

Frames and Counter-Frames of Meaning in Climate Change: Between Public Perception and Political Propaganda

Marcos y contramarcos de significado en el cambio climático: entre la percepción pública y la propaganda política



Michele Di Salvo
Ente Nazionale per l'Intelligenza
Artificiale (ENIA)
mik.disalvo@gmail.com
ORCID: 0000-0002-9531-0591

Abstract

Objectives: This article critically examines how frames and counter-frames organise political and media communication about climate change, with particular attention to frame production, media and platform circulation, reception by polarised audiences, and contributions from environmental journalism and environmental education. **Methodology:** The study uses a structured critical narrative review of peer-reviewed scholarship, combining foundational works with recent studies published mainly between 2023 and 2025. Searches used combinations of climate change, framing, environmental communication, environmental journalism, climate education, polarization, misinformation, emotions, and solutions journalism, together with DOI metadata and publisher pages. **Results:** The literature indicates that climate framing cannot be reduced to a Lakoffian account or to a simple opposition between information and emotion. Journalistic practices, political identities, platform logics, environmental education, responsibility attribution, and efficacy beliefs all shape interpretation and engagement. **Conclusions:** Rigorous climate communication should combine scientific evidence, psychological and geographic proximity, frame plurality, transparency about interests, and credible responses, while avoiding both paralysing catastrophism and overly moralising or reductive narratives.

Keywords

Climate change; framing; environmental communication; environmental journalism; environmental education; polarisation; misinformation; emotions.

Resumen

Objetivos: Analizar críticamente cómo los marcos y contramarcos organizan la comunicación política y mediática del cambio climático, prestando atención a la producción de marcos, su circulación en medios y plataformas, su recepción por audiencias polarizadas y las respuestas procedentes del periodismo ambiental y la educación ambiental. **Metodología:** Se realiza una revisión narrativa estructurada y crítica de literatura académica revisada por pares, complementada con rastreo bibliográfico de trabajos clásicos y estudios recientes (2023–2025), mediante búsquedas por palabras clave relativas a climate change, framing, environmental communication, environmental journalism, climate education, polarization, misinformation, emotions y solutions journalism, así como consulta de metadatos DOI, páginas editoriales y del archivo de Más Poder Local. **Resultados:** La literatura muestra que el framing climático no puede reducirse a una lectura lakoffiana ni a una dicotomía entre información y emoción: intervienen prácticas periodísticas, identidades políticas, lógicas algorítmicas, educación ambiental, atribuciones de responsabilidad y percepciones de eficacia. **Conclusiones:** Una comunicación climática rigurosa requiere integrar evidencia científica, proximidad, pluralidad de marcos, transparencia sobre intereses y soluciones verificables, evitando tanto el catastrofismo paralizante como los marcos simplificadores o moralizantes.

Palabras clave

Cambio climático; framing; comunicación ambiental; periodismo ambiental; educación ambiental; polarización; desinformación; emociones.

1. Introduction

The climate crisis represents one of the most complex and urgent challenges of the Anthropocene, characterised by a persistent discrepancy between the strength of the scientific evidence and the unevenness of political and social responses (IPCC, 2022). This gap cannot be explained simply as a deficit of information. It is also shaped by the ways in which climate change is selected, narrated, contextualised, contested, and connected to identities, interests, and everyday experience. Framing theory is therefore useful for examining how particular aspects of climate change are made salient and how those selections guide problem definition, causal attribution, moral evaluation, and proposed remedies (Entman, 1993).

Recent scholarship reinforces the need to treat framing as a process distributed across communicators, journalistic content, platforms, audiences, and effects rather than as a single persuasive technique. A systematic review of 275 peer-reviewed studies found that climate-framing research spans frame production, frame content, audience frames, and framing effects, but that these locations are still too often studied separately (Guenther *et al.*, 2024). This article therefore uses Lakoff as one conceptual contribution among several, rather than as an overarching explanation of climate communication.

The central objective is to identify how recurring climate frames operate across media and political communication and how counter-frames are constructed in response. Three research questions organise the discussion: RQ1: Which recurrent frames structure contemporary climate communication across media and political discourse? RQ2: How do polarisation, media practices, emotions, and platform dynamics condition the reception of those frames? RQ3: Which communicative practices identified in environmental journalism, environmental education, and recent climate-communication research can support engagement without reducing complexity or overstating causal claims?

