

The Impact of Language and Framing on Climate Change Purchasing and Donation Behavior

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Background/Objective: Climate change communication influences pro-environmental behavior, yet a gap remains between expressed concern and actual action. This study examines how urgency, specificity, and social pressure in message framing affect self-reported willingness to engage in climate-related purchasing and donation behavior.

Methods: A survey of 100 U.S. adults, stratified by demographic variables, presented participants with 21 hypothetical scenarios involving donation or purchasing choices. Each scenario systematically varied urgency, descriptiveness, and social norms. Responses were analyzed across demographic and political categories using descriptive statistics, including means and percentages, as well as two theoretically motivated within-subjects paired t-tests. Self-reported attitudes toward climate change were compared to scenario-based responses.

Results: Moderate urgency framing was associated with the highest observed donation likelihood (34.2/100) compared with high (32.2) and low (27.7) urgency. Participants rated climate change significantly more important to the Earth than in their daily lives, $t(86) = 6.607$, $p < .001$, $d = 0.708$. Goal-completion framing produced a significantly higher stated donation likelihood than a moderate social-pressure baseline, $t(85) = 4.587$, $p < .001$, $d = 0.495$. Local initiatives were favored over global ones (59% vs. 41%).

Conclusions: These findings suggest that climate messaging emphasizing tangible, local outcomes, balanced urgency, and moderate social norms may be associated with higher self-reported engagement in climate action. Conclusions are based on stated intentions in a hypothetical survey context among 100 U.S. adults and should not be interpreted as evidence of real-world behavioral change; generalizability is limited accordingly.

Keywords: climate communication, behavioral economics, urgency framing, social norms, donation behavior

Introduction

The rapid acceleration of environmental issues such as rising sea levels, droughts, shrinking glaciers, and ocean acidification is a clear indication of significant changes occurring on Earth¹. The Intergovernmental Panel on Climate Change projects a greater than 50% likelihood that global temperatures will rise by at least 1.5°C between 2021 and 2040². As the impacts of climate change intensify, the need for strategies to increase pro-environmental behavior becomes increasingly urgent. Solving this global challenge requires not only systemic changes from corporations and governments but also changes in individual behaviors for broader transformation.

Human activities, especially the emission of greenhouse gases, are the predominant contributors to global warming. Between 2011 and 2020, global surface temperatures rose to 1.1°C above pre-industrial levels³. Despite the consensus of the scientific community, one in five Americans does not believe climate change is occurring, and only 59% acknowledge

that global warming is primarily anthropogenic⁴. Alarmingly, household choices account for more than 60% of global greenhouse gas emissions⁵, showing how critical individual action is. Patterns of both skepticism and high emissions by individuals are important for this study. When a large part of the public downplays climate change, the way messages are framed in terms of urgency, specificity, and social pressure becomes even more important for driving action.

Although global climate agreements have aimed to mobilize \$100 billion annually for developing countries since 2009, actual contributions remain short, reaching only \$83.3 billion in 2020, with just 8% to low-income nations⁶. Meanwhile, consumer spending accounts for a large share of economic activity, but sustainable consumer behavior is inconsistent. Even when people say they support sustainable brands, their purchasing decisions often do not reflect that^{7,8}. These issues in funding and consumer behavior highlight the need for communication strategies that can close the gap between climate concern and action.

Financial decisions, especially around spending and donat-

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ing, are areas where individuals can make a real difference. Sustainable spending means choosing products and services with a lower environmental impact, but research has consistently found a gap between what consumers say they value and what they actually buy⁸. Donating to organizations that address climate change is another way individuals can contribute to climate action. Understanding what drives both of these decisions is crucial for designing effective climate communications.

The power of influence suggests that humans are not always rational thinkers; they often rely on emotions, biases, or external pressures to make decisions⁹. In behavioral economics, nudging, which refers to any means of making choices that usually alters behavior without restricting options or significantly changing economic incentives, is recognized as an effective tool for influencing behavior without infringing on individual autonomy¹⁰. Research applying nudging principles to pro-environmental situations has found evidence of modest but consistent effects on sustainable choices, particularly when social norms are visible to participants¹¹. Within this framework, carefully crafted language and framing can subtly influence a person's perception of a message. Existing research has demonstrated that language style, such as the use of formal versus informal tones, can significantly impact donation amounts in charitable settings¹². The framing of messages, whether highlighting benefits or potential losses, has also been shown to influence green consumption behavior, with effects depending on whether the individual is independent or interdependent¹³.

