

 REVISTA DE CIENCIAS SOCIALES Y HUMANAS XXI
UNIVERSITAS



Número 44 / March-August 2026
print ISSN: 1390-3837 / electronic ISSN: 1390-8634

Universitas is indexed in the following
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Universitas-UPS, Journal of Social and Human Sciences of the Salesian Polytechnic University of Ecuador, which began in 2002, has a biannual frequency.

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Universitas-UPS, Journal of Social and Human Sciences, biannual publication, No. 44, March-August 2026. Editor in charge: Ángel Torres-Toukoumidis. ISSN printed: 1390-3837 / ISSN electronic: 1390-8634. Design and correction: Editorial University Abya-Yala. Domicile of the publication: Salesian Polytechnic University of Ecuador. Post box 2074, Cuenca-Ecuador. Salesian Graphic Center: Vega Muñoz 10-68 and General Torres, Telephone (+593 7) 2831745, Box 01-01-0275, Cuenca-Ecuador.

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Imagen realizada con Nano Banano de Gemini (2026).

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Eco-communication and greenfluencers in Ibero-America: an exploratory study

*Eco-comunicación y greenfluencers en Iberoamérica:
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Received on: 18/11/2025 **Revised on:** 27/12/2025 **Approved on:** 15/01/2026 **Published on:** 01/03/2026

Suggested citation: Mansilla-Obando, K., Zapata-Soto, T. & Guíñez-Cabrera, N. (2026). Eco-communication and greenfluencers in Ibero-America: an exploratory study. *Universitas XXI*, 44, pp. 15-36. <https://doi.org/10.17163/uni.n44.2026.01>

Abstract

Given the urgency of the socio-environmental crisis, greenfluencers have emerged as vital communication bridges; however, little is still known about how they form their symbolic bonds within the Ibero-American context. This study analyzes their digital practices through the lens of parasocial relationship theory, seeking to understand the emotional connection between these creators and their communities. To this end, a qualitative, exploratory, and comparative approach was employed, conducting in-depth interviews with eleven content creators from various countries across the region. The findings reveal that eco-communication on social media is not a mere dissemination of data, but rather an exercise in “cultural translation.” In this process, environmental knowledge is humanized as it is filtered through every day and personal narratives. The research demonstrates that the key to their legitimacy lies in the affective bond: the audience does not seek a distant technical authority, but rather a close peer with whom they can identify. Creators act as emotional managers, carefully balancing eco-anxiety with messages of hope to sustain the engagement of their followers. Finally, the study discusses the tensions that condition this labor, such as algorithmic challenges and the precariousness of digital work. It is concluded that the effectiveness of sustainability on digital platforms depends less on technical information and more on the strength of the parasocial relationship. It is this human bond that manages to sustain civic commitment in the face of misinformation and digital burnout.

Keywords

Communication, credibility, ethical, influencers, Instagram, parasocial, relational, sustainability.

Resumen

Ante la urgencia de la crisis socioambiental, los *greenfluencers* han surgido como puentes esenciales de comunicación, aunque todavía sabemos poco sobre cómo forman sus vínculos simbólicos en el contexto iberoamericano. Este estudio analiza sus prácticas digitales bajo el lente de la teoría de la relación parasocial, buscando comprender la conexión emocional entre estos creadores y sus comunidades. Para ello, se empleó un enfoque cualitativo, exploratorio y comparativo, realizando entrevistas en profundidad a once creadores de contenido de diversos países de la región. Los hallazgos revelan que la eco-comunicación en redes sociales no es una simple difusión de datos, sino un ejercicio de “traducción cultural”. En este proceso, el conocimiento ambiental se humaniza al filtrarse a través de narrativas cotidianas y personales. La investigación demuestra que la clave de su legitimidad reside en el vínculo afectivo: la audiencia no busca una autoridad técnica distante, sino un par cercano con quien identificarse. Los creadores actúan como gestores emocionales, equilibrando cuidadosamente la eco-ansiedad con mensajes de esperanza para mantener activa la participación de sus seguidores. Finalmente, se discuten las tensiones que condicionan esta labor, tales como los desafíos de los algoritmos y la precarización del trabajo digital. Se concluye que la eficacia de la sostenibilidad en plataformas digitales depende menos de la información técnica y más de la solidez de la relación parasocial. Es este vínculo humano el que logra sostener el compromiso ciudadano frente a la desinformación y el agotamiento digital.

Palabras clave

Comunicación, credibilidad, ética, influencers, Instagram, parasocial, relacional, sostenibilidad,

Introduction

The adoption of the 2030 Agenda by the United Nations represented a paradigm shift in our understanding of sustainability. For the first time, it was explicitly recognized that the success of the Sustainable Development Goals (SDGs) does not depend solely on regulatory and institutional frameworks or technological advances, but on communication processes capable of generating true social ownership, active participation, and a shared sense of co-responsibility (Lobato, 2024). However, reality shows a persistent gap: citizens have not yet internalized these goals. This disconnect arises, to a large extent, because traditional institutional communication often uses technical and distant language, disconnected from the concerns and experiences of ordinary people (López-Carrión, 2024; López-Carrión and Martí-Sánchez, 2024). In this context, the socio-environmental crisis forces us to rethink not only economic development models and public policies, but also the bridges we build to talk about it, giving environmental communication a strategic role in mobilizing awareness of global challenges such as climate change and biodiversity loss (Cox, 2010; Cox and Pezzullo, 2016).

Faced with the rigidity of institutions, new and vibrant voices have emerged in the digital environment: greenfluencers. These content creators have transformed platforms such as Instagram, TikTok, and YouTube into spaces for raising awareness, using personal and visual narratives that break with the formal registers of classic communication, spreading messages about sustainability, responsible consumption, and care for the environment (Boerman *et al.*, 2022; Conte *et al.*, 2025). From an eco-communication perspective, greenfluencers have been conceptualized as “cultural mediators” with the unique ability to translate complex environmental issues into understandable and emotionally resonant narratives (Hansen and Cox, 2015). However, this phenomenon identifies relevant tensions; the literature warns of the risks of commodification of green discourse, greenwashing, audience hemophilia (the tendency to connect only with those who already think alike), and the excessive individualization of environmental responsibility (Huber *et al.*, 2022; König and Maier, 2024). Despite the interest aroused, there are not sufficient qualitative studies that explore this reality from the voice of the creators, especially in the Ibero-American context.

To fill this gap, this study analyzes the eco-communication practices of greenfluencers in Ibero-America, based on their own stories and life expe-

riences. In particular, it seeks to answer: how do Ibero-American greenfluencers construct their sustainability messages and how do they weave their links with audiences on Instagram? To address this question, we integrate the theory of parasocial relationship (Horton and Wohl, 1956) with a critical approach to eco-communication (Cox, 2010; Hansen and Cox, 2015). This allows us to understand digital environmental communication not as a simple transmission of data, but as a relational, symbolic, and situated process, where affection and trust are the true drivers of change.

From this perspective, parasocial theory is relevant for analyzing eco-communication on social media. It posits that audiences develop significant unilateral emotional bonds with media figures, which determine how a message is interpreted and how willing we are to act (Tukachinsky, 2010). In the case of environmental issues, this relationship acts as an emotional bridge, i.e., as a mediating mechanism between environmental communication and pro-environmental participation, especially among younger people, reinforcing the perception of authenticity and legitimacy of the message (Dekoninck and Schmuck, 2024; Knupfer *et al.*, 2023).

Methodologically, the study adopts a qualitative approach based on eleven greenfluencers from different countries in Ibero-America through semi-structured interviews. Through thematic coding, we seek to capture the complexity of their work: from the creative construction of the environmental message to the ethical tensions associated with content production and the configuration of links with followers.

The main findings suggest that the credibility of these actors does not stem from their technical expertise, but rather from the perceived consistency between what they say and what they live, as well as the constant care they take with the emotional dimension of their relationship with their followers. Likewise, recurring tensions are identified related to algorithmic pressure, the economic sustainability of the activity, and the ethical dilemmas associated with the commercialization of environmental content, which highlights the limits and contradictions of green influence on digital platforms.

Finally, this article is structured as follows: first, we explore the literature that articulates eco-communication and the theoretical framework of parasocial relationship theory; second, we detail the methodology used; third, we present the results of the qualitative analysis; and finally, we discuss the main findings, their theoretical contributions and practical implications, as well as the limitations of the study and avenues for future research in this field.

Greenfluencers and eco-communication

Eco-communication is not just a channel of information; it is a critical lens that allows us to examine how communication processes shape the relationships between society, the environment, and power structures. According to Cox (2010) and Hansen and Cox (2015), this discipline influences how ecological problems are defined, interpreted, and ultimately addressed collectively. By emphasizing its constitutive nature, eco-communication analyzes how media discourses and narratives produce meanings, values, and new forms of environmental citizenship.

From this perspective, environmental communication transcends the simple transmission of information about ecological risks. Its function is, in fact, structuring: it delimits what is considered a legitimate environmental problem, identifies who is responsible, and defines what social actions are desirable or possible (Cox and Pezzullo, 2016). Within the framework of the 2030 Agenda, this dimension takes on special relevance. Compliance with the SDGs does not depend solely on regulatory frameworks, but also on communication processes that resonate with citizens. However, evidence suggests that the SDGs have low penetration in the public consciousness when communication comes from traditional news media, whose language is often technical, abstract, and disconnected from people's everyday experiences (López-Carrión, 2024; López-Carrión and Martí-Sánchez, 2024). This causes a communication gap, motivating academic study on sustainable communication from technological sources such as social media.

In this scenario, greenfluencers emerge, defined as digital content creators who place sustainability at the center of their narrative. Unlike institutional communication, these actors use platforms such as Instagram, TikTok, or YouTube to spread environmental values through personal experience and practical demonstration (Boerman *et al.*, 2022; Conte *et al.*, 2025). Their discourse does not stem from technical authority, but rather from everyday stories, which allows their messages to be perceived as relatable, authentic, and emotionally relevant by their followers.

From the perspective of eco-communication, greenfluencers act as cultural mediators. Their main task is to “translate” complex environmental issues, such as climate change, the circular economy, or the waste management crisis, into accessible stories set in everyday life. This process of narrative translation is vital, as it reduces cognitive barriers and the sense of distan-

ce between the grand ideals of sustainability and household routines (Conte *et al.*, 2025). However, this impact is heterogeneous and ambivalent. While some greenfluencers drive social transformation and critical environmental justice, others reproduce approaches focused purely on individual sustainable consumption, shifting responsibility from systemic structures to the personal decisions of followers (Huber *et al.*, 2022).

This ability to influence, however, does not stem solely from the content shared, but from the nature of the bond that the creator forges with their community. To unravel the architecture of this emotional connection and understand why these mediators manage to transform environmental awareness, we will now analyze the theory of parasocial relationships in the eco-communication of greenfluencers. This framework is essential for understanding how the symbolic bond between the greenfluencer and their follower becomes the driving force that sustains and legitimizes eco-communication in the digital age.

Theory of parasocial relationships in the eco-communication of greenfluencers

Originally proposed by Horton and Wohl (1956), the theory of parasocial relationships allows us to understand the unilateral, symbolic, and emotional bonds that audiences forge with media figures, such as celebrities, actors, singers, TV presenters, or social media content creators. Although these connections lack physical reciprocity, individuals experience them as deeply meaningful experiences that shape their attitudes, beliefs, and behaviors. In the social media ecosystem, this phenomenon is transformed: the link ceases to be a passive exposure and becomes a continuous, interactive, and personalized relationship (Tukachinsky, 2010).

In this digital context, perceived authenticity is crucial. Breves and Liebers (2022) confirm that when there is an intense parasocial relationship, followers tend to attribute emotional reasons to the greenfluencer, assuming that they genuinely love the cause, rather than seeing calculated or lucrative intentions. This vote of confidence facilitates the adoption of pro-environmental behaviors. Thus, green commitment does not arise from technical data, but from the quality of the relational fabric between the creator and the community. Recent research, such as Knupfer *et al.* (2023) and Le *et al.* (2025), reinfor-

ces this idea by pointing out that the parasocial relationship is the psychological mechanism that transforms the simple exposure of a message into real engagement, mediated by credibility and emotional identification.

The effectiveness of eco-communication therefore lies in the strength of the bond. For Dekoninck and Schmuck (2024), the strength of this connection acts as a bridge between environmental content and audience action. When followers perceive influencers as close and consistent peers, the message takes on greater moral relevance. In fact, Pereira *et al.* (2023) highlight that this emotional bond exceeds the impact of the sender's physical attractiveness or even technical expertise, positioning it as the factor most closely correlated with sustainable purchasing intent.

However, this bond is fragile in the face of suspicions of greenwashing. Consistency between the greenfluencer's identity and their communication history is essential to maintaining the trust of green consumers (Boerman *et al.*, 2022). In the face of possible ethical failures, a curious phenomenon arises: "environmental decoupling." According to Le *et al.* (2025), this mechanism allows the audience to separate the influencer's specific error from their overall mission, protecting the emotional bond to continue supporting their recommendations. Likewise, the literature suggests that trust varies according to the communication approach (Wu *et al.*, 2025). For Pittman and Abell (2021) and Wu *et al.* (2025), influencers with fewer followers but with a clear focus on long-term sustainability values generate more robust credibility than those focused exclusively on product attributes.

Furthermore, the literature indicates that the emotional component also has an impact on environmental communication. Exposure to nature experiences and inspirational leadership mobilizes followers beyond consumption, appealing to an emotional connection with the planet (Hartmann *et al.*, 2025a; 2025b). In this area, female greenfluencers have proven to be more effective than their male counterparts in transforming social behaviors in critical areas such as ethics, green food, and zero-waste lifestyles, starting from everyday management (Yıldırım, 2021).

Finally, the credibility of messages generated and shared on social media faces new challenges, such as the emergence of artificial intelligence and brand sponsorships. The use of virtual influencers can erode the perception of naturalness and authenticity (Narayanan, 2025). This can be counterproductive as it violates the "green schema" or the audience's mental expectation of naturalness, causing a lower perception of suitability and, consequently,

reducing the perceived authenticity of the environmental message (Narayanan, 2025). In this scenario, the legitimacy of environmental discourse could be managed through virtual influencers (Jiang *et al.*, 2024; Gerrath *et al.*, 2024; Kim *et al.*, 2024). Kim *et al.* (2024) demonstrate that, although human influencers are more credible in direct data messages, the use of personal narratives (storytelling) bridges the credibility gap, allowing even less real or virtual figures to resonate deeply if the story is empathetic and engaging. But beyond format, authors such as König and Maier (2024) warn of the risk that greenfluencers may limit themselves to speaking to already sensitized audiences. This underscores the need to explore communication strategies capable of broadening audience diversity, promoting more inclusive and diverse environmental engagement.

Materials and method

Given the exploratory and rarely addressed nature of digital eco-communication developed by greenfluencers in Ibero-American contexts, this study adopts a qualitative approach, which is particularly relevant for understanding emerging phenomena from the perspective of the actors themselves (Corbin and Strauss, 2015). This approach allows for the analysis of complex communication processes in their natural environment, capturing meanings, interpretations, and tensions that are difficult to grasp through standardized quantitative designs (Reineche *et al.*, 2016). In line with the study's objective, the research does not seek to establish causal relationships or make statistical generalizations, but rather to understand how greenfluencers interpret their communicative role, construct their environmental discourses, and manage the ethical, emotional, and structural tensions inherent in eco-communication.

The study focuses on the social media platform Instagram, given that it has established itself as a central space for the dissemination of environmental content, the promotion of sustainable lifestyles, the circulation of narratives linked to climate change, and the emergence of sustainable ventures. Likewise, the choice of the Ibero-American context responds to its high sociocultural diversity, the persistence of socio-environmental inequalities, and the growing presence of environmental content creators operating outside formal institutional frameworks, which makes the region a relevant setting for this research.

Data collection was carried out through semi-structured interviews, with the aim of exploring in depth the perceptions, experiences, and eco-communicative practices of Ibero-American greenfluencers. This type of interview allows for combining a thematic structure with the flexibility to delve into emerging aspects during the conversation, which is particularly suitable for the analysis of complex and little-explored phenomena (Corbin and Strauss, 2015).

Participants were selected through non-probability convenience sampling, considering the following inclusion criteria: (a) generating active content on sustainability, the environment, or pro-environmental practices; (b) maintaining a sustained presence on social media; and (c) residing in an Ibero-American country. The interviews were conducted by two research assistants, with prior informed consent and authorization for audio recording. Participation was voluntary, guaranteeing the confidentiality and anonymity of the participants.

Participants were added until theoretical saturation was reached, which was evident in interview number 11, at which point the information began to repeat discursive patterns without contributing new elements relevant to understanding the phenomenon under study, in accordance with widely validated criteria in qualitative research (Corbin and Strauss, 2015; Reinecke *et al.*, 2016).

The data collection instrument consisted of a semi-structured interview guide composed of standardized open-ended questions, which ensured thematic consistency between interviews and, at the same time, facilitated an in-depth exploration of the participants' individual experiences. The interview was organized into three main blocks: (a) general characterization of the interviewee and their career as a creator of environmental content, (b) construction of environmental discourse, motivations for communicating about sustainability, and relationship with audiences; and (c) tensions, challenges, and perceived limitations in digital eco-communication, including aspects such as emotional management, algorithmic pressure, communicative ethics, and the relationship with the market. Prior to its final application, the instrument was subjected to pilot interviews in order to evaluate the clarity, relevance, and sequence of the questions, allowing the research team to make adjustments and validate the final guide.

Given the qualitative approach of the study, no standardized measurement instruments requiring statistical evaluation of reliability and validity

were used. Instead, methodological quality was ensured through criteria of qualitative rigor, such as internal consistency of design, theoretical saturation, triangulation of sources, and the use of systematic analytical procedures, widely validated in qualitative research (Corbin and Strauss, 2015; Reinecke *et al.*, 2016; Braun and Clarke, 2006).

The interviews lasted an average of 45 to 75 minutes, were audio recorded, and transcribed by the researchers, ensuring the fidelity of the participants' original discourse. Table 1 details the description of the sample. In order to strengthen the transferability of the results, the selection of participants considered diversity criteria linked to the trajectory and communicative profile of the greenfluencers. In particular, we sought to include creators with different types of environmental content (educational, informative, and experiential), heterogeneous levels of professionalization, and diverse socio-cultural contexts within the Ibero-American space. This variability allowed us to capture a wide range of digital eco-communication practices and relational experiences with audiences, contributing to a richer and more situated understanding of the phenomenon studied.

Table 1

Description of the sample

Interviewee	Country	Gender	Profession/activity
E1	Peru	Female	Environmental Engineer
E2	Chile	Female	Civil Engineer
E3	Peru	Female	Audiovisual Communicator
E4	Chile	Female	Journalist
E5	Chile	Female	University student
E6	Argentina	Female	Chemical engineer
E7	Ecuador	Female	Agricultural Engineer
E8	Argentina	Female	Accountant
E9	Argentina	Men	Nutritionist
E10	Chile	Female	Environmental Educator
E11	Mexico	Female	Undergraduate student in Biology

The data was analyzed using thematic analysis, following the approach proposed by Braun and Clarke (2006), which is widely used in qualitative research in communication and cultural studies. This method allows for the identification, analysis, and interpretation of patterns of meaning within the data, promoting a deep and systematic understanding of the phenomenon under study.

The analytical procedure was carried out in six stages: (1) familiarization with the data through repeated readings of the transcripts and preliminary analytical notes, (2) initial coding by line, (3) grouping of codes into potential themes, (4) review and refinement of themes, (5) definition and refinement of final themes, and (6) analytical writing, integrating the findings with the research question and theoretical framework (Braun and Clarke, 2006). The analysis combined inductive and deductive logic, allowing themes to emerge from the data, while interpreting them in light of eco-communication. Secondary data, such as observation notes and public digital content, were also incorporated in order to triangulate the information and strengthen the credibility of the analysis (Reinecke *et al.*, 2016).

The theory of parasocial relationship was used as an analytical framework to guide the interpretation of the data, allowing the operationalization of parasocial interaction based on discursive expressions linked to perceived closeness, emotional identification, trust, continuity of the bond, and the perception of symbolic reciprocity between greenfluencers and their audiences. These dimensions were identified inductively and deductively during the coding, emerging from the participants' accounts and subsequently interpreted in light of the theoretical framework.

Results

From a relational perspective, the results show that digital eco-communication on social media is much more than a flow of environmental information; it is a living process of building symbolic bonds between the greenfluencer and their community. From the thematic analysis of 11 semi-structured interviews with greenfluencers, seven macro-dimensions emerged that allow us to understand how ecological awareness is generated and what limits it faces in the age of algorithms: (1) eco-communication as a culture of environmental knowledge, (2) eco-communication with everyday narratives, (3) emotional management in eco-communication, (4) eco-communication and the digital

platform algorithm, (5) eco-communication as digital and professional work, (6) ethical eco-communication and legitimacy of information, (7) social and collaborative eco-communication. These macro-dimensions seek to understand how environmental communication is constructed and limited on digital platforms, in light of parasocial relationship theory.

(1) Eco-communication as a culture of environmental knowledge

Eco-communication reveals itself as a process of cultural translation. The results show that the main mission of greenfluencers is to “ground” technical or scientific complexity in order to adapt it to non-expert audiences. Here, the value lies not in the hierarchy of knowledge, but in the ability to explain and contextualize environmental knowledge in the routines of food, consumption, hygiene, or land care. As greenfluencers point out, if the message is not understood, the link is broken:

I started sharing videos because I felt that a lot of environmental information was written in very difficult, very technical language. I wanted to bring complex issues closer to ordinary people, explaining them with simple examples from everyday life so that anyone could understand them without feeling excluded. (E10)

Environmental information is often only accessible to people who have studied the subject. My intention was always to explain it in a simple way, without technical jargon, so that anyone could understand it. If it is not understood, it is useless, and people quickly lose interest. (E9)

(2) Eco-communication with everyday narratives

Far from abstract discourse, greenfluencers favor small, achievable actions. These narratives act as “entry points” that reduce the barrier of fear and guilt for not being “perfectly sustainable.” The role of eco-communication emerges as a change that is not imposed, but rather invites the recipient to reinforce their autonomy, favoring environmental participation that is compatible with the social and emotional conditions of followers. This strengthens the symbolic relationship between greenfluencers and followers, promoting identification and learning by observation. This is how greenfluencers interviewed 3 and 4 explain it.

The idea was never to tell people to change their whole lives, but to show them small things they can do on a daily basis. From how you shop, how you eat, or how you choose a product. These are small changes, but when you do them every day, they do have an impact. (E3)

I always say that it's not about being perfect or doing everything right. It's about starting with something that's possible in your daily routine. When people see that it's not so extreme, they're much more encouraged to try. (E4)

(3) Emotional management in eco-communication

The results show that the emotional dimension is a constituent part of digital eco-communication. Greenfluencers must manage not only the eco-anxiety of their followers, but also their own. Faced with the paralysis caused by catastrophism, participants opt for educational narratives that inspire hope. Likewise, self-care emerges as a key condition for the sustainability of eco-communication over time, given that emotional well-being is strained by public exposure, algorithmic pressure, and job insecurity. Emotional management is not only communicative, but also contributes to strengthening stable emotional bonds with audiences, fostering lasting parasocial relationships based on empathy and care. This is indicated by interviewees 8 and 10.

When everything is the end of the world, people freeze and walk away. That's why I try to communicate from a place of hope, from what can be done, without denying reality. (E8)

There are times when communicating environmental issues is emotionally draining [...] If I don't take care of myself emotionally, I can't continue to communicate responsibly. (E10)

(4) Eco-communication and the digital platform algorithm

The relationship with Instagram is ambivalent. While closeness is valued, there is latent frustration with algorithmic opacity. The findings reveal a power struggle: the algorithm seems to penalize politically contextualized or critical content, pushing creators to a crossroads between the relevance of the message and commercial visibility:

I realized that when I mentioned governments, countries, or more political issues, the reach dropped significantly [...] That makes you understand that the algorithm also decides what you can talk about. (E6)

We put a lot of effort into content and it has almost no reach. Then you upload something much simpler and it explodes. That shows you that the algorithm doesn't necessarily reward the most educational content. (E5)

(5) Eco-communication as digital and professional work

Eco-communication is professionalized digital work, but it is often precarious. Behind each video are hours of research, scripting, and editing that the audience rarely perceives. This precariousness is a direct threat to the sustainability of environmental voices on the internet, especially for young and independent profiles:

For a long time, I did absolutely everything myself: researching, recording, editing, responding to messages. People don't see all the work that goes into a video. Only now have I been able to delegate a little, but it's still very precarious and exhausting. (E10)

Most people think that creating content is just about recording a video, but that's not the case. There are hours of editing, thinking about what to say, responding to messages. Often, that work is not paid or recognized as real work. (E9)

(6) Ethical eco-communication and legitimacy of information

Greenfluencers express a strong commitment to truthfulness, the use of reliable sources, and self-regulation of shared content, especially in contexts where false or simplified information is widely circulated. This commitment can manifest itself in different ways: from rigorous scientific verification to the decision not to address certain topics when sufficient information is not available. Eco-communication is conceived as a practice of social responsibility in knowledge, where error affects not only individual credibility but the environmental field. At the same time, the fight against greenwashing is constant, forcing them to negotiate their ethics with brands and institutional discourses.

I am very afraid of sharing misinformation. I would rather not post something than post it incorrectly. I feel that when you talk about the environment, you have a responsibility because people trust what you are saying. (E5)

I don't share something if I'm not sure about the source. I prefer to do more research or even not post anything that day. I feel that when it comes to environmental issues, one mistake can generate a lot of misinformation. (E11)

(7) Social and collaborative eco-communication

Finally, the results highlight that eco-communication is not a competition for followers, but a network of mutual support. The meaning of the work lies in collaboration and qualitative feedback. In this space, the logic of "us" outweighs the logic of individual success, reinforcing the closeness and symbolic interaction that nourishes the parasocial relationship:

I don't feel like this is a competition. On the contrary, the more people are communicating about sustainability, the better. We have always tried to collaborate, share content, and support each other's accounts. (E7)

I have always felt that the environmental world is very collaborative. When you do a live stream or share content with another account, it is not to compete, but to reach more people together. Collaboration is part of the message we are conveying. (E2)

Discussion

The analysis of digital eco-communication practices developed by Ibero-American greenfluencers allows us to advance our understanding of digital environmental communication not only as an informative or persuasive process, but also as a relational, situated, and emotionally mediated practice.

In general terms, the findings confirm and expand on the existing literature by demonstrating that the symbolic effectiveness of digital eco-communication by greenfluencers does not depend exclusively on the environmental content transmitted ("what is transmitted"), but fundamentally on the quality of the emotional and symbolic bond that greenfluencers build with their audiences ("how it is transmitted: the symbolic-emotional bond," and "how that bond operates").

As proposed in the conceptual model in Figure 1, eco-communication on Instagram is centrally mediated by parasocial relationships. This result is consistent with previous research, highlighting the role of these bonds in shaping pro-environmental attitudes and behaviors, particularly among young audiences (Breves and Liebers, 2022; Dekoninck and Schmuck, 2024; Knüpfer *et al.*, 2023; Pereira *et al.*, 2023, Le *et al.*, 2025). However, this study goes further by showing that these bonds are constructed on a daily basis through narrative, emotional, and ethical dimensions situated in the socio-cultural context of Ibero-America.

One of the main contributions of the study is to show that digital eco-communication operates as a process of *cultural translation*. Greenfluencers act as mediators who adapt technical and normative discourses, such as those associated with the 2030 Agenda or the climate crisis, into accessible, experiential narratives situated in everyday life. This translation is based on the perception of closeness, coherence, and similarity between the communicator and the recipient of the message. From the perspective of parasocial relationship theory, environmental messages gain legitimacy not only because of their content, but also because of the symbolic place from which they are emitted, reinforcing trust and willingness to listen.

Everyday narratives are at the core of the digital eco-communication analyzed. By emphasizing small, gradual, and achievable actions, presented as entry points to more sustainable lifestyles, barriers to environmental action are reduced, avoiding individual blame and reinforcing processes of identification. The study expands the existing literature by linking these micro-practices to parasocial mechanisms of learning through observation and symbolic modeling. Here, followers not only receive information, but also observe, imitate, and adapt practices from figures with whom they have significant emotional ties. From the perspective of eco-communication, this allows us to understand the emergence of everyday environmental citizenship, based on experience and identification rather than abstract adherence to normative principles.

The emotional dimension emerges as another central axis of digital eco-communication. The results show that greenfluencers actively manage emotions such as anxiety, fear, and frustration, opting for hopeful, educational, and non-alarmist narratives. This strategy does not imply denying the seriousness of the socio-environmental crisis, but rather modulating its presentation to avoid emotional paralysis and citizen distancing. From the perspective of

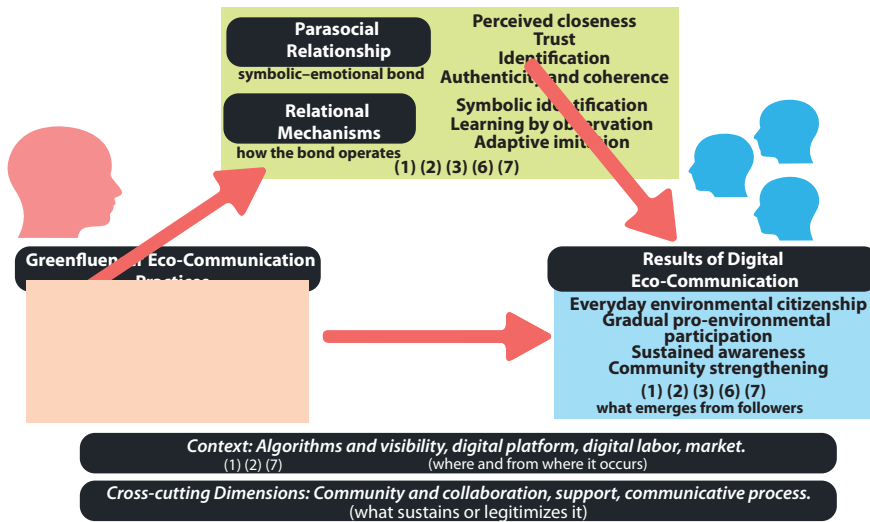
parasocial relationship theory, this emotional management is strategic, as the bond requires emotional continuity, and systematically associating it with negative emotions could weaken it. This is relevant because, as can be seen in Figure 1, eco-communication on Instagram does not operate in isolation but is conditioned by power structures from the platforms (algorithm, visibility, the work generated from the platform), and the narrative, emotional, and ethical practices of greenfluencers do not have a direct impact on followers but rather through parasocial relationships. This acts as a central mediating mechanism explaining how and why environmental messages acquire legitimacy. Moreover, according to this, the results generated in followers are not radical changes, but gradual changes.

From a critical perspective, the model highlights the structural tensions that condition digital eco-communication (see Figure 1). Algorithmic opacity, the perception of penalization of environmentally critical content, and dependence on metrics create an environment that limits the depth of environmental discourse. These findings reinforce the idea that digital platforms are not neutral spaces, but powerful actors in shaping the digital public sphere. In this sense, digital eco-communication must be understood not only in terms of its transformative potential, but also in terms of its political, economic, and technological limitations.

Likewise, the results show that eco-communication involves a high volume of invisible digital work carried out under precarious conditions. This precariousness affects the continuity, diversity, and sustainability of environmental voices in the digital space, putting pressure on the ideal of open and pluralistic participation. In addition, communicative ethics and greenwashing reinforce the idea that greenfluencers operate as symbolic guardians of environmental knowledge. From the parasocial relationship perspective, this communicative ethics is central, since trust is a fragile relational resource; once eroded, the symbolic bond weakens and the legitimacy of the message is compromised.

Finally, the study shows that digital eco-communication by greenfluencers is sustained by collaborative networks rather than competitive logic. The community emerges as the main symbolic capital of eco-communication, challenging the algorithmic logic of individual success. This collective dimension broadens the traditional focus of parasocial relationship theory, usually centered on one-to-one links, by placing these links in broader relational ecosystems where collaboration reinforces the legitimacy of environmental discourse and amplifies its symbolic reach.

Figure 1
Conceptual model of digital eco-communication on Instagram mediated by parasocial relationships in Ibero-American greenfluencers



Note: Prepared by the author based on data analysis.

Conclusions

This study aimed to analyze the eco-communication practices of Ibero-American greenfluencers by integrating parasocial relationship theory and a critical approach. In answering the research question, we conclude that greenfluencers construct their messages through cultural and narrative translation, while their connection with the audience is based on emotional management and the ethical coherence of the message. The parasocial relationship is confirmed as a necessary bridge for environmental knowledge to be transformed into a daily and situated practice, identified by followers. This mediation arises from a symbolic and emotional bond and from relational mechanisms.

This study contributes to the literature in three main dimensions. First, it explicitly integrates parasocial relationship theory into the field of eco-communication, demonstrating that symbolic and emotional bonds are a central

component of digital environmental communication. Second, it provides qualitative evidence from a little-explored Ibero-American context, broadening the geographical and cultural scope of research on greenfluencers. Third, it introduces a critical view of the structural, emotional, and labor limitations of digital eco-communication, shifting the focus from persuasive effectiveness to the sustainability of the communication process itself.

Despite the findings, the study has limitations. The qualitative approach and sample size do not allow for statistical generalizations. Furthermore, it focused on the perspective of content creators on Instagram, without including the voice of audiences or dynamics from other platforms.

As future recommendations, it is suggested to use mixed or longitudinal designs that incorporate the perspective of followers. It is also relevant to explore the impact of emerging variables, such as artificial intelligence or virtual influencers, on the legitimacy of environmental discourse.

In conclusion, this work invites us to rethink digital eco-communication as a relational, ethical, and emotionally demanding process. The transformative potential of these actors depends both on the strength of the bonds they build and on the structural and technological conditions they face in the era of platforms.

Acknowledgments

We would like to thank the UBB Artistic Creation project, Code CA2520006.

We would also like to thank the following students: Paz Casaretto from Finis Terrae University, Katherine Muñoz and Macarena Maldonado from the University of Bío-Bío (Chillán), who participated in conducting interviews with greenfluencers via the social network Instagram.

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Authorship Statement - CRediT Taxonomy	
Authors	Contributions
Katherine Mansilla-Obando	Conceptualization; data curation; writing – review and editing.
Tomás Zapata-Soto	Research; methodology; writing – review and editing.
Nataly Guíñez-Cabrera	Conceptualization; data curation; formal analysis; validation; writing – original draft; writing – review and editing.

Declaration on the Use of Artificial Intelligence
The authors DECLARE that, in the preparation of the article <i>Eco-communication and greenfluencers in Ibero-America: an exploratory study</i> , no Artificial Intelligence tools were used in any stage of the research process.

Communication for sustainability: a comparative analysis of media coverage

Comunicación para la sostenibilidad: un análisis comparado de las coberturas periodísticas

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Received on: 30/12/2025 **Revised on:** 29/01/2026 **Approved on:** 26/02/2026 **Published on:** 01/03/2026

Suggested citation: Cedeño-Cuenca, C., Henríquez-Coronel, P. & Orbe, T. (2026). Communication for sustainability: a comparative analysis of media coverage. *Universitas XXI*, 44, pp. 37-55. <https://doi.org/10.17163/uni.n44.2026.02>

Abstract

The contemporary environmental crisis requires rethinking the relationship between society and nature, positioning communication as a key element in promoting sustainable practices. In this context, this study analyzes news frames, thematic focus, representation of social actors, and levels of informational depth present in sustainability coverage across two Ecuadorian media outlets: the traditional news portal Ecuavisa.com and the digital-native medium GK.city. Methodologically, the research adopts a quantitative approach with a cross-sectional and comparative design, employing systematic observation through an analytical rubric applied to a corpus of 67 news articles published between January and September 2025. The results show differences in the narrative and thematic approaches adopted by both media outlets. While GK.city presents a diversified agenda with greater analytical depth and emphasis on institutional responsibility, Ecuavisa prioritizes coverage focused on biodiversity and community actors, with intermediate levels of contextualization. The study concludes that different models of communication for sustainability coexist within the Ecuadorian media ecosystem, posing challenges for strengthening the role of journalism in fostering environmentally responsible citizenship.

Keywords

Communication, journalism, sustainability, framing, ecology, citizenship, environment, responsibility.

Resumen

La crisis ambiental contemporánea plantea la necesidad de repensar el vínculo entre la sociedad y su entorno, situando a la comunicación como un elemento clave en la promoción de prácticas sostenibles. En este contexto, esta investigación analiza los encuadres noticiosos, las temáticas abordadas, la representación de los actores sociales y los niveles de profundidad informativa presentes en la cobertura sobre sostenibilidad de dos medios ecuatorianos: el portal tradicional Ecuavisa.com y el medio nativo digital GK.city. Metodológicamente, se desarrolló un estudio con enfoque cuantitativo, diseño transversal y alcance comparativo, empleando la técnica de observación sistemática mediante una rúbrica de análisis, a un universo de 67 noticias publicadas entre enero y septiembre de 2025. Los resultados evidencian diferencias en los enfoques narrativos y temáticos de ambos medios. Mientras GK.city presenta una agenda más diversificada, con mayor profundidad analítica y énfasis en la responsabilidad institucional, Ecuavisa prioriza una cobertura centrada en la biodiversidad y en actores comunitarios, con niveles intermedios de contextualización. Se concluye que existe una fractura estructural en la comunicación para la sostenibilidad en el ecosistema mediático ecuatoriano, lo que plantea desafíos para el fortalecimiento del rol del periodismo en la formación de ciudadanos ecológicamente responsables.

Palabras clave

Comunicación, periodismo, sostenibilidad, encuadre, ecología, ciudadanía, medio ambiente, responsabilidad.

Introduction

The contemporary environmental crisis requires us to rethink the relationship between society and its environment. In this context, communication for sustainability cannot be understood solely as the dissemination of data on ecological deterioration, but rather as a strategic, critical, and participatory process. Costa-Sánchez and Peñafiel-Saiz (2024) define it as an effort to introduce a deep understanding of the human-nature relationship in order to transform values and promote collective action. Studies on communication of the 2030 Agenda show that sustainable narratives influence audiences' levels of appropriation, understanding, and willingness to act (López-Carrión, 2024). This model should promote eco-literacy and citizen empowerment, overcoming neutrality, since, as Costa-Sánchez and López-García (2020) warn, communication constructs narratives that can legitimize both activism and inaction.

Evidence suggests that environmental communication that calls for action is far from being achieved. Several studies warn that despite scientific consensus on the seriousness of the environmental crisis, media coverage is often insufficient, superficial, and depoliticized, limiting its ability to generate emotional involvement and motivate concrete action (Mateos and Montero, 2025). In this sense, moving towards new educational narratives that overcome the logic of catastrophe is a central challenge for environmental communication (Rodrigo-Cano *et al.*, 2019).

Structural factors in the media ecosystem, such as the centrality of search engines and the concentration of media ownership, limit informational pluralism and favor political and economic agendas that render the climate emergency invisible (Matei *et al.*, 2021; Baltzi *et al.*, 2025). Consequently, when sustainability appears infrequently or is given marginal attention, its priority in public debate is diluted (Silva Pires, 2021).

From the perspective of framing theory, the way in which information is presented is key to understanding its effects. Framing involves selecting and highlighting certain aspects of reality to promote specific interpretations and guide the attention of audiences (Entman, 1993; de Vreese, 2005). In environmental journalism, these frames directly influence the perception of problems and individual and collective responses, either by promoting social mobilization or, conversely, by generating emotional paralysis or reproducing uncritical discourses (Olausson and Berglez, 2014; Radwan *et al.*, 2025;

Atanasova, 2019). In this regard, the need to offer evidence-based, contextualized coverage connected to possible solutions has been pointed out as a condition for strengthening citizen involvement in the face of socio-environmental challenges (Fernández Muerza and Picó Garcés, 2023).

The ultimate goal of effective communication is the formation of an “ecological citizenship” or eco-citizenship understood as a relationship of “living here together” based on collective responsibility for life systems (Sauvé, 2014). For Otero Lamas and Pratt Rosales (2024), eco-citizenship is based on principles of responsibility, reciprocity, and sustainability. Flores Jáuregui and Pérez Pérez (2025) warn that this citizenship is disputed in the media discourse, where there is a risk of falling into greenwashing, understood as the act of deceiving consumers about a company’s environmental practices or the environmental benefits attributed to products or services (Delmas and Burbano, 2011), reducing sustainability to a consumer trend or a superficial individual responsibility (Rodríguez-Martínez and Sánchez-Barreto, 2020).

From the perspective of communication for sustainability, analyzing media content involves not only identifying the issues addressed, but also examining how they are framed and presented to the public. Communicative frames influence the way environmental issues are interpreted by highlighting certain aspects, responsibilities, and possible solutions (Rochyadi-Reetz, 2024). Likewise, the presence and prominence of social actors in the news allow us to understand how responsibilities and voices are distributed in the media discourse on sustainability.

To operationalize the analysis, this study adopted the categorization of environmental frames proposed by Radwan *et al.* (2025), which distinguishes the dominant narratives in the coverage. First, the frames of threat and hope are identified; the former emphasizes risks and crises, while the latter focuses on solutions, progress, and prospects for recovery. Likewise, the responsibility and economic approaches are analyzed, where one attributes cause to specific actors and the other highlights the financial implications. Finally, the classification integrates the scientific framing, which prioritizes technical evidence and expert voices, and the moral framing, which places environmental issues from an ethical perspective, religious precepts, or social duty.

On the other hand, the level of informational depth is a key dimension for evaluating the quality of journalism. The literature indicates that superficial coverage is characterized by isolated mentions of facts or events, with little contextualization and no explanation of causes, consequences, or possible

solutions. In contrast, intermediate-level coverage incorporates background information, explanatory data, and the voices of relevant actors, albeit in a limited way. Finally, in-depth coverage is distinguished by a comprehensive approach to the environmental problem, including contextualization, impact analysis, diversity of sources, and references to alternative actions or solutions (Rochyadi-Reetz, 2024; Radwan *et al.*, 2025).

In Ecuador, this tension is palpable. The country is characterized by its great biodiversity and by being a pioneer in recognizing the rights of nature, which have been enshrined in the national constitution in force since 2008, but sustainability is not usually addressed centrally in the media agenda. Urgent cases, such as the contamination of the Machángara River (Basantes, 2024), highlight the need for coverage that goes beyond episodic reporting and promotes a structural understanding of environmental problems.

Despite the existence of studies on environmental communication at the international and regional levels, in the Ecuadorian context there remains a specific research gap regarding comparative analyses with a quantitative approach that systematically examine journalistic frames, the topics addressed, the representation of social actors, and the levels of informational depth in traditional and native digital media (Vallejo, 2022; Aparicio Cid, 2023). In response to this gap, this study analyzes the environmental frames that structure journalistic coverage of environmental sustainability in two news portals in the country: the Ecuavisa website (Ecuaterra section) and the digital media outlet GK.city (hereinafter GK) in its environment segment.

Materials and method

This study was developed from a quantitative perspective, aimed at measuring and describing observable characteristics in the content disseminated by the media outlets Ecuavisa and GK. This research analyzed the following communicative elements present in the environmental content disseminated by the selected media: the topics addressed, the types of framing used in the news analyzed, the social actors represented, the roles, the calls to action promoted around environmental sustainability, and the level of depth of the content.

The scope of the study was twofold: first, a descriptive purpose to characterize the messages disseminated on environmental sustainability and, second, a comparative intention through the analysis of similarities and differences in the treatment of information by two media outlets with very different na-

tures: the Ecuavisa portal, linked to traditional television, and the native digital media outlet GK, which defines itself as an in-depth journalism outlet.

The research design was non-experimental and cross-sectional. The elements of the news coverage of a total of 67 news items were analyzed, without manipulation, over a period of nine months. The universe was defined as all news items related to environmental sustainability published from January to September 2025 for the selected media: the digital portal Ecuavisa (Ecuaterra) and the digital media GK (Medioambiente).

Due to the small number of news items that explicitly addressed environmental issues, the sampling technique was not applied, and instead the entire universe of analysis units was analyzed. A total of 67 units were analyzed: 34 news items from Ecuavisa and 33 from GK.

The rubric observation technique was applied to each of the digital news items published by Ecuavisa and GK. Structured observation allows for the planned and systematic recording of observable phenomena, based on previously defined categories, which facilitates the organization of information for analysis (Hernández Sampieri *et al.*, 2014). The instrument used was a structured coding matrix, designed based on previous research by Rochyadi-Reetz (2024) and Radwan *et al.* (2025). The observation matrix was adapted to the object of study to allow for the systematic recording of the indicators defined for each unit of analysis.

In order to strengthen the reliability of the analysis, a double coding procedure was applied in the initial phase of the study. A sample of the news items was coded by the researcher and subsequently reviewed by the academic tutor, who made observations on the application of the rubric. After this review and consensus process, the rubric was applied to the entire corpus.

Data collection was carried out through the systematic identification and selection of digital news articles published on the Ecuavisa and GK websites during the study period. The procedure was carried out in several phases. In the first stage, the total universe of environmental news published by both media outlets was collected, forming the corpus for analysis. Subsequently, the coding matrix was applied to each unit of analysis, systematically recording the established variables: topics addressed, types of framing, calls to action, and level of informational depth.

The data obtained were organized and tabulated for descriptive statistical analysis in SPSS and Excel. Frequencies and percentages were calculated in order to identify trends, patterns, and differences in the treatment of informa-

tion by both media outlets. Subsequently, the results were interpreted in relation to the objectives of the study and the established theoretical framework.

In order to complement the descriptive analysis and evaluate the existence of statistically significant associations between the media outlet and certain variables of the treatment of information, Pearson's chi-square test was applied. This test was used to contrast the relationship between the media outlet and the type of framing, the presence of calls to action, and the level of depth of information. In cases where a breach of the chi-square assumptions was detected, particularly the presence of expected frequencies lower than 5 in more than 20% of the cells, significance was estimated using Monte Carlo simulation. Likewise, the effect size was calculated using Cramér's V, in order to assess the strength of the associations identified.

Results

The corpus of analysis consisted of a total of 67 news items published on the GK and Ecuavisa digital portals. The distribution of the material analyzed was balanced between the two media, with 33 items corresponding to GK (49.3%) and 34 to Ecuavisa (50.7%), which allowed for a comparison under conditions of approximate proportionality. It is important to note that despite the obvious difference in the scope and nature of both media outlets—Ecuavisa being a traditional mass media outlet and GK a native digital media outlet with a different audience profile—the volume of news production on sustainability was quantitatively similar during the nine months analyzed.

Main topics covered in environmental news

To understand the construction of the agenda, the main environmental topics related to sustainability present in the news published by the digital media outlet GK and the Ecuavisa website were identified.

In GK, coverage was distributed among several topics: Biodiversity (12 news items, 36.4%), Environmental policies (8 news items, 24.2%), Sustainable lifestyle (7 news items, 21.2%), and Others (6 news items, 18.2%). This thematic diversity indicates a multi-thematic approach that integrates ecological, political, and social aspects.

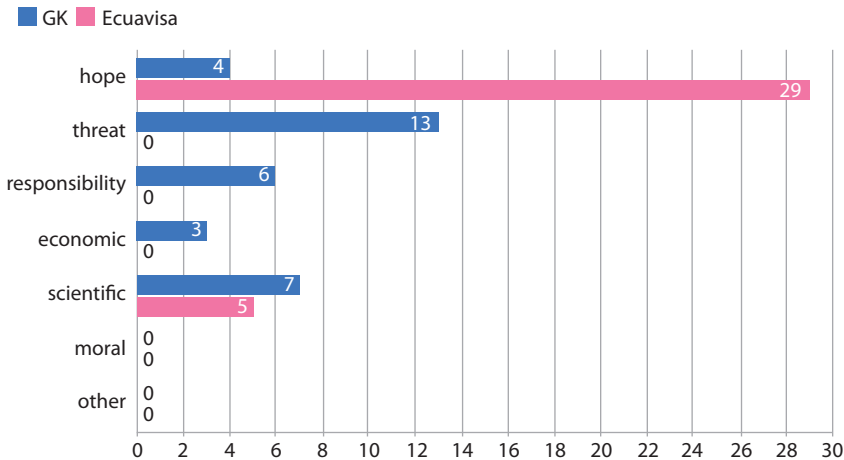
In contrast, Ecuavisa concentrated almost all of its news items in the Biodiversity category (34 news items, 100%), with no significant coverage of Environmental policies, Sustainable lifestyle, Climate change, or Waste management. This concentration reflects a single-theme approach, focused mainly on the description and assessment of nature.

A comparison of the two media outlets reveals clear differences in the construction of the thematic agenda: GK distributes its attention among multiple aspects of sustainability, while Ecuavisa prioritizes biodiversity and environmental conservation without systematically addressing structural factors or institutional responsibilities.

Predominant news frames in coverage

To delve deeper into the treatment of the information, the types of frames used by the two media outlets in their coverage of issues related to environmental sustainability were analyzed. To this end, the predominant frame in each news item was identified. The results are presented in Figure 1, which allows the differences between the two media outlets to be identified.

Figure 1
Types of frames used by GK and Ecuavisa in their coverage of environmental sustainability



In GK, the most frequent frames were: hope (4 news items, 12.1%), threat (13 news items, 39.4%), responsibility (6 news items, 18.2%), economic (3 news items, 9.1%), and scientific (7 news items, 21.2%). No moral or other types of frames were recorded.

At Ecuavisa, the frames identified were: hope (29 news items, 85.3%) and scientific (5 news items, 14.7%), with no presence of threat, responsibility, economic, moral, or other categories.

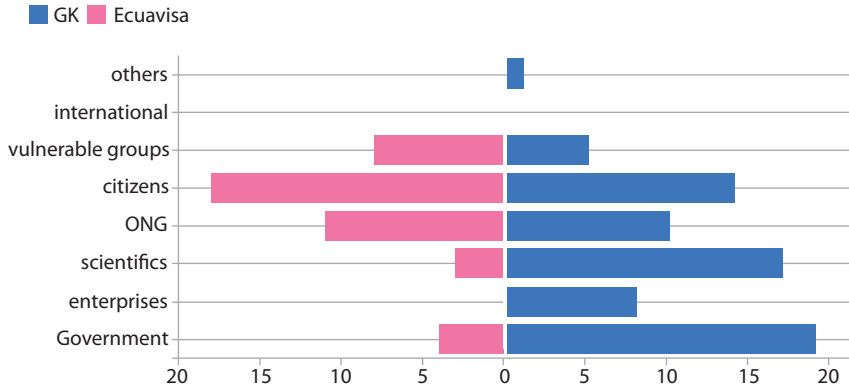
To determine the significance of these discrepancies, the relationship between the type of framing and the media outlet was analyzed. To do this, Pearson's chi-square test was applied. Given that 40% of the cells had expected frequencies of less than 5, significance was estimated using Monte Carlo simulation. The results showed a statistically significant association between the two variables ($\chi^2 = 41.267$; $p < 0.001$, two-tailed Monte Carlo). The effect size was high (Cramér's $V = 0.784809$), indicating a very strong association and confirming substantive differences in narrative strategy.

This statistical validation supports the existence of two opposing editorial patterns. The strong association between GK and the threat and responsibility frames is consistent with its philosophy of *in-depth journalism and social impact*, in which news is not only reported, but also explained, contextualized, and analyzed to generate impact and understanding of complex phenomena (GK, n.d.). In contrast, Ecuavisa's massive concentration on the framing of hope reveals an editorial line that prioritizes "solutionism" and positive perspectives in the face of environmental challenges.

Representation of social actors

The representation of social actors in the news about environmental sustainability published in both media outlets was examined in order to compare the visibility and prominence given to them in the construction of environmental discourse. These findings are shown in Figure 2.

Figure 2
*Representation of social actors in news stories
on environmental sustainability*



The coding was done dichotomously, so that the same news item could include more than one actor. The horizontal scale from 0 to 20 corresponds to the absolute frequency of each actor; therefore, the frequencies are not exclusive and do not correspond to the total number of news items.

In GK, the most represented actors were: Government (19 news items, 57.6%), scientifics (18 news items, 54.5%), citizens (16 news items, 48.5%), NGOs (11 news items, 33.3%), companies (8 news items, 24.2%), vulnerable groups (6 news items, 18.2%), international (0 news items), and others (1 news item).

In Ecuavisa, the most frequent actors were: citizens (25 news items, 44.1%), NGOs (10 news items, 29.4%), vulnerable groups (8 news items, 23.5%), scientifics (3 news items, 8.8%), and others, international actors, and companies (0 news items).

These data show a different pattern between the two media outlets. GK integrates government, scientific, and citizen voices, suggesting an approach that combines institutional, expert, and social perspectives. For its part, Ecuavisa prioritizes the visibility of citizens and NGOs, reflecting coverage that is more focused on social and community action.

Roles of social actors

It is important to note that the identification of roles was operationalized using dichotomized variables, allowing for the coexistence of multiple categories in the same analyzed news item.

GK presented a diversified and multidimensional distribution in the construction of social actors. Although the role of Solver was the most frequent (19 news items, 57.6%), the media outlet gave similar statistical relevance to the identification of “Responsible Parties,” a category that was recorded in 18 news items (54.5%). Likewise, the coverage integrated the perspective of victims and passive subjects, recording 9 news items (27.3%) of “Affected” actors and 2 cases (6.1%) of “Passive” actors. These data reflect a complex narrative structure that not only proposes solutions but also attributes responsibilities and highlights impacts.

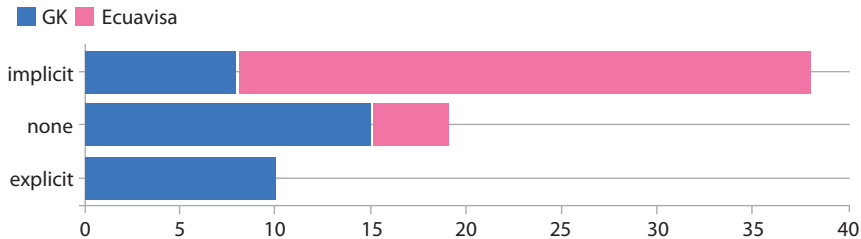
In contrast, in Ecuavisa, the assignment of roles was characterized by absolute homogeneity. 100% of the actors identified were classified exclusively as “Solvers.” During the study period, this media outlet did not record any cases for the categories of “Responsible,” “Affected,” or “Passive.” This concentration indicates that the treatment of information focused entirely on positive action or mitigation, excluding the causes of the conflict and the vulnerable populations from the narrative.

These differences in the assignment of roles help explain the predominant frames identified in each media outlet. While the homogeneity of roles in Ecuavisa favors a more pedagogical and depoliticized treatment of sustainability, the plurality of roles in GK favors a more critical narrative, allowing for the identification of institutional responsibilities and the visibility of actors affected by environmental problems.

Call to action in news items

The analysis of the call to action, the level of depth, and the contribution to the formation of an ecologically responsible citizenry allow us to evaluate the educational and social reach of the environmental news coverage of these two media outlets.

Figure 3
Presence of calls to action



The vertical axis scale represents the absolute frequency of news items that include calls to action. The scale range (0-40) was automatically defined by the visualization software based on the maximum value observed, considering a total of 67 news items analyzed. Each news item was coded into a single category, so the frequencies are mutually exclusive.

Figure 3 shows the differences between the two media outlets in terms of the incorporation of calls to action in their environmental content. In the case of GK, the predominant category was the absence of calls to action, present in 15 news items (45.5%). However, it is noteworthy that 30.3% of its coverage, corresponding to 10 news items, incorporated explicit calls to action, while the rest of the sample (8 news items, 24.2%) resorted to implicit calls.

In contrast, Ecuavisa concentrated 88.2% of its news items (30 news items) with implicit calls to action, indirectly suggesting pro-environmental behaviors. The category None was recorded in 4 news items (11.8%), and there were no cases (0%) of explicit calls to action.

To confirm the relevance of these discrepancies, the relationship between the presence of calls to action and the media outlet was examined using Pearson's chi-square test. The results show a statistically significant association between the two variables ($\chi^2 = 29.097$; $p < 0.001$). Likewise, the effect size measured using Cramér's V ($V = 0.659$) indicated a strong association, confirming that the style of addressing the audience (explicit, implicit, or none) depends substantially on the editorial line of the media outlet.

Level of depth in the media analyzed

In order to analyze the level of depth of the environmental news items, a contingency table (Table 1) was created that crosses the variable with the media outlet, allowing for the identification of differences in the treatment of information between GK and Ecuavisa.

Table 1
Level of depth according to the media outlet

Level of depth	GK n (%)	Ecuavisa n (%)	Total
Superficial	1 (3%)	0 (0%)	1 (1.5%)
Intermediate	12 (36.4%)	27 (79.4%)	39 (58.2%)
Deep	20 (60.6%)	7 (20.6%)	27 (40.3%)
Total	33 (100%)	34 (100%)	67 (100%)

Note: *n* corresponds to the absolute frequency of news items. Percentages were calculated based on the total number of news items per media outlet (GK: *n* = 33; Ecuavisa.com: *n* = 34).

As can be seen in Table 1, there are structural differences in the treatment of information. The digital media outlet GK presented a higher proportion of news items with a deep level of coverage, accounting for 60.6% of its coverage (20 news items). The intermediate level represented 36.4% (12 news items), while the superficial approach was marginal (3% (1 news item).

In contrast, Ecuavisa mainly concentrated on content with an intermediate level of depth, with 79.4% of its news items (27 cases) falling into this category. Its production of in-depth content was in the minority, reaching 20.6% (7 news items), with no superficial articles recorded.

This quantitative distribