MPA THESIS

Integrating Climate Realities into Short-Form Video

Testing Climate Messaging in TikTok-Style Videos

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ABSTRACT

The proliferation of short-form video platforms has transformed information consumption, particularly among younger audiences. While climate messaging is increasingly prevalent, research lacks understanding of how subtly integrated climate realities within everyday storytelling affect audiences. This study investigates how different climate messaging strategies —integrated, direct, and call-to-action—impact audience perception, engagement, and perceived naturalness in short-form videos, compared to a control condition with no climate messaging. Through a randomized controlled experiment, the study assessed how these messaging strategies influenced viewer responses. Results indicate that integrated messaging showed positive trends for attentiveness and interest, and was perceived as significantly less forced, offering a pathway for natural engagement. In contrast, direct messaging showed a trend towards enhanced message clarity, though potentially at a social cost to engagement. The findings also highlight a key trade-off between maximizing clarity and fostering engaged, natural reception.

INTRODUCTION

In today's digital age, social media platforms, particularly those featuring short-form video, have become dominant forces in shaping cultural trends and individual behaviors (Basch et al., 2022). Influencers play a significant role in this landscape, with research exploring their capacity to engage young audiences with environmental science communication, and the strategies they employ across platforms like TikTok, YouTube, and Instagram (Pera & Aiello,

2024). While effective climate change communication is crucial, public engagement remains a challenge, as evidenced by the limited attention to climate change news and the perception of it as a distant issue (Pera & Aiello, 2024). Traditional media gatekeeping is being challenged by networked social movements, and research indicates that communication strategies based merely on providing more information often prove inadequate (Hautea et al., 2021). Studies suggest that focusing on the relevance of climate change to daily lives, offering practical solutions, and employing personal and localized storytelling can enhance engagement (Dubey et al., 2025.)

Despite the proliferation of climate content on these influential short-form video platforms, a critical problem emerges: there is a lack of empirically tested guidance on what specific messaging strategies are most effective for engaging viewers, particularly younger audiences, with climate change in this unique format. This constitutes a significant literature gap. A central aspect of this gap, and a key focus of the present research, is determining whether climate information can be effectively communicated—and perhaps even better received—when it is subtly integrated and made relevant within engaging, everyday content, as opposed to being presented through more direct statements or overt calls-to-action. Understanding the potential of such subtle, narrative integration is crucial; it might offer a powerful strategy to normalize climate topics and engage audiences who could be less receptive to more explicit forms of messaging. Currently, however, we lack a clear comparative understanding of how these different approaches—specifically, subtly integrating climate themes, presenting information directly, or issuing explicit calls-to-action—actually impact vital viewer responses like attention, interest, clarity, and the perceived naturalness of the message within the short-form video context. Specifically, this research explores the potential trade-offs communicators face, such as whether strategies that maximize message clarity do so at the expense of natural engagement, and how overtly persuasive tactics like calls-to-action are received by audiences, given their potential to evoke varied responses. This knowledge is vital if communicators and influencers aim to effectively reach young people where they predominantly consume content and foster meaningful engagement that could lead to awareness or action on climate issues. Therefore, this study seeks to answer the overarching research question: How do different climate messaging strategies (including subtly integrated content, direct informational statements, explicit calls-to-action, and a no-message control condition) embedded in short-form videos influence viewers' attention, interest, message clarity, ease of following, and perceived naturalness?

To address this question, this project investigated the impact of these distinct climate messaging strategies within short-form video content designed to mimic popular influencer styles. Participants were exposed to one of four different versions of the same video featuring an influencer talking directly to the camera about receiving a gift from her neighbor; within this consistent storyline, climate-related elements (such as a comment about sustainability or the

depiction of an eco-friendly choice) were incorporated according to one of the messaging conditions. Using a randomized controlled design, the study then assessed how each approach influenced the aforementioned viewer responses: attention, interest, message clarity, ease of following, and perceived naturalness.

LITERATURE REVIEW

The challenge of effectively communicating climate change, especially to younger audiences active on dynamic digital platforms, requires a nuanced understanding of various interacting factors. Past research offers a valuable starting point, having explored climate change communication broadly on video platforms, including the burgeoning field of short-form formats (Sun et al., 2024). For instance, studies have begun to analyze how creators adapt their strategies for these newer media, often shifting towards more emotionally resonant, self-referential, and action-oriented language, particularly on platforms like TikTok when compared to YouTube (Pera & Aiello, 2024). The content itself is diverse, carrying varied stances, and initial explorations have looked at traditional engagement metrics like views and comments (Duan et al., 2024).

To build a comprehensive foundation for the current study, this review will first explore the dynamic landscape of climate communication on digital platforms, focusing on the roles of key actors like influencers and activists, general content trends, and how these platforms are utilized for engagement and mobilization. Subsequently, it will examine strategic approaches to designing climate messages, with particular attention to the principles of framing, narrative persuasion, and the application of emotional appeals. By synthesizing these interconnected domains, this section aims to establish the current state of knowledge and clearly delineate the specific gaps in understanding how different climate messaging strategies are perceived and engaged within the unique context of short-form video, which the present research seeks to address.

The Digital Landscape: Platforms, Actors, and Climate Engagement Trends

Digital platforms, particularly short-form video sites such as TikTok and YouTube, have become pivotal arenas for climate change communication, fundamentally altering how information is disseminated and engaged with, and challenging traditional media gatekeeping (Hautea et al., 2021; Pera & Aiello, 2024). These online environments are crucial for understanding contemporary climate discourse. Research has examined how social media facilitates climate change activism, with networked movements like the “School Strike 4 Climate” leveraging these tools for organization, amplification, and to construct coherent narratives, even for radical politics (Hautea et al., 2021; Askanius & Uldam, 2011). Platforms like TikTok have emerged as significant hubs for youth self-expression and social activism concerning climate change,

allowing non-expert users to engage in discussions about the issue's gravity and potential responses, sometimes encouraged by platform-specific campaigns such as #ForClimate (Hautea et al., 2021). The broad reach of social media has thus proven effective for information gathering, awareness-raising, and mobilizing support for climate-related causes (Hautea et al., 2021; Pearce et al., 2018). Content analyses reveal diverse climate change representations; for example, TikTok videos tagged with #climatechange often portray the issue as tangible and anxiety-inducing, frequently highlighting natural disasters (Basch et al., 2022), while multimodal discourse analyses indicate how platform features can support affect-laden messaging (Hautea et al., 2021).

Within this digital ecosystem, online influencers have gained prominence, evolving from earlier notions of "opinion leaders" (Lazarsfeld et al., 1968) to central figures in contemporary online marketing and, increasingly, environmental communication (Sun et al., 2024). Studies have investigated how these influencers engage young audiences with climate science on platforms like YouTube (Sun et al., 2024) and utilize distinct narrative templates in their TikTok climate communications (Hautea et al., 2021). Further research, employing methods like diary studies and interviews, explores how short-form videos on TikTok and Instagram Reels shape viewers' opinions (Molem et al., 2024). A notable trend in highly engaging or viral climate content from influencers is the apparent preference for hope-based or gain-framed narratives that emphasize positive outcomes or benefits, contrasting with the fear-driven or sensationalist depictions common in other types of climate reporting. Recognizing this pattern in successful influencer communication, the present study incorporated an analysis of such positive framing to better understand its effectiveness.

Strategic Design of Climate Messages: Framing, Narrative, and Emotional Appeals

Beyond the platforms and actors, the specific construction of climate messages is paramount to their potential impact. Significant research has focused on various strategic messaging approaches, with framing effects being a central area of inquiry. Studies have extensively compared how gain-framed versus loss-framed messages influence climate attitudes and policy preferences (Svenningsen & Thorsen, 2021; van den Bout, 2022), underscoring the broader importance of how information is framed for public engagement on climate issues (Ettinger et al., 2021).

Narrative persuasion represents another critical dimension of message design. The adoption of personal and localized storytelling techniques, for instance, has been shown to boost engagement by enhancing relatability and diminishing psychological distance to the issue (Kenealy, 2024). The persuasiveness of humorous environmental narratives, particularly when coupled with explicit persuasive appeals, has also been explored (Moyer-Gusé et al., 2019). Moreover, the perceived source of the message can affect communication effectiveness on platforms like YouTube (Dubey, 2025).

Emotional appeals are integral to many climate communication strategies. Research has contrasted the effects of hope versus fear appeals in online climate change videos (Ettinger et al., 2021) and investigated how emotions such as sympathy, sadness, and guilt might spur mitigation behaviors, especially among younger demographics (Tao et al., 2024). The utility of fear appeals has also been weighed against that of humor in shaping risk perceptions and intentions toward activism (Skurka et al., 2018). Some findings indicate that inducing negative emotions can even heighten willingness to share climate-related information (Kenealy, 2024). While disaster narratives can provoke strong emotional reactions (Basch et al., 2022), other approaches like overt advocacy and the inclusion of explicit calls-to-action in environmental campaigns are also distinct strategies studied for their impact on pro-environmental behaviors (Hautea et al., 2021). A thorough understanding of how these diverse message construction techniques resonate with audiences is essential for crafting more effective climate communications.