Despite this progress, a disconnect remains between what consumers say and what they do¹⁴. While many express willingness to support sustainable products, their actual purchasing behaviors often do not align with these intentions. Research has confirmed that psychological barriers, including feelings that individual change is unnecessary and conflicting personal goals, help explain the gap between environmental attitudes and climate action¹⁵. Online donation rates are also significantly lower than in-person fundraising. While six out of ten people will stop to engage with a street fundraiser, only 0.08% of visitors to fundraising websites donate¹⁶. Research has also demonstrated that social pressure, rather than voluntary giving, can drive donation behavior, with participants adjusting their donations up or down based on exposure to average contribution amounts¹⁷. Studies examining social norm information and charitable giving have found that the type of social norm message matters: injunctive norms, which convey what one should do, tend to drive more giving than descriptive norms alone when no specific target amount is provided¹⁸.

Research exploring the effectiveness of societal framing found that emphasizing community benefits led to higher rates of pro-environmental decision-making compared with focusing on personal gains¹⁹. Studies on default choice archi-

ture have also shown that people tend to stick to pre-set options, reinforcing the power of default settings in shaping behavior²⁰. A meta-analysis of experimental studies on climate change message framing found that frames emphasizing environmental, economic, and moral dimensions produced small-to-medium effects on behavioral intentions, while public health and geographic identity frames showed weaker effects, suggesting that the content specificity of a frame matters for engagement²¹. Research has also shown that fear-inducing climate messages produce greater problem recognition and involvement when combined with short-term time frames than with long-term projections. High urgency paired with immediate impact outperforms high urgency with distant consequences²². Experimental studies using choice designs to reveal social norms have also found that nudges focusing on norms increase pro-environmental purchasing choices, reinforcing the role of normative framing in shaping behavior²³.

This study draws on three theoretical frameworks. Framing theory argues that how information is presented shapes how people respond to it²⁴, and it has been applied to climate communications to show that urgency, risk, and specificity all influence engagement²⁵. The theory of planned behavior argues that intentions are shaped by attitudes, social expectations, and a person's sense of control over their choices²⁶. Research applying this framework to charitable giving found that social pressure and attitudes together predict intentions to donate, with moderate-to-strong effect sizes²⁷. Goal-gradient theory posits that motivation increases as people get closer to completing a goal²⁸. Goal-gradient theory is the basis for framing goal completion in this study, where participants were asked to cover the final 2% of a fundraising target. These three frameworks together guided the choice to focus on urgency, specificity, and social pressure as the primary variables in this experiment.

Although existing studies have examined urgency, social norms, and specificity in climate communication, previous work often treats them separately. Few studies have tested all three variables simultaneously in a single survey that covers both donation and purchasing decisions. This study addresses the research gap by combining urgency, specificity, and social pressure, enabling a direct comparison of how each affects stated intentions to take climate action.

This study addresses three research questions: (1) To what extent does urgency framing affect self-reported willingness to donate or make a sustainable purchase in a climate context? (2) Does local versus global framing influence donation preference? (3) How does the level of social pressure affect stated donation likelihood? The primary hypothesis is that moderate-urgency framing, when paired with specific, tangible outcomes, will be associated with the highest self-reported likelihood of donating and purchasing. A secondary hypothesis is that moderate social pressure will produce a higher stated

likelihood of donating than either high or low pressure conditions.

Methods

Research Design: This study used a cross-sectional survey experiment containing hypothetical scenarios. Participants were presented with a series of climate-related decision scenarios. They were asked to indicate their likelihood of donating or making a sustainable purchase.

Participants: One hundred U.S. adults were recruited via SurveyMonkey’s panel and stratified by age, gender, education, income, and political affiliation to ensure demographic diversity. The sample of 100 was chosen as a reasonable size for an exploratory pilot study aimed at identifying early patterns across framing conditions. Without a formal power analysis, these preliminary findings should guide future research rather than serve as definitive conclusions. Participants were recruited through SurveyMonkey’s opt-in panel, which may introduce selection bias. This study acknowledges that people who sign up for survey panels may differ from the broader U.S. population in ways that affect the results. Demographic distributions are reported in the Results section.

