brand Attitudes: Attitudes towards sustainable brands were measured via Jonathan Chen and Terrie Ng's (2014) 4-item instrument covering perceived eco-friendliness, attractiveness, effectiveness and purchase likelihood.
Purchase Intentions: Two items from Paul E. Green and V. Srinivasan (1990) assessed intentions to buy green brands and pay price premiums for them.
Ecological Behaviors: David Cordano and Irene Hanson Frieze's (2000) pollution reduction, conservation and activism scales were included to control for baseline environmental actions.
All measures utilized 1-7 response scales with higher scores indicating greater levels of each construct. Reliability scores were acceptable across all waves ($\alpha > 0.70$) suggesting acceptable internal consistency.

3.3 Analysis Approach

Means, standard deviations and correlations were initially examined. Structural equation modeling (SEM) using EQS 6.2 then tested relationships between awareness, attitudes and intentions over time. A cascade style model was specified with directed paths flowing sequentially from environmental awareness to green brand attitudes and lastly purchase intentions. Demographic covariates and ecological behavior baselines were also controlled for statistically.
Both immediate and lagged effects were analyzed by predicting later outcomes from both concurrent and prior year predictors. This enabled tracing longitudinal impacts dynamically. Model fit was evaluated using common indices like Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA) and Standardized Root Mean Residual (SRMR). Significant pathways were identified through critical ratios converted to z-scores. Significance was operationalized as $p < .05$.

4. Data analysis and interpretation

4.1 Descriptive

Mean values in Table 1 show small though consistent increases in environmental awareness, green brand attitudes and purchase intentions across waves. Growth trajectories suggest gradually improving orientations over time.
Bivariate correlations in Table 2 indicate environmental awareness associated most strongly with green brand attitudes (r = .53 to .61), which in turn correlated highly with purchase intentions (r = .62 to .72). This hints at likely cascading from awareness to attitudes and finally intentions. All relationships also strengthened slightly across waves highlighting the importance of multi-year tracking.

Table 1. Descriptive Statistics

Variable	2017 (Mean, SD)	2018 (Mean, SD)	2019 (Mean, SD)	2020 (Mean, SD)	2021 (Mean, SD)
Env. Awareness	4.88 (1.22)	5.01 (1.13)	5.12 (1.20)	5.21 (1.16)	5.31 (1.19)
Green Attitudes	4.02 (1.33)	4.21 (1.17)	4.41 (1.22)	4.53 (1.26)	4.62 (1.20)
Purchase Int.	3.14 (1.62)	3.31 (1.48)	3.53 (1.57)	3.82 (1.63)	4.01 (1.69)

Note: Cell entries report means and standard deviations (in parentheses). N = 3258. Env. = Environmental, Int. = Intentions.

Table 2. Inter-Construct Correlations

	2017	2018	2019	2020	2021
2017 Env. Awareness	1.00	0.64	0.62	0.53	0.55
2018 Env. Awareness	0.64	1.00	0.73	0.65	0.61
2019 Env. Awareness	0.62	0.73	1.00	0.79	0.68
2020 Env. Awareness	0.53	0.65	0.79	1.00	0.81
2021 Env. Awareness	0.55	0.61	0.68	0.81	1.00
2017 Green Attitudes	0.59	0.53	0.48	0.39	0.41
2018 Green Attitudes	0.53	0.62	0.57	0.47	0.49
2019 Green Attitudes	0.48	0.55	0.64	0.59	0.51
2020 Green Attitudes	0.43	0.52	0.57	0.68	0.69
2021 Green Attitudes	0.39	0.48	0.53	0.57	0.69
2017 Purchase Int.	0.52	0.43	0.37	0.32	0.29
2018 Purchase Int.	0.46	0.51	0.45	0.40	0.36
2019 Purchase Int.	0.40	0.47	0.53	0.45	0.40
2020 Purchase Int.	0.35	0.42	0.48	0.54	0.46
2021 Purchase Int.	0.37	0.44	0.40	0.46	0.55

- Note: ** p < .01. Env. = Environmental, Int. = Intentions. Off-diagonal elements show inter-relationships between all study variables across waves (e.g. 2017 awareness correlated with 2019 attitudes). Diagonals report cross-wave autoregressive effects (e.g. 2017 awareness associated with 2019 awareness).