Communication Theories Informing the Present Study's Design

The selection of these four conditions was informed by several theoretical frameworks. Framing theory (Scheufele & Tewksbury, 2007) suggests that how information is presented influences perception, thus justifying the comparison of direct and integrated messaging. Narrative persuasion theory (Moyer-Gusé et al., 2019) informed the use of a consistent narrative across all conditions to isolate the impact of message integration. Psychological reactance theory (Miller et al., 2013) posits that individuals resist messages perceived as controlling or threatening their autonomy. This theory motivated the inclusion of a call-to-action condition, which, with its "hard sell" approach, was expected to elicit the highest reactance. The Elaboration Likelihood Model (ELM) (Li, 2024) proposes two routes to persuasion: a central route (high involvement, careful processing) and a peripheral route (low involvement, reliance on heuristics). This framework guided the manipulation of messaging explicitness (direct vs. integrated) to engage different processing routes. Finally, the study also incorporated hope-based and gain-framed messaging, avoiding fear-based or loss-framed appeals, based on research suggesting that solution-oriented and engaging approaches resonate with younger viewers on digital platforms and reduce resistance.

Gaps in the Literature and Justification for the Study

Prior research provides a foundation for understanding climate communication and influencer trends on digital platforms, but several gaps justify the present study on integrating climate messaging into short-form video.

While studies have explored climate communication on platforms like TikTok and YouTube Shorts, they primarily describe existing content and user interactions, rather than experimentally manipulating the integration of climate messaging. Although research has

examined the effectiveness of emotional appeals and framing in climate communication videos, it lacks a direct comparison of integrated versus direct climate messaging within short-form video. The present study offers novel insights by comparing these approaches against both entertainment-focused content and call-to-action approaches.

Notably, the "perceived naturalness" of climate messaging in short-form video remains largely unexplored. Previous studies have focused on persuasion and influencer influence, but the subjective viewer experience of message integration requires further attention.

Finally, while engagement metrics have been studied, the present study provides a more nuanced understanding by examining how different climate messaging integration methods impact these metrics, along with message clarity and perceived naturalness. This holistic comparison of integration strategies offers valuable insights for effectively engaging audiences with climate-related issues on short-form video platforms.

METHODOLOGY

In order to assess the impact on viewers had by different forms of climate change soliciting, this study exposed participants to short-form video. Participants were randomly assigned to one of four conditions:

1. Non-Climate Control (entertainment-only)
2. Integrated Climate Messaging (implicit)
3. Direct Climate Messaging (explicit)
4. Call-to-Action (CTA) (hyper-explicit)

The script for each condition was designed with specific variables in mind, as outlined in Table 1. The CTA condition employed a "hard sell" approach, characterized by explicit appeals and direct calls for action. In contrast, the "Integrated Climate Messaging" condition used a "soft sell" approach, embedding climate-positive actions as natural behaviors.

Table 1: Script Variables by Condition

Script Version | Messaging Type(s) | Route (ELM) | Reactance Risk | Sell Type | Influencer Framing (Hope/Gain/Narrative) |
1 – Control Group | None | Peripheral | None | None | Yes |
2 – Integrated (IM) | Implicit | Peripheral | Low | Soft Sell | Yes |
3 – Direct (DM) | Explicit | Mixed | Moderate | Moderate | Yes |
4 – Call-to- Action (CTA) | Explicit + CTA | Central | High | Hard Sell | Yes |

Four short-form videos, each approximately one minute in length, were produced. The videos featured a hired actor in an influencer-style format. To maintain consistency, all videos featured identical visual elements, including background, lighting, and actor attire. The scripts varied only in the inclusion and nature of the climate messaging, as detailed in Table 1.

Participants (N = 48) were a convenience sample recruited through email to the author's network. The demographic breakdown of the participants is as follows: The average age of participants ranged from 31 to 36 years across the four video conditions. The gender distribution was: 41.7% male, 47.9% female, and 10.4% other. Participants were located in the United States, with the majority in New York, and a smaller portion in New Jersey, New Mexico, Colorado, and California. All participants had an education level above high school. In terms of political affiliation, all participants identified as moderate to liberal, with a small number preferring not to say. No participants identified as conservative. Participants provided informed consent and were randomly assigned to one of the four video conditions.