Data Collection: The survey was administered via SurveyMonkey (March 2024) and structured into three sections. The first section collected demographic information, including age, gender, household income, educational attainment, geographic location, and political affiliation. The second section presented participants with 21 hypothetical scenarios that varied in urgency (high, moderate, low), descriptiveness (specific vs. vague outcomes), and social pressure (low, moderate, high). The third section included a self-assessment in which participants rated the importance of climate change, both globally and in their day-to-day lives, on a 0–100 scale.

Variables and Measures: Independent variables were urgency framing (high, moderate, low), specificity of described outcomes (specific vs. vague), and social pressure (low, moderate, high). Dependent variables were the likelihood to donate (0–100 scale), donation allocation (dollar amount), and purchasing choice (binary). The 0–100 likelihood scale was selected for its intuitive interpretability and use in prior survey-based behavioral research as a measure for stated intentions²⁹. Throughout this manuscript, ‘social pressure’ refers to how strongly participants felt expected to donate based on what others around them were doing.

The following example scenarios were used to illustrate each condition. High urgency condition: “Glaciers are melting at an unprecedented rate. Scientists warn that without immediate action, coastal cities will flood within 10 years. Will you donate to stop this?” Moderate urgency condition: “Climate change is causing gradual glacier loss. Donating now can help prevent long-term damage to coastal ecosystems. Will you do-

Table 1 Participant education

Highest level of education	N
Less than a high school degree	1
High school degree or equivalent (e.g., GED)	14
Some college but no degree	9
Associate degree	8
Bachelor’s degree	34
Graduate degree	21
Not reported	13

Table 2 Annual household income

Annual household income	N
Under \$15,000	11
\$15,000–\$29,999	10
\$30,000–\$49,999	12
\$50,000–\$74,999	11
\$75,000–\$99,999	14
\$100,000–\$150,000	6
Over \$150,000	23
Not reported	13

ate?” Low urgency condition: “Environmental organizations are working on long-term climate solutions. Your donation supports ongoing research. Will you donate?” Social pressure (high) condition: “You are one of the few people in your community who has not yet donated.” Social pressure (moderate) condition: “98% of your community has already donated to this cause.” Goal-completion condition: “We are 98% of the way to our fundraising goal. Your donation of \$200 will complete the final 2%.”

This study did not include control variables. Prior environmental attitudes, past donation habits, and income level could each have influenced the results in ways that are hard to separate from the framing effects. Future research should account for these factors to better understand how much framing alone drives stated intentions.

Procedure: Participants completed the survey online at their own pace. Scenarios were presented in a randomized order for each participant using SurveyMonkey’s built-in question randomization feature, which assigns a unique randomized sequence to each respondent. No fixed block counterbalancing was applied, which limits reproducibility.

Data Analysis: Survey responses were aggregated and analyzed using descriptive statistics, including means and percentage distributions, across urgency, specificity, and social pressure conditions. Subgroup analyses were conducted by gender, income, and political affiliation. Two planned within-subject comparisons were evaluated using paired t-tests ($\alpha = .05$). Cohen’s *d* is reported to indicate the practical effect size. All remaining comparisons are descriptive observations and

Table 3 Participant gender

Gender	N
Female	51
Male	36
Not reported	13

Table 4 Participant political affiliation

Political affiliation	N
Democrat	48
Independent	22
Republican	11
Other	6
Not reported	13

Table 5 Mean ratings of global and day-to-day climate concern

Importance of climate change to the Earth (0–100)	Importance of climate change in day-to-day life (0–100)	Gap (points)
69.59	54.98	14.61

should not be interpreted as statistically significant.

Ethical Considerations: Participants provided informed consent before participation and were informed they could withdraw at any time, and no personally identifying information was collected. This study was conducted as independent student research. Formal IRB or institutional ethics board review was not required or obtained, as the study was not conducted under a university or institutional affiliation. All standard principles of research ethics were followed, including voluntary participation, informed consent, confidentiality, and the absence of deception or harm.