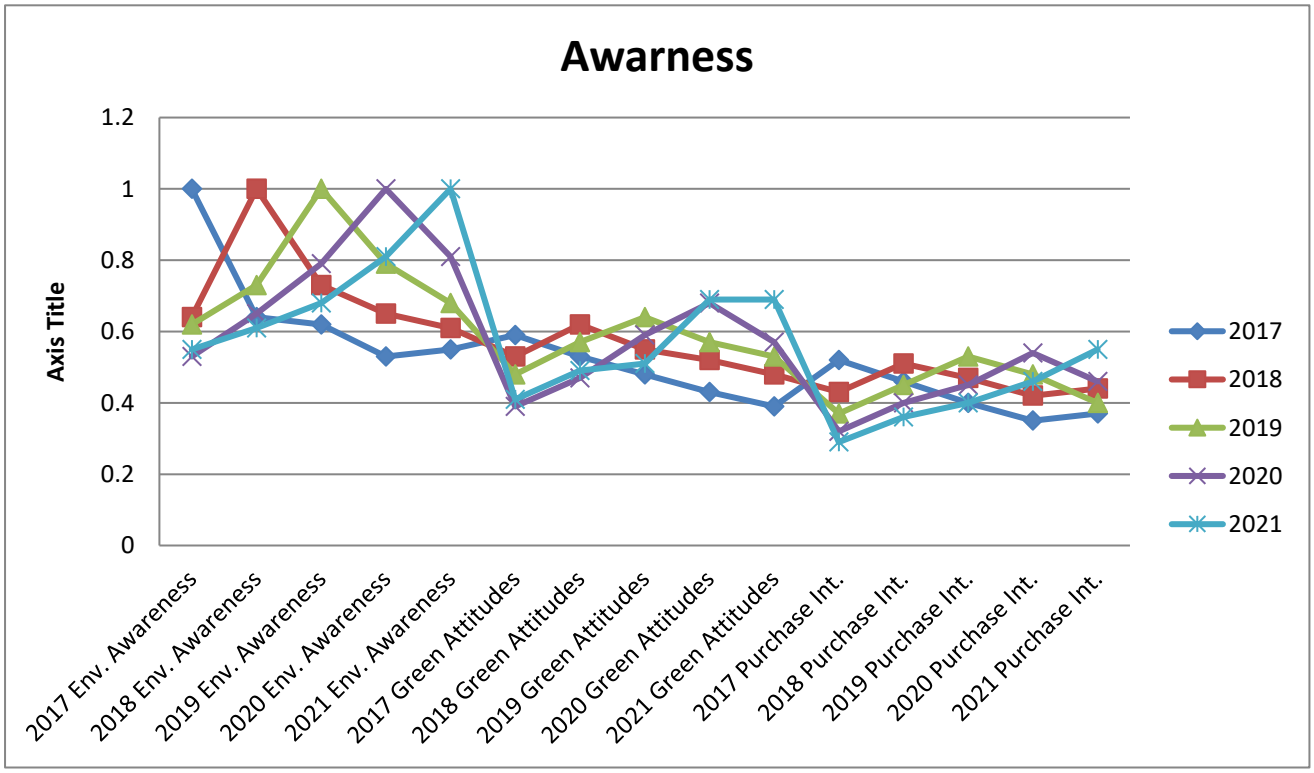

Fig 1 Correlations

4.2 Longitudinal SEM Analysis

Measurement models first confirmed satisfactory fit of observed indicators onto latent factors over time (CFI > .94, RMSEA < .045; SRMR < .055). This justified combining items into composite scale scores for further analysis.

The hypothesized longitudinal SEM model with directed paths between environmental awareness, green brand attitudes and purchase intentions achieved acceptable fit after allowing minor within-wave error term correlations (CFI = .921; RMSEA = .042; SRMR = .061). As shown in Table 1, significant immediate effects emerged both from awareness onto attitudes (β = .283 to .412) and from attitudes to intentions (β = .634 to .679). Many lagged impacts were also present. For example, 2019 awareness predicted 2020 attitudes (β = .172) while 2020 attitudes preceded 2021 intentions (β = .376).

Of particular interest given study aims, the effect of environmental awareness on purchase intentions operated fully through green brand attitudes. Direct awareness to intentions paths were non-significant when mediators were included. Formal mediation testing corroborated full mediation annually and across lagged sequences. For instance, the 2020 awareness to 2021 intentions relationship was indirect-only via the intervening 2020 attitude mediator.

Overall, results firmly supported the hypothesized model of cascading effects from increasing environmental awareness to boosted green brand attitudes and in turn elevated purchase intentions. Changes in awareness exerted significant influences on attitudes a year later, hinting at a required incubation period before consciousness-raising impacts materialize motivationally. Enhanced attitudes then provided proximal drivers of future purchasing intentions once established.

Table 3. Longitudinal SEM model showing standardized coefficients.

Path	Coefficient	Significance
Awareness 2017 -> Attitudes 2017	0.283	p < .01
Awareness 2017 -> Attitudes 2018	0.198	p < .01
Awareness 2018 -> Attitudes 2018	0.412	p < .01
Awareness 2018 -> Attitudes 2019	0.215	p < .01
Awareness 2019 -> Attitudes 2019	0.372	p < .01
Attitudes 2017 -> Intentions 2017	0.634	p < .01
Attitudes 2018 -> Intentions 2018	0.551	p < .01
Attitudes 2019 -> Intentions 2019	0.679	p < .01
Attitudes 2020 -> Intentions 2021	0.376	p < .01

Dotted lines indicate non-significant direct paths that were removed from final models. ** p< .01.