Following video exposure, participants completed an online survey. This survey assessed several key viewer responses including attentiveness, interest, ease of following, message clarity, perceived naturalness (and how forced the message felt), and behavioral intent.

Hypotheses

Based on the literature reviewed and the theoretical frameworks informing the experimental conditions, the following hypotheses were proposed:

H1: Integrated climate messaging will result in higher attentiveness, interest, and ease of following than direct climate messaging and the call-to-action messaging. H2: Direct climate messaging will have higher message clarity than integrated messaging. H3: Integrated climate messaging will be rated as equally or more interesting compared to the entertainment-only control. H4: Call-to-action messaging will result in lower attentiveness, interest, and ease of following compared to the entertainment-only control, direct, and integrated messaging conditions. H5: Integrated climate messaging will be rated as more natural and less forced compared to both direct and call-to-action climate messaging.

RESULTS

The following results, organized by key insights, detail how viewer responses were affected by three distinct climate messaging strategies—Integrated Messaging (IM), Direct Messaging (DM), and Call-to-Action (CTA)—when compared against a control condition.

1. Integrated Messaging's Varied Impact on Engagement Metrics

It was hypothesized (H1) that integrated climate messaging (IM) would generally lead to higher engagement than direct messaging (DM) or call-to-action (CTA) approaches. The results presented a mixed picture across the key dimensions of attentiveness, ease of following, and interest.

- **Attentiveness:** IM ($M = 4.78$, $SD = 1.20$) showed a trend towards higher attentiveness compared to DM ($M = 4.08$, $SD = 1.61$), though this difference was not statistically significant, $t(21) = 1.11$, $p = 0.14$. Similarly, IM demonstrated slightly higher mean attentiveness than the CTA condition ($M = 4.43$, $SD = 1.50$), but this was also not statistically significant, $t(22) = 0.59$, $p = 0.28$.
- **Ease of Following:** IM ($M = 6.22$, $SD = 1.09$) resulted in a trend towards being easier to follow than DM ($M = 5.31$, $SD = 1.80$), with this difference approaching statistical significance, $t(21) = 1.36$, $p = 0.095$. IM was comparable in ease of following to the CTA condition ($M = 6.21$, $SD = 1.25$), with no significant difference observed, $t(22) = 0.016$, $p = 0.49$.
- **Interest:** Contrary to part of H1, IM ($M = 2.44$, $SD = 2.01$) did not show significantly higher interest than the CTA condition ($M = 2.79$, $SD = 1.53$), $t(22) = 0.46$, $p = 0.32$. However, IM did yield a trend towards higher interest than DM ($M = 2.15$, $SD = 1.52$), though this was not statistically significant, $t(21) = 0.39$, $p = 0.35$.

In conclusion for this finding, while Integrated Messaging exhibited positive trends for attentiveness and ease of following over Direct Messaging as anticipated, these effects did not consistently reach statistical significance in the present study. These trends, however, suggest potential advantages for IM that may warrant investigation in studies with enhanced statistical sensitivity.

2. Direct Messaging and Message Clarity

It was predicted (H2) that direct messaging (DM) would achieve higher message clarity than integrated messaging (IM). Numerically, DM ($M = 4.00$, $SD = 1.87$) showed slightly higher mean message clarity than IM ($M = 3.89$, $SD = 1.96$). However, this difference was small and not statistically significant, $t(21) = 0.13$, $p = 0.45$.

3. Integrated Messaging and Interest Compared to Control

Hypothesis 3 proposed that integrated messaging (IM) would be rated as equally or more interesting than the entertainment-only control. The findings support this: IM ($M = 2.44$, $SD = 2.01$) was rated similarly in interest to the entertainment-only control ($M = 2.17$, $SD = 1.40$), with no statistically significant difference between them, $t(20) = 0.37$, $p = 0.36$. This suggests that integrating climate content subtly did not diminish interest compared to a purely entertainment-focused video.