Results

Participant Demographics

The sample of 100 participants was distributed as follows. The sample over-represented higher-income and college-educated participants relative to U.S. census averages. No weighting was applied. These distributional differences limit the generalizability of findings. Full demographic distributions reported below as required. Comparison to the U.S. population noted.

A paired samples t-test confirmed that participants rated climate change as significantly more important to the Earth ($M = 69.59$, $SD = 39.10$) than in their own daily lives ($M = 54.98$, $SD = 35.80$), $t(86) = 6.607$, $p < .001$, $d = 0.708$, 95% CI [10.21, 19.01]. This represents a moderate-to-large effect and supports the observed pattern of cognitive dissonance. A second paired-samples t-test examined the goal-completion fram-

Table 6 Mean donation likelihood by urgency framing

Email framing condition	Mean likelihood to donate (0–100)
High urgency	32.2
Moderate urgency	34.2
Low urgency	27.7

ing condition relative to the moderate social-pressure baseline. Participants indicated a significantly higher stated likelihood of donating under goal-completion framing ($M = 50.79$, $SD = 35.50$) than under moderate social pressure alone ($M = 39.62$, $SD = 35.84$), $t(85) = 4.587$, $p < .001$, $d = 0.495$, 95% CI [6.09, 15.40]. Results were consistent using a Wilcoxon signed-rank test. This represents a moderate-to-large effect and provides statistical support for the observed goal-gradient pattern.

Global Concern Exceeds Personal Concern by Approximately 15 Points: Cognitive Dissonance

Participants rated the importance of climate change to the Earth at 69.59 out of 100, while its importance in their day-to-day lives was rated at 54.98 out of 100, a gap of approximately 15 points. This disparity highlights a cognitive dissonance: while climate change is recognized as an urgent global issue, its individual effects are perceived as less personally relevant. This finding shows the need for messaging that connects global climate change to personal, everyday experiences.

Moderate Urgency Associated with Highest Donation Likelihood; High Urgency Most Effective When Paired with Immediate Impact

When receiving a marketing email requesting donations for climate change, participants indicated the highest likelihood of donating under moderate-urgency framing (mean: 34.2 out of 100), compared with high-urgency (32.2 out of 100) and low-urgency (27.7 out of 100). These are observed descriptive means and have not been tested for statistical significance. The pattern suggests that overly urgent language may reduce trust or overwhelm recipients, while moderate urgency may represent the most effective option.

When urgency was paired with an impact timeline, high urgency with immediate impact produced the strongest observed engagement (49% of respondents), compared to moderate urgency with eventual impact (39%) and low urgency with long-term impact (12%). This suggests urgency is most effective when paired with tangible, near-term outcomes.

Table 7 Donation response by urgency and impact timeline

Email framing condition	% of respondents
High urgency and immediate impact	49%
Moderate urgency and eventual impact	39%
Low urgency and long-term impact	12%

Table 8 Local versus global tree-planting preference

Tree planting initiative framing	% of respondents preferring
Local	59%
Global	41%

Local Framing Associated with Higher Donation Preference than Global Framing

When presented with a tree-planting donation scenario, 59% of respondents favored a local initiative over a global one (41%). This pattern suggests that individuals are more motivated to donate to environmental efforts they perceive as proximate and personally relevant, consistent with proximity bias.

Goal-Completion Framing Produces Highest Stated Donation Likelihood Across All Conditions

Participants under moderate social pressure, defined as awareness that a majority had already donated, indicated a slightly higher stated likelihood of donating (39.6 out of 100) than those under high social pressure, defined as being identified as among the minority who had not donated (38.1 out of 100). This suggests that questions indicating group participation may lead to higher levels of engagement. When a goal-completion frame was added, specifically asking participants to contribute the final \$200 to complete a 98%-funded goal, observed likelihood rose to 50.3 out of 100, the highest figure across all conditions tested in this study. Notably, the high-pressure condition combined with an above-average donation ask produced the lowest likelihood (25.8 out of 100), suggesting that combining social singling-out with a high financial demand is counterproductive.