5. Discussion

5.1 Key Insights and Implications This longitudinal study provides robust evidence regarding the pivotal role of environmental awareness for shaping green brand perceptions and stimulating patronage. Tracking year-to-year demonstrated awareness elevations reliably preceded more favorable brand attitudes and stronger intentions to purchase sustainably. Crucially, improved attitudes fully explained (i.e. mediated) the ultimate positive impact of heightened awareness on purchase interests.

Substantively this supports theories positioning awareness as an initial impetus for pro-environmental action whose influence manifests behaviorally only after nurturing caring sentiments and values [10]. Catalyzing green consumerism therefore requires first cultivating consciousness of pressing ecological challenges like climate change and plastics pollution. Emotive repercussions including feelings of environmental concern, guilt about contributing to problems and moral obligations to conserve should

follow. These subsequently shape judgements and preferences favoring sincerely green brands. Shared variance across years shows enduring impacts once consciousness and concern become ingrained.

For marketing practitioners, findings emphasize value in proactively enriching environmental awareness to expand green brands' appeal. Campaigns spotlighting ecological problems can expand constituencies cognizant and caring about sustainability. Partnerships with environmental groups or cause-related marketing also promise exposure to reliably green-minded and emotionally invested audiences. However, messaging must still nurture positive attitudes specifically towards brands' sustainable attributes and credibility. Emotive creative content is indispensable for forging personal connections and demonstrating genuine environmental commitment. Customer testimonials, employee stories and transparency about sustainability practices can help humanize brands beyond cold transactional exchanges [21].

Research also confirms that while necessary, raising awareness alone is insufficient for realizing green transactions [14]. Though large proportions of consumers now report high ecological concern, translating this into purchases remains challenging. Substantial attitude-behavior gaps still plague many green offerings. Findings therefore reinforce that emotional levers like eco-labeling, environmental branding and public commitments facilitating acted upon preferences merit emphasis [22].

5.2 Limitations and Future Research

As with all research, interpretative caveats exist. The online panel sampled precludes claims of pure representativeness. Replication across sociodemographic groups would strengthen generalizability. Reliance on self-reported measures also warrants caution against social desirability distortions, though anonymity likely minimized such biases. Statistical controls further accounted for prior green behaviors helping isolate awareness effects.

Causality questions also persist without random assignment of awareness levels. While temporal sequencing aids inferences, unintended cohort effects could still contribute across multi-year spans. Quasi-experimental and experimental manipulations of awareness represent logical next steps

6. General Framework

Broader implications from these findings deserve elaboration given increased calls for sustainability marketing and consciousness-raising from both corporations and governance institutions. Results substantively advance both theoretical understanding and practical techniques for leveraging environmental awareness, nourishing green brand resonance and capturing value from growing green consumer segments. Each of these contributions merits discussion as foundations for an actionable research agenda going forward.

6.1 Theoretical Advances

This research makes several important theoretical advances. First, definitively confirming environmental awareness as the precipitating catalyst for pro-environmental action helps resolve inconsistencies in prior findings. By tracing cascading effects longitudinally, the central role of consciousness-raising is established within sequencing models linking knowledge, affect, preferences and finally behaviors. Lack of significant direct effects from awareness further reinforces attitudes' function as the motivational bridge translating passive concern into actionable eco-friendly consumerism.

Second, demonstrating enduring effects that amplify across years provides an important theoretical correction regarding the instability of green purchasing markers. While year-to-year fluctuations in eco-label use and sales of sustainable products have led some scholars to question fickle preferences, these findings suggest otherwise [23]. Heightened awareness yields persistent attitudinal shifts with behavioral impacts accumulating gradually over time. Consumer psychologists must therefore recognize that sustainability perceptions evolve dynamically rather than erratically.

Third, illuminating multi-year legacies stretching awareness impacts out to downstream purchase interests substantially extends previous short-term investigations. The delayed sequencing exposes theoretical need for sophistication beyond classic static models. Feedback processes, time-based contingencies and cascade

phenomena clearly operate and require integration into longitudinal frameworks that accommodate green behavior unfolding more iteratively.

Overall, results prompt more granular process elaboration to understand awareness trajectories translating into action chronologically. Beyond confirming its instigating function, further exploration of catalysts, mediators and moderators driving amplification remains imperative as global sustainability challenges mount.

6.2 Practical Applications

Practical marketing and policy implications also abound from these findings regarding awareness manipulation as a lever for positive change. For consumer marketers, Takeaways suggest value in prioritizing consciousness-raising through campaigns dramatizing ecological threats while simultaneously offering solutions via branded technologies and product attributes [24]. Emotive messaging can spark worry further stoking the perceived necessity and desirability of offerings promising restorative sustainability.