The article makes a specific contribution by connecting four literatures that are often treated separately: framing research, climate and environmental communication, environmental journalism, and environmental education. It also updates the discussion with recent empirical work on climate solutions journalism, eco-climate anxiety, emotional and temporal framing, and the growth of engagement with unreliable climate information on social platforms (Huang & Guo, 2024; Maduneme & Cohen, 2024; Olsen *et al.*, 2024; Storani *et al.*, 2025; Thier & Wu, 2025).

2. Methodology

This study is a structured critical narrative review rather than a systematic review or meta-analysis. The unit of analysis is the published scholarly contribution, not media messages or survey respondents. The review was designed to clarify concepts, compare interpretive traditions, identify recurrent

frames, and update the original theoretical discussion with recent empirical evidence. Bibliographic searches combined foundational references already established in framing and climate-communication research with targeted searches for peer-reviewed literature published primarily from 2023 to 2025. Search expressions combined terms such as «climate change» AND «framing»; «climate communication» AND «polarization»; «environmental journalism» AND «climate»; «climate education» OR «environmental education» AND «emotion»; «climate misinformation» AND «social media»; and «solutions journalism» AND «climate». Sources were checked against DOI metadata and publisher records where DOI identifiers were available. The archive of Más Poder Local was also examined to identify work relevant to framing, emotions, political communication, and digital agenda dynamics.

Inclusion criteria were: a) direct relevance to climate, environmental, media, political, or educational communication; b) peer-reviewed journal articles or established academic books/reports; c) a clear conceptual or empirical contribution to framing, reception, polarisation, emotions, misinformation, journalism, education, consumption, or climate-policy narratives; and d) bibliographic verifiability through a publisher, journal, DOI, or institutional source. Older works were retained when they are foundational to the conceptual architecture of the field. Recent studies were added to avoid treating developments in platform communication, solutions journalism, and environmental education through an exclusively pre-2020 literature base. Items whose metadata could not be verified, whose DOI resolved to a different publication, or whose relevance to climate communication was only incidental were excluded or replaced.

The analysis proceeded through thematic synthesis. Sources were grouped into seven analytical domains: conceptual foundations of framing; media and platform framing; polarisation and identity; emotional engagement and environmental education; consumption and responsibility; political reframing and just transition; and misinformation/counter-framing. The aim is interpretive comparison, not effect-size estimation. Accordingly, conclusions are formulated as evidence-informed propositions and limitations are stated explicitly rather than presented as universal causal findings.

3. Framing as a Communication Process: Beyond a Single Lakoffian Lens

Lakoff's work remains useful for understanding how metaphors, values, and pre-existing cognitive structures can make some interpretations more available than others (Lakoff, 2004, 2010). His well-known «elephant» example illustrates that simply negating a frame can reproduce the conceptual terrain one seeks to contest. In climate politics, this insight helps explain why messages about sacrifice, regulation, security, prosperity, care, or justice can activate different value structures.

However, contemporary framing research requires a broader analytical architecture. Entman's (1993) definition emphasises selection and salience, while later climate-communication scholarship distinguishes among frames produced by strategic actors, frames embedded in media content, audience frames, and experimentally observed framing effects (Guenther *et al.*, 2024). These distinctions prevent the analytical shortcut of treating cognitive resonance as a sufficient explanation for media production, journalistic routines, platform circulation, or political polarisation.

Accordingly, the present article treats Lakoff as one contribution to the cognitive and rhetorical dimension of framing, not as a substitute for media sociology, journalism studies, environmental communication, or environmental education. The relevant question is not whether facts or emotions «win», but how evidence, source credibility, values, identities, professional routines, and perceived efficacy interact in specific communicative settings.

4. Framing Strategies in Climate Communication and Media Practices

Climate communication contains recurrent issue frames, but their meaning depends on who produces them, through which medium, and for which audience. Research has repeatedly identified scientific/technological, economic, catastrophe/risk, justice/equity, and individual-responsibility frames (Nisbet, 2009; O'Neill *et al.*, 2015). Recent review evidence confirms both the persistence of these categories and the need to distinguish between frame production, frame content, and framing effects (Guenther *et al.*, 2024).