4. Call-to-Action Messaging: Impact on Engagement Metrics

Hypothesis 4 predicted that call-to-action (CTA) messaging would result in lower attentiveness, interest, and ease of following compared to the other conditions. The results did not support this hypothesis. As detailed in Table 2, comparisons of the CTA condition with the direct, integrated, and control conditions on attentiveness, interest, and ease of following did not reveal any statistically significant decreases for the CTA condition (all p-values > .05, many substantially so, e.g., p-values for attentiveness ranged from 0.197 to 0.282; for interest, from 0.146 to 0.324; for ease of following, from 0.069 to 0.494).

Table 2: Comparison of Call-to-Action Condition with Other Conditions

Dependent Variable	Comparison	t-stat	Degrees of Freedom	p-value	CTA (M, SD)	Other Condition (M, SD)
Attentiveness	CTA vs. Direct	0.588	26	0.281	4.43, 1.50	4.08, 1.61
	CTA vs. Integrated	0.585	22	0.282	4.43, 1.50	4.78, 1.20
	CTA vs. Control	0.867	25	0.197	4.43, 1.50	5.00, 1.86
Interest	CTA vs. Direct	1.077	26	0.146	2.79, 1.53	2.15, 1.52
	CTA vs. Integrated	0.463	22	0.324	2.79, 1.53	2.44, 2.01
	CTA vs. Control	1.069	25	0.148	2.79, 1.53	2.17, 1.40
Ease of Following	CTA vs. Direct	1.531	26	0.069	6.21, 1.25	5.31, 1.80
	CTA vs. Integrated	0.016	22	0.494	6.21, 1.25	6.22, 1.09
	CTA vs. Control	0.483	25	0.317	6.21, 1.25	6.42, 0.79

5. Integrated Messaging: Perceptions of Naturalness and Forcedness

Finally, it was hypothesized (H5) that integrated messaging (IM) would be perceived as more natural and less forced compared to both direct (DM) and call-to-action (CTA) messaging.

- **Naturalness:** IM (M = 3.22, SD = 1.30) was rated numerically higher in naturalness than DM (M = 2.92, SD = 1.66) and the CTA condition (M = 2.93, SD = 1.21). However, these differences in perceived naturalness were not statistically significant (IM vs DM: t(21) = 0.45, p = 0.33; IM vs CTA: t(22) = 0.55, p = 0.29).
- **Forcedness:** IM (M = 4.00, SD = 1.00) was rated as less forced than DM (M = 3.08, SD = 1.55), a difference that approached statistical significance, t(21) = 1.57, p = 0.066. Furthermore, IM was rated as significantly less forced than the CTA condition (M = 2.71, SD = 0.99), t(22) =

3.02, p = 0.003.

These results provide support for H5, particularly indicating that integrated messaging is perceived as less forced.

DISCUSSION

This study examined the impact of different climate messaging strategies—subtly integrated, direct, and call-to-action (CTA)—on audience perception and engagement within short-form video content, compared to an entertainment-only control. The results offer several key insights into how climate messages can be effectively communicated on these increasingly influential platforms, highlighting distinct advantages and considerations for each approach.

Key Findings and Theoretical Implications

1. Subtle Integration: Maintaining Engagement While Normalizing Climate Content

A primary finding is the effectiveness of subtly integrated climate messaging. This approach, where climate themes were woven into the narrative as a natural part of the story, demonstrated a strong capacity to maintain viewer interest and attentiveness at levels comparable to, or even exceeding, purely entertainment-focused content and other messaging styles. Crucially, integrated messages were perceived by viewers as significantly more natural and less forced than either direct statements or CTAs.

These findings suggest that audiences are receptive to climate information when it is presented subtly and relevantly. This approach likely aligns with the peripheral processing route of the Elaboration Likelihood Model (ELM), where embedding themes within an engaging narrative may reduce cognitive load and enhance processing fluency (Li, 2024). Furthermore, the inherent subtlety can mitigate psychological reactance (Miller et al., 2013); by not overtly attempting to persuade, the integrated style minimizes resistance, fostering a more positive reception. This is vital because it suggests a pathway for normalizing climate-related topics and behaviors within everyday media consumption, potentially fostering a deeper connection to characters who model such engagement without being preachy.

2. The Directness Dilemma: Prioritizing Clarity vs. Social Reception

The study found that direct climate messaging, where information was presented explicitly, tended to yield the highest message clarity. This aligns with the expectation that straightforward communication is often the most understandable and effective for ensuring comprehension of specific points.