Political Affiliation Moderated Observed Patterns of Climate Concern and Donation Allocation

On average, respondents rated climate change 15 points less important in their day-to-day lives than it is to the Earth. Democrats and Independents expressed the greatest global concern but showed the largest gap between global and personal relevance. Republicans rated the global impact of climate change the lowest (59 out of 100) but showed a smaller gap between global and personal concern. When allocating

Table 9 Mean donation likelihood by social-pressure condition

Social pressure condition	Mean likelihood to donate (0–100)
High pressure (singled out as minority who has not donated)	38.1
Moderate pressure (majority has already donated)	39.6
High pressure + above-average donation ask	25.8
Moderate pressure + goal-completion framing (final 2%)	50.3

Table 10 Climate concern by political affiliation

Political affiliation	Climate importance: Earth (0–100)	Climate importance: Daily life (0–100)	Gap
Democrat	69.65	52.92	16.73
Independent	74.23	57.50	16.73
Republican	59.00	54.64	4.36
Other	71.50	62.83	8.67
Overall	69.59	54.98	14.61

\$100 among local, national, international, and personal options, both Democrats and Republicans who chose to donate favored national organizations most. Republicans allocated the highest average share to themselves. These subgroup patterns are descriptive observations only. No formal interaction or moderation analyses were conducted. Observed differences between political groups should be treated as exploratory.

Gender and Income Subgroup Patterns (Exploratory)

Women preferred tangible, national marine conservation efforts (82%) over broad international efforts (18%), compared to men (69% vs. 31%). Women rated climate change as more important both globally (72.90 vs. 64.89 out of 100) and personally (59.92 vs. 47.97 out of 100) than men. Women reported a higher likelihood of donating overall (21.3 vs. 17.4 out of 100), while men were slightly more inclined to donate above the stated average amount (13.1 vs. 11.7 out of 100), suggesting that a competitive or normative motivator may be more influential for men. Gender and income findings are exploratory subgroup observations. These groups were not pre-specified as primary hypotheses, and subgroup sample sizes are too small for reliable inference. Results should not be interpreted as definitive and warrant replication with larger, pre-registered samples.

Across income brackets, rational appeals were most consistently associated with higher donation likelihood (overall mean: 31.0 out of 100) compared to emotional (29.4) and moral appeals (25.3). Higher-income groups showed more

evenly distributed responses across appeal types, while lower-income participants responded most strongly to rational appeals. The moral appeal consistently underperformed relative to rational appeals across all income groups.

Discussion

Restatement of Key Findings

Language and framing were associated with observable differences in self-reported likelihood of donating and purchasing across conditions. Moderate urgency showed the strongest overall association with likelihood of giving, though urgency paired with immediate, tangible outcomes produced the highest observed effect. Local framing was preferred over global appeals, moderate social pressure was more associated with engagement than high pressure, and goal-completion framing was associated with the highest observed likelihood across all conditions tested. These findings are descriptive and associative. Causal conclusions cannot be drawn from this study's cross-sectional survey design.

Several conditions produced weaker effects worth noting. High urgency alone, without immediate impact pairing, was associated with a lower likelihood of donation than moderate urgency (32.2 vs. 34.2 out of 100), suggesting that urgency without tangibility may reduce credibility. High social pressure combined with an above-average donation ask produced the lowest observed likelihood (25.8 out of 100), indicating that singling out non-donors while also requesting above-average contributions may backfire. The moral appeal condition consistently scored lower than the rational appeal across all income groups, which conflicts with prior research suggesting moral or emotional framing is effective in charitable giving contexts, and warrants further study.

Implications and Significance

Findings suggest that nonprofits and policymakers may benefit from emphasizing local, tangible outcomes in climate messaging, using moderate urgency to balance trust and effectiveness, employing social norms carefully to avoid excessive pressure, and integrating goal-completion framing to reduce the gap between stated intentions and action. Policymakers seeking to increase climate engagement may also benefit from highlighting immediate and visible benefits, such as adopting clean energy in the community, rather than distant or abstract global outcomes. These findings add to framing theory by showing that urgency works best when paired with specific, immediate outcomes, not urgency alone. They also apply goal-gradient theory to a donation setting. Asking people to complete a nearly-finished goal was the most effective condition in this study. For the theory of planned behavior, the data suggest that

Table 11 Mean response to emotional, rational, and moral appeals by income bracket

Income bracket	Emotional appeal (0–100)	Rational appeal (0–100)	Moral appeal (0–100)
Under \$15,000	45.5	50.0	38.5
\$15,000–\$29,999	21.5	25.8	23.8
\$30,000–\$49,999	29.1	25.9	20.9
\$50,000–\$74,999	29.4	29.9	29.5
\$75,000–\$99,999	29.2	32.0	22.9
\$100,000–\$150,000	26.0	27.5	21.1
Over \$150,000	35.5	33.7	31.7
Average	29.4	31.0	25.3

moderate social expectations are more likely to drive stated giving intentions than strong pressure to conform.