Scientific and technological frames can emphasise expert consensus, uncertainty, innovation, or technical problem-solving. Economic frames translate climate policy into costs, benefits, competitiveness, employment, or investment. Catastrophe and risk frames foreground impacts and urgency, but the long-standing concern is that threat without efficacy can encourage avoidance or fatalism (O'Neill & Nicholson-Cole, 2009). Justice frames shift attention toward unequal responsibility, vulnerability, and distributive consequences, while individual-responsibility frames locate agency primarily in lifestyle and consumption choices (Maniates, 2001).

Journalism is not a neutral conduit for these frames. Professional conventions, news values, source selection, visual choices, and platform incentives shape which interpretations become visible. This is where environmental journalism provides an essential corrective to overly psychological accounts. Contemporary solutions-oriented climate journalism increasingly pairs risks with credible responses; a content analysis of 244 climate solutions stories identified distinct frames centred on adaptation, community cooperation, and responsibility for mitigation (Thier & Wu, 2025). Experimental evidence also suggests that solutions-journalism narratives can strengthen pro-environmental behavioural intentions through positive affect and collective efficacy (Maduneme & Cohen, 2024).

Digital platforms add another layer because ranking and engagement systems affect exposure. Earlier work documented echo-chamber structures in climate discussions (Williams *et al.*, 2015). More recent evidence indicates that engagement with sources of climate misinformation has grown across several social-media platforms, showing why frame circulation cannot be understood only through message content (Storani *et al.*, 2025).

5. Audience Polarisation, Identity, and Selective Exposure

Climate polarisation is especially visible where climate attitudes have become embedded in partisan and ideological identities. In the United States, political identification has long been associated with divergent climate beliefs and policy preferences (McCright & Dunlap, 2011). Cultural cognition research further shows that people can process risk information in ways that protect group identity rather than simply maximise factual accuracy (Kahan, 2012).

These findings should not be generalised mechanically across countries or populations. Polarisation varies by political system, media ecology, issue salience, and historical context. The analytic value of the identity perspective lies in showing why corrective information may fail when accepting the message is experienced as a threat to group belonging. Frames can therefore reinforce divisions when they bundle scientific claims with assumptions about political identity, social status, or institutional trust.

The media environment can intensify these dynamics. The classic «balance as bias» problem demonstrated how journalistic norms once produced misleading equivalence between scientific consensus and marginal dissent (Boykoff & Boykoff, 2004). Today, conflict has partly shifted from whether climate change exists to disputes over transition costs, regulation, technologies, fairness, and the legitimacy of climate action. Recent research on climate-solution misinformation similarly finds that denial increasingly targets proposed responses and their advocates rather than only disputing climate science itself (Nicolosi *et al.*, 2025).

The practical implication is not that communicators should tailor facts to ideology, but that factual accuracy should be combined with attention to source trust, value language, and the social meaning attached to proposed actions. In political communication, this is consistent with the broader observation that framing structures how actors, texts, and symbolic mechanisms are made visible (Chihu Amparán, 2023).

6. Engagement, Emotions, Environmental Journalism, and Environmental Education

Environmental communication, environmental journalism, and environmental education have long examined how proximity, emotion, agency, and participation shape engagement. Moser (2010) documented the history and challenges of climate communication, while O'Neill and Nicholson-Cole (2009) showed why fear-based visual communication can fail when audiences perceive little capacity to respond.

Recent experimental work adds nuance rather than a simple «fear is bad, hope is good» rule. Huang and Guo (2024) found that the effect of emotional framing can interact with temporal distance: fear-inducing messages produced stronger problem recognition and involvement under some short-term conditions. The relevant variable is therefore not emotion in isolation, but the combination of emotional intensity, proximity, credibility, and perceived efficacy.

Environmental education offers a parallel body of evidence. A 2024 systematic review of empirical studies on eco/climate anxiety found that approaches integrating knowledge, action, and emotional processing can help learners work through climate-related distress (Olsen *et al.*, 2024). A separate systematic review on digital tools in environmental education likewise shows that sustainability awareness is increasingly studied through interactive and participatory learning environments rather than one-way transmission (Hajj-Hassan *et al.*, 2024). These literatures demonstrate that «ecological literacy» is not a recent rhetorical invention but part of a long-standing educational tradition.

For journalism, the emerging solutions approach is particularly relevant because it addresses a professional dilemma: how to report severe risks without either sanitising them or producing repetitive threat narratives that can contribute to disengagement. Solutions journalism does not mean positive storytelling; it requires reporting on responses with evidence, limitations, and accountability. Its value for climate framing lies in adding efficacy and agency to problem definition without suppressing conflict or uncertainty (Maduneme & Cohen, 2024; Thier & Wu, 2025).