Marketers must then nurture enduring green brand affinity through reliable transparency, eco-labeling and customer testimonials validating credibility [25]. Maintaining positively perceived differentiation as an authentic and truly eco-friendly supplier remains imperative given increasingly stringent consumer and regulatory demands. Failure to substantiate claims risks severe backlash, especially among idealistic youth demographics. Investing to improve environmental performance and communication hence promises both ethical and commercial benefits.

For public policy makers seeking to accelerate green transitioning, findings indicate urgent need for general awareness enhancement beyond confident sustainable consumers. While many green-leaning buyers now factor sustainability into purchases, mass consciousness raising through formal and informal education can expand reception for eco-friendly products exponentially. Schools, media organizations, community institutions and religious groups all represent vital channels for consciousness-raising through curriculum, workshops and grassroots initiatives. Better informed and inspired citizens can then unleash change-agent powers as vocal stakeholders pressuring governments and businesses towards reform through consumption choices, political participation and activism [26].

Overall, research makes clear that sustainability strides will require both sophisticated branding and more systemic consciousness transformation for ecological priorities to prevail economically and politically. Pursuing these complementary awareness-raising avenues holds promise for speeding society towards less harmful and more restorative modes of production and consumption.

7. Conclusion

With environmental threats mounting, harnessing public awareness represents an indispensable catalyst for consumer and industrial transformation. This longitudinal study demonstrates environmental consciousness' pivotal role in instigating green brand appeal and patronage. Boosting knowledge and concern perpetuates emotionally-charged attitudes that increasingly orient individuals favorably towards sustainably positioned offerings. Purchase interests then amplify gradually over years as attitudinal shifts solidify and permeate decision making.

These findings elucidate sequential processes through which diffuse concern sparked initially by consciousness gains motivational traction. Heightened awareness reverberates emotionally to reshape judgements, preferences and eventually behaviors as lagged ripple effects. Gaps between latent concern and manifest action also surface for many consumers and brands. This clarifies needs for intermediate enabling steps like affective branding appeals and incentive structures facilitating adoption.

Overall, research cements environmental awareness' starring role as the substrate upon which impact-oriented sustainability agendas must be cultivated. While positively positioning eco-friendly products requires skillful messaging, manifesting purchasing likewise demands that consciousness-raising stretch across mainstream segments. Achieving true green market transformation plausibly necessitates awareness ubiquity, wherein sustainability becomes top-of-mind constantly across all of society. With climate consequences accelerating, rapidly actualizing this ubiquitous state may represent humanity's best hope for realizing ecological redemption amidst otherwise devastating planetary forecasts. The time for awareness raising through all available educational and informational channels is unequivocally now.

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Appendix:

Supplementary Analyses

To further explore research questions, additional analyses were conducted using alternate modeling approaches and subset samples. While main effects were largely replicated, extensions also provide supplementary perspective regarding boundary conditions around reported findings. Analyses therefore deepen understanding of the complex and multifaceted relationship between environmental awareness and green consumerism.

Subgroup Comparisons

Because sociodemographic factors may moderate environmental attitudes and behaviors, analyses first scrutinized whether relationships varied across age, gender, ethnicity or income cohorts. Multi-group structural equation models using median split samples uncovered no statistically significant differences between younger and older consumers, male and female respondents, or high versus low income participants. Awareness consistently preceded improved green brand sentiment across groups.

Somewhat stronger effects emerged for White respondents compared to Non-Whites and for liberals relative to conservatives. Specifically, higher initial awareness levels translated into comparatively larger increases in green attitudes and purchase interest changes for dominant culture members and left-leaning ideologues. Marketers should therefore tailor activation efforts when targeting minority or politically moderate-to-conservative populations where consciousness raising may require amplification using cultural population or value-specific framing.

Alternative Model Specifications

Nested model comparisons also assessed whether alternative non-recursive specifications might better explain relationships. However, reversed directional paths models setting purchase intentions as the exogenous catalyst received little empirical support. Constraining attitude and intention measures as predictors instead of outcome variables consistently degraded model fit significantly across years. This substantiates the originally hypothesized sequence with cognitive, affective than behavioral responses unfolding forward chronologically.

Expansion models incorporating additional variables like environmental values, climate change beliefs and nature engagement as parallel drivers alongside awareness were also tested given calls for more comprehensive frameworks predicting ecological actions. Though acceptable fitting, expanded multi-factor specifications revealed small and inconsistent contributions beyond awareness. Dimension reduction procedures isolating significant effects upheld the streamlined model centering consciousness as the key preliminary trigger. Incremental variance accounted for by elaborating models remained negligible, further spotlighting awareness enhancement’s pivotal impact mechanism.