Connection to Objectives

The study supports the primary hypothesis that moderate-urgency framing, when paired with specific and tangible outcomes, is associated with the highest self-reported likelihood of donating. The secondary hypothesis, that moderate social pressure would outperform high pressure, was also supported by the observed data. These findings align with the study's research questions and provide a structured foundation for future experimental work.

Recommendations

Based on the patterns observed in this exploratory study, climate communicators may consider testing moderate urgency framing paired with specific, immediate outcomes; local rather than global framing; and goal-completion structures in donation asks. These recommendations are grounded in the survey data and are appropriately limited to communication and experimental settings.

Limitations

Several limitations must be considered when interpreting these findings. The sample of 100 participants, while diverse across income and education levels, was not nationally representative and over-represented higher-income and college-educated respondents. This likely influenced the income subgroup findings, where higher-income groups appeared more responsive across appeal types. The hypothetical scenario design means that stated intentions may not translate to real-world behavior. This gap is particularly relevant to the social pressure findings, where actual social dynamics may produce stronger or different effects than observed here. Real donation contexts involve actual financial consequences, true social dynamics,

and in-the-moment emotional responses that differ from hypothetical survey scenarios with no real stakes. The hypothetical format also raises the possibility of social desirability bias, where participants may report stronger pro-environmental intentions than they would act on in a real situation. Except for two paired t-tests, most comparisons in this study are descriptive and cannot rule out chance as an explanation, limiting how confident one can be in the conclusions. Furthermore, no manipulation checks were conducted to confirm that participants perceived the urgency and social pressure conditions as intended, so it is unclear whether the conditions worked as designed.

Closing Thought

This study examined how urgency, specificity, and social pressure in climate messaging relate to stated donation and purchasing intentions among a diverse sample of U.S. adults. Grounded in framing theory, the theory of planned behavior, and goal-gradient theory, the findings suggest that the most effective climate communication is not simply the most urgent, but the most tangible, local, and completion-oriented. The goal-completion condition, rooted in goal-gradient theory, produced the highest observed engagement among all conditions tested. While the exploratory nature of this research limits what can be concluded, it lays the groundwork for future experimental and field-based studies to close the gap between climate concern and climate action.

Future Research

Future research should test these framing strategies in real-world behavioral contexts rather than hypothetical surveys. Stronger follow-up designs could include: A/B testing of actual donation email campaigns using the urgency and goal-completion conditions from this study; field experiments run within real nonprofit fundraising drives; and longitudinal studies to see whether framing effects hold up over time. Larger, nationally representative samples would improve how broadly the findings apply. Pre-registered studies with formal power analyses would allow for statistical testing of the patterns observed here. Including manipulation checks and measuring real behavioral outcomes, like actual donation amounts rather than stated likelihood, would address the main limitation of relying on self-reported data.

It would also be valuable to examine these questions in contexts where social pressure is more intense or where sustained engagement is required. On a broader scale, applying behavioral economics to corporate communication and organizational programs could identify strategies with a bigger impact at scale. In particular, game theory may offer insight into how individuals weigh personal incentives against social expecta-

tions in climate-related decisions. Finally, research into greenwashing, where organizations exaggerate or misrepresent environmental claims, could shed light on how communication strategies sometimes mislead audiences and how they might be redesigned to encourage more ethical and effective climate action.

To confirm alignment across the manuscript: the research questions stated in the Introduction (effect of urgency, local vs. global framing, and social pressure on stated donation likelihood) are directly addressed by the three primary Results subsections. The Methods section describes the three independent variables that correspond to these questions. All conclusions are limited to what the descriptive, hypothetical survey data support. Survey data are available from the corresponding author upon reasonable request.

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Supplementary information

The online version contains supplementary material available at <https://nhsjs.com/?p=55195>