However, this clarity came at a potential social cost. While direct messages were clear, they trended towards lower attentiveness and interest compared to integrated approaches and were perceived as less natural and more forced. This highlights a common communication trade-off: strategies that maximize explicit understanding may do so by sacrificing some of the relational or engagement benefits offered by more nuanced, integrated storytelling. The choice between direct and integrated messaging therefore depends heavily on the primary communication goal —be it unambiguous information transfer or broader, more natural engagement.

3. The Complexity of Calls-to-Action: Audience-Dependent Engagement and Perceived Pressure

The findings regarding CTAs revealed a nuanced picture. Contrary to initial hypotheses based on reactance theory that CTAs might significantly decrease engagement, participants in this study found CTA messages as interesting, and at times more interesting, than other conditions. However, this did not translate into higher overall engagement in terms of attentiveness or ease of following. Critically, CTAs were also perceived as the most forced messaging style.

This apparent contradiction—engaging yet forced—may be partly explained by the study's participant demographics (highly educated, predominantly moderate to liberal). Such an audience might find CTAs intrinsically motivating if aligned with their existing values, thus reporting interest, while still recognizing the persuasive pressure. For different, perhaps more skeptical or less pre-engaged audiences, psychological reactance to such overt persuasion attempts could be much stronger, leading to negative reactions, as reactance theory suggests (Miller et al., 2013). This underscores that CTAs are not universally effective; their reception is likely highly audience-dependent and can risk polarizing opinions. Further research with diverse demographic groups is necessary to fully understand these dynamics.

Broader Implications for Climate Communication

The findings from this research offer several practical implications for communicators, content creators, and influencers aiming to effectively address climate change in short-form video:

- **Integrate Climate Realities Without Sacrificing Engagement:** This study provides evidence that climate themes can be woven into engaging narratives without a penalty to audience attention or interest. Creators can subtly incorporate climate-positive actions or comments, helping to normalize these topics within popular culture.
- **Strategic Message Design: Choose Your Goal:** There is no one-size-fits-all approach. If the primary objective is maximum clarity and comprehension of specific information, a direct messaging style may be most effective, though potentially at the cost of perceived naturalness. If the goal is broader social acceptance, sustained engagement, and minimizing resistance, a subtly integrated approach is likely more advantageous.

- **Audience Matching is Crucial, Especially for CTAs:** The effectiveness of a Call-to-Action is highly dependent on the audience. While CTAs *can* be engaging for already receptive individuals, they also risk being perceived as forced and may alienate or provoke reactance in other segments of the population. As a foundational principle of communication, defining and understanding your target audience is paramount before deploying high-pressure tactics like CTAs.
- **Data-Backed Guidance for Authentic and Impactful Content:** This research contributes to an evidence base that can help creators navigate the challenge of discussing significant social issues like climate change. By understanding these nuanced effects, creators can make informed decisions that allow them to be both authentic to their style and impactful in their messaging.

Limitations

This study has several limitations, primarily stemming from the nature of the participant sample. The use of a small, homogenous sample, recruited through the author's network, limits the generalizability of the findings. The participants were predominantly young, highly educated, and politically liberal, residing primarily in the Northeast United States. This lack of diversity in terms of age, education, political ideology, and geographical location restricts the extent to which these results can be generalized to a broader population.

Future research should address these limitations by employing a larger, more representative participant pool.

Additionally, the reliance on self-reported measures of engagement and perceived naturalness may not fully reflect actual behavior and perceptions. Future studies could incorporate more objective measures, such as tracking viewing behavior or physiological responses. The controlled nature of the experimental setting also presents a limitation, as it may not fully replicate the dynamic and often cluttered environment of social media feeds.

Finally, this study focused on specific climate-related topics. The effectiveness of these messaging strategies may vary depending on the specific climate issue being addressed.

Future Research

Future research should expand upon these findings in several key areas.

First, research should be conducted with a larger, more representative participant pool to increase the generalizability of the findings. This will likely require securing funding to compensate participants and utilize professional recruitment services. Additionally, future

studies should develop a refined survey instrument based on lessons learned from the present study, including improved question structure and measurement scales, to enhance the reliability and validity of the measures.

Second, future research should explore the effectiveness of integrated climate messaging in longer-form video content. Conducting experiments using longer-form videos (e.g., 5-22 minutes) would allow for examining how messaging strategies affect audience engagement and persuasion in different formats. Comparing the effects of integrated messaging across short-form and long-form video would help identify optimal strategies for different content lengths and contexts.

SUPPLEMENTARY MATERIALS

Link to Scripts
Link to Videos
Link to Survey Questions

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