7. Frames of the Climate Crisis and Consumption

The relationship between climate change and consumption illustrates the politics of responsibility attribution. Individual-responsibility frames encourage actions such as reducing waste, changing transport behaviour, or improving household efficiency. Such actions can have practical and symbolic value, but an exclusive focus on individual choice can obscure infrastructures, corporate decisions, regulation, and unequal access to low-carbon alternatives (Maniates, 2001; Shove, 2010).

The alternative systemic-responsibility frame places greater emphasis on production systems, fossil-fuel interests, and policy design. Historical research on organised doubt has shown how strategic actors can shape public controversy and delay action (Oreskes & Conway, 2010). Yet a purely structural frame can also understate the role of citizens as voters, consumers, workers, and members of organisations. The analytical issue is therefore not to choose one level of responsibility as universally correct, but to identify how different frames distribute agency and blame and what actions they make thinkable.

A more defensible synthesis links personal practices to institutional conditions: individual action can reinforce norms and political identity, while durable emissions reductions often depend on changes in energy, transport, housing, and production systems. Communication should make these levels explicit rather than implying that household choices alone can compensate for structural constraints.

8. Political Framing, Reframing, and Just Transition

Political debate is a central arena of framing because actors compete to define the problem, attribute responsibility, and legitimise responses (Schön & Rein, 1994). Climate policy has often been framed through technocratic problem-solving, market mechanisms, and innovation. Counter-frames such as the Green New Deal and Just Transition broaden the issue toward employment, welfare, inequality, and procedural fairness (Aronoff *et al.*, 2019).

The Just Transition literature is especially useful because it does not treat «justice» as a decorative value. Stevis and Felli (2020) argue that transition proposals differ in spatial and temporal inclusiveness, social and ecological scope, and the degree to which participation produces substantive justice.

Political opponents of climate policy also reframe the issue around costs, freedom, elitism, sovereignty, or distrust of institutions. Research on right-wing populism and climate politics shows that these linkages are not merely rhetorical accidents but part of broader political conflicts over authority and economic change (Lockwood, 2018). Analytically, these frames should be described rather than moralised: the task is to identify their problem definitions, causal claims, and proposed solutions, and then assess those claims against evidence.

This political dimension connects directly with current work in Más Poder Local. Research published in the journal has examined symbolic framing in political discourse (Chihu Amparán, 2023) and the interaction between emotion and reason in government communication (Slimovich, 2024). These contributions are not climate-specific, but they are methodologically relevant to understanding how political actors structure salience, emotional appeal, and audience positioning.

9. Alternative Frames, Misinformation, and Platformed Counter-Framing

Alternative frames should not be treated as a single category. Some emerge from environmental-justice movements, local communities, or Indigenous knowledge systems and articulate experiences that mainstream institutions may marginalise (Whyte, 2018). Others are forms of misinformation or disinformation that misrepresent evidence, sources, or the feasibility of responses. Conflating these phenomena would reproduce the very loss of analytical precision that framing research seeks to avoid.

The misinformation environment is also changing. Earlier research connected conspiratorial worldviews with rejection of climate science (Lewandowsky *et al.*, 2013). Current studies show a shift toward «solution misinformation» that attacks renewable energy, mitigation policies, or the motives of actors proposing climate action (Nicolosi *et al.*, 2025), while cross-platform analysis finds increasing relative engagement with unreliable climate-information sources (Storani *et al.*, 2025).

Effective responses therefore require more than post hoc fact-checking. They include transparent sourcing, pre-bunking where appropriate, explanation of uncertainty, attention to platform affordances, and media literacy that helps audiences distinguish disagreement, uncertainty, interpretation, and demonstrably false factual claims. In this respect, the journal's broader work on political communication and digital agendas is relevant because online visibility can distort perceived social majorities and influence political agenda formation.

A further distinction concerns the difference between generic and issue-specific frames. Generic frames such as conflict, responsibility, economic consequences, morality, and human interest can recur across policy domains, whereas issue-specific climate frames develop around particular controversies, technologies, events, or policy instruments. Treating these as equivalent can conceal important variation. For example, an economic-consequences frame may support rapid decarbonisation when it foregrounds innovation and avoided damages, or oppose the same policies when it foregrounds short-term costs and regulatory burdens. The frame label therefore has limited explanatory value unless the analysis specifies the causal interpretation and treatment recommendation attached to it. This is consistent with Entman's (1993) emphasis on the internal functions of a frame and with the more recent call to compare framing across locations in the communication process (Guenther *et al.*, 2024).

The distinction between framing and persuasion is equally important. A frame can structure interpretation without necessarily changing attitudes, and the same frame can have different consequences across audiences. This matters for climate communication because studies sometimes infer effectiveness from message features alone. Experimental research instead indicates that effects are moderated by prior beliefs, perceived control, temporal distance, source credibility, and emotion. The interaction documented by Huang and Guo (2024), for example, cautions against universal prescriptions

about fear or hope. A communication strategy that is engaging in one context may be ineffective or counterproductive in another. Consequently, this article uses terms such as «may», «can», and «is associated with» where the evidence does not support a general causal claim.

A second analytical issue concerns scale. Climate communication moves between global scientific assessments, national political debates, local impacts, and individual experience. Frames gain or lose salience as they move across these scales. Global indicators such as mean temperature or atmospheric concentration can communicate scientific severity but remain psychologically distant; localised accounts can increase relevance but may also over-attribute a single event to climate change if causal language is imprecise. Rigorous communication therefore requires a distinction between attribution science, risk communication, and narrative proximity. The communicative value of local examples lies in making consequences intelligible while preserving the evidential boundaries of what a specific study or assessment can establish.

Environmental journalism is particularly relevant at this interface because journalists routinely translate between scientific uncertainty, political accountability, and lived experience. The profession has developed practices for avoiding false balance, evaluating sources, explaining uncertainty, and connecting impacts to policy responses. The rise of climate solutions journalism adds an additional repertoire. Thier and Wu (2025) show that solutions stories do not form a single positive frame; they vary in whether they emphasise adaptation, mitigation, community cooperation, place-based identity, or moral responsibility. This variation is analytically useful because it shows that «solutions» are themselves framed and can distribute agency among governments, firms, communities, and individuals in different ways.

The educational literature adds another dimension that is not reducible to media effects. Environmental education treats engagement as a process that can involve knowledge acquisition, reflection, emotional processing, collective inquiry, and practical participation over time. Olsen *et al.* (2024) describe this through a heads-hearts-hands synthesis in studies of eco/climate anxiety. The implication for public communication is not that journalism should become pedagogy, but that one-off exposure to information is an incomplete model of how people develop climate understanding. Repeated encounters, opportunities to discuss uncertainty, and experiences of agency can matter as much as the rhetorical form of a single message. This supports a more process-oriented understanding of climate literacy.

The consumption debate also benefits from separating descriptive from normative claims. Individual behaviour is neither irrelevant nor sufficient. Some behaviours have direct emissions implications; others primarily signal norms, identities, or political commitments. At the same time, choices are conditioned by infrastructure, income, housing, transport availability, and regulatory context. Framing communication solely around personal virtue can therefore obscure unequal capacity to act, while framing responsibility solely at the systemic level can understate the social and political pathways through which citizens influence institutions. Shove (2010) is especially

important here because it shifts analysis from isolated attitudes and choices toward the social organisation of practices.

Political communication introduces strategic incentives that differ from those of science communication or education. Political actors may use climate frames to assemble coalitions, defend policy packages, attribute blame, or connect climate action to pre-existing ideological narratives. A Just Transition frame, for example, can broaden the climate issue by linking decarbonisation to employment, distribution, participation, and regional development. Yet the frame should not be treated as intrinsically just merely because it uses the term. Stevis and Felli (2020) provide criteria for asking who is included, at what scale, with what substantive outcomes, and with what standing for social and ecological interests. This turns a normative slogan into an object of comparative analysis.

Finally, the concept of counter-frame requires clarification. A counter-frame is not necessarily misinformation; it is an alternative interpretive package that contests a dominant problem definition, causal account, moral evaluation, or proposed remedy. Democratic communication necessarily contains competing frames. Misinformation becomes a distinct category when factual claims are false or misleading relative to available evidence, while disinformation additionally concerns intentional deception, which is often difficult to establish from content alone. Recent work on climate-solution misinformation is therefore significant because it documents how misleading claims can target policy responses rather than climate science itself (Nicolosi *et al.*, 2025). Maintaining these distinctions prevents the analysis from labelling political disagreement as misinformation and preserves a clear evidentiary threshold for factual correction.

The updated literature further changes how the article interprets digital media. Earlier accounts of filter bubbles and echo chambers remain useful, but they should not be converted into a deterministic model in which algorithms simply imprison users inside homogeneous information environments. Platform effects depend on network structure, recommender systems, user choice, influencer activity, and the supply of content. Williams *et al.* (2015) identified both open forums and echo-chamber dynamics in climate discussions, while Storani *et al.* (2025) provide more recent cross-platform evidence that relative engagement with sources of unreliable climate information has increased. The continuity between these studies lies not in a claim that all social-media users inhabit closed bubbles, but in the observation that platformed attention can systematically alter which sources and frames gain visibility. This calls for empirical caution when moving from exposure patterns to claims about attitude change.

The same caution is needed when discussing propaganda. The term is useful only if it is defined analytically rather than used as a pejorative synonym for political communication. In this article, propaganda refers to strategic communication that seeks to organise perceptions and action through selective representation, repetition, emotional appeal, or source management in pursuit of political objectives. A climate-related message can therefore be political and framed without necessarily being propagandistic, and propaganda can contain factually correct elements while arranging them

selectively. This distinction matters because democratic climate debate includes legitimate disagreement about policy design, costs, timing, and distributive consequences. The analytical task is to separate contestable value judgements from empirically checkable claims and to identify when communicative strategies obscure relevant evidence, interests, or uncertainty.

Taken together, these distinctions provide the article with a more limited but more defensible claim to originality. Its contribution is not the discovery that emotions matter, that audiences hold values, or that frames shape communication —each of these propositions has an extensive prior literature. The value added lies in synthesising them through a multi-level framing perspective and explicitly connecting political framing to environmental journalism, environmental education, solutions journalism, and current misinformation research. This repositioning also changes the conclusions: instead of prescribing a single preferred narrative, the article identifies a set of evaluative dimensions —accuracy, salience, proximity, responsibility, efficacy, transparency, and inclusiveness— that can be used to compare climate frames and counter-frames across contexts. These dimensions can be operationalised in future empirical studies using content analysis, experiments, surveys, interviews, or comparative platform research.

10. Discussion

The synthesis answers RQ1 by showing that climate communication continues to revolve around recurring scientific, technological, economic, risk, justice, responsibility, and solution frames, but their effects depend on where they appear in the communication process. RQ2 highlights that reception is conditioned by identity, selective exposure, trust, emotion, platform dynamics, and efficacy beliefs. RQ3 shows that environmental journalism and environmental education provide mature traditions for integrating proximity, emotional processing, participation, and action.

The revised analysis also suggests a more precise theoretical role for framing. Framing is not a formula for persuasion and does not imply that audiences can be «moved» simply by selecting a resonant metaphor. It is a bridge concept for studying how meaning is produced, circulated, interpreted, and contested. This broader definition makes it possible to compare journalistic frames, political frames, audience frames, and counter-frames while keeping their empirical levels distinct (Guenther *et al.*, 2024).

The recent literature also changes the normative implications. The central communication challenge is not to replace negative frames with positive ones, but to calibrate severity, efficacy, uncertainty, responsibility, and credibility. Evidence from emotional framing, environmental education, and solutions journalism indicates that engagement is more likely when audiences can connect risk to meaningful agency without being given a falsely reassuring account of the problem (Huang & Guo, 2024; Maduneme & Cohen, 2024; Olsen *et al.*, 2024).

11. Limitations

This article is a structured narrative review and does not claim the exhaustiveness, preregistration, duplicate screening, or quantitative synthesis associated with a systematic review or meta-analysis. The literature is predominantly English-language and includes a substantial body of research from North American and European contexts; therefore, findings on partisan identity and polarisation should not be treated as globally uniform. In addition, rapidly changing platform architectures can make findings about social-media exposure time-sensitive. These limitations indicate clear directions for future research: comparative multilingual studies, platform-specific longitudinal designs, and empirical testing of counter-frames across different political and cultural contexts.

12. Conclusions

Climate communication is not reducible to the transmission of scientific facts, but neither should it be described as a battle in which rhetorical victory substitutes for evidence. Frames organise attention, responsibility, values, and possible responses; their effects emerge through the interaction of message design, journalistic and platform practices, audience identities, trust, and perceived efficacy.

The strongest practical implication is that climate communication should combine evidential accuracy, contextual transparency, proximity, pluralistic framing, and credible pathways for action. Such an approach is more analytically defensible than either purely technocratic information transfer or emotionally maximalist communication.

Future work should move beyond general prescriptions and test specific frames, counter-frames, and journalistic formats across audiences and political contexts. Comparative designs can clarify when solution-oriented narratives increase efficacy, when emotional framing produces engagement or avoidance, and how platform ranking systems alter the visibility of reliable and unreliable climate claims. This would convert framing from a broad interpretive vocabulary into a more cumulative research programme linking production, content, reception, and effects.

Declaración sobre el uso de inteligencia artificial generativa (IA)

Durante la preparación de esta versión revisada, el autor utilizó ChatGPT (OpenAI) para apoyo en la reestructuración editorial, revisión lingüística y estilística y comprobación bibliográfica. El autor revisó, contrastó y editó el contenido resultante, verificó las fuentes citadas y asume plena responsabilidad por la exactitud, originalidad, integridad y contenido final del artículo.

Contribuciones de Autoría (CRediT)

Michele Di Salvo: conceptualización, metodología, investigación, análisis formal, redacción del borrador original, revisión y edición, y validación.

Declaración de conflicto de intereses

El autor declara que no tiene ningún conflicto de intereses en la concepción y redacción de este artículo ni en las conclusiones que de él se desprenden.

References

- Aronoff, K., Battistoni, A., Cohen, D. A. & Riofrancos, T. (2019): *A planet to win: Why we need a Green New Deal*. Verso.
- Boykoff, M. T. & Boykoff, J. M. (2004): «Balance as bias: Global warming and the US prestige press». *Global Environmental Change*, 14(2): 125–136. <https://doi.org/10.1016/j.gloenvcha.2003.10.001>
- Chihu Amparán, A. (2023): «El framing del ritual político (Las mañaneras)». *Revista Más Poder Local*, 53: 125–144. <https://doi.org/10.56151/maspoderlocal.144>
- Entman, R. M. (1993): «Framing: Toward clarification of a fractured paradigm». *Journal of Communication*, 43(4): 51–58. <https://doi.org/10.1111/j.1460-2466.1993.tb01304.x>
- Guenther, L., Jörges, S., Mahl, D. & Brüggemann, M. (2024): «Framing as a bridging concept for climate change communication: A systematic review based on 25 years of literature». *Communication Research*, 51(4): 367–391. <https://doi.org/10.1177/00936502221137165>
- Hajj-Hassan, M., Chaker, R. & Cederqvist, A.-M. (2024): «Environmental education: A systematic review on the use of digital tools for fostering sustainability awareness». *Sustainability*, 16(9): 3733. <https://doi.org/10.3390/su16093733>
- Huang, J. & Guo, H. (2024): «When a bleak future comes closer: Interaction effects of emotion and temporal distance framing in climate change communication». *BMC Psychology*, 12: 677. <https://doi.org/10.1186/s40359-024-02183-w>
- IPCC (2022): *Climate change 2022: Impacts, adaptation and vulnerability*. Cambridge University Press. <https://doi.org/10.1017/9781009325844>
- Kahan, D. M. (2012): «Why we are poles apart on climate change». *Nature*, 488: 255. <https://doi.org/10.1038/488255a>
- Lakoff, G. (2004): *Don't think of an elephant! Know your values and frame the debate*. Chelsea Green Publishing.
- Lakoff, G. (2010): «Why it matters how we frame the environment». *Environmental Communication*, 4(1): 70–81. <https://doi.org/10.1080/17524030903529749>
- Lewandowsky, S., Oberauer, K. & Gignac, G. E. (2013): «NASA faked the moon landing. Therefore, (climate) science is a hoax: An anatomy of the motivated rejection of science». *Psychological Science*, 24(5): 622–633. <https://doi.org/10.1177/0956797612457686>

- Lockwood, M. (2018): «Right-wing populism and the climate change agenda: Exploring the linkages». *Environmental Politics*, 27(4): 712–732. <https://doi.org/10.1080/09644016.2018.1458411>
- Maduneme, E. & Cohen, S. A. (2024): «Solutions journalism stories boosts pro-environmental behavioral intentions through positive affect and collective efficacy beliefs». *Environment and Behavior*. Advance online publication. <https://doi.org/10.1177/00139165241286874>
- Maniates, M. F. (2001): «Individualization: Plant a tree, buy a bike, save the world?». *Global Environmental Politics*, 1(3): 31–52. <https://doi.org/10.1162/152638001316881395>
- McCright, A. M. & Dunlap, R. E. (2011): «The politicization of climate change and polarization in the American public's views of global warming, 2001–2010». *The Sociological Quarterly*, 52(2): 155–194. <https://doi.org/10.1111/j.1533-8525.2011.01198.x>
- Moser, S. C. (2010): «Communicating climate change: History, challenges, process and future directions». *WIREs Climate Change*, 1(1): 31–53. <https://doi.org/10.1002/wcc.11>
- Nicolosi, E., Medina, R., Brewer, S., Vorkink, M. & Allred, A. (2025): «The new denial: Climate solution misinformation on social media». *Global Sustainability*, 8: e31. <https://doi.org/10.1017/sus.2025.10016>
- Nisbet, M. C. (2009): «Communicating climate change: Why frames matter for public engagement». *Environment: Science and Policy for Sustainable Development*, 51(2): 12–23. <https://doi.org/10.3200/ENVT.51.2.12-23>
- O'Neill, S. & Nicholson-Cole, S. (2009): «'Fear won't do it': Promoting positive engagement with climate change through visual and iconic representations». *Science Communication*, 30(3): 355–379. <https://doi.org/10.1177/1075547008329201>
- O'Neill, S., Williams, H. T. P., Kurz, T., Wiersma, B. & Boykoff, M. (2015): «Dominant frames in legacy and social media coverage of the IPCC Fifth Assessment Report». *Nature Climate Change*, 5(4): 380–385. <https://doi.org/10.1038/nclimate2535>
- Olsen, E. K., Lawson, D. F., McClain, L. R. & Plummer, J. D. (2024): «Heads, hearts, and hands: A systematic review of empirical studies about eco/climate anxiety and environmental education». *Environmental Education Research*, 30(12): 2131–2158. <https://doi.org/10.1080/13504622.2024.2315572>
- Oreskes, N. & Conway, E. M. (2010): *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. Bloomsbury Press.
- Schön, D. A. & Rein, M. (1994): *Frame reflection: Toward the resolution of intractable policy controversies*. Basic Books.
- Shove, E. (2010): «Beyond the ABC: Climate change policy and theories of social change». *Environment and Planning A*, 42(6): 1273–1285. <https://doi.org/10.1068/a42282>
- Slimovich, A. (2024): «La comunicación gubernamental en la Argentina. La emoción y la razón en los spots de Alberto Fernández». *Revista Más Poder Local*, 57: 8–29. <https://doi.org/10.56151/maspoderlocal.234>
- Stavis, D. & Felli, R. (2020): «Planetary just transition? How inclusive and how just?». *Earth System Governance*, 6: 100065. <https://doi.org/10.1016/j.esg.2020.100065>
- Storani, S., Falkenberg, M., Quattrociocchi, W. & Cinelli, M. (2025): «Relative engagement with sources of climate misinformation is growing across social media platforms». *Scientific Reports*, 15: 18629. <https://doi.org/10.1038/s41598-025-03082-9>

- Thier, K. & Wu, X. (2025): «Framing climate solutions: An exploratory quantitative content analysis». *Environmental Communication*, 19(3): 359–375. <https://doi.org/10.1080/17524032.2024.2396978>
- Whyte, K. P. (2018): «Indigenous science (fiction) for the Anthropocene: Ancestral dystopias and fantasies of climate change crises». *Environment and Planning E: Nature and Space*, 1(1–2): 224–242. <https://doi.org/10.1177/2514848618777621>
- Williams, H. T. P., McMurray, J. R., Kurz, T. & Lambert, F. H. (2015): «Network analysis reveals open forums and echo chambers in social media discussions of climate change». *Global Environmental Change*, 32: 126–138. <https://doi.org/10.1016/j.gloenvcha.2015.03.006>



©Derechos del autor o autores. Creative Commons License. Este artículo está bajo una licencia internacional Creative Commons Atribución-NoComercial-SinDerivadas 4.0.
©Copyright of the author or authors. Creative Commons License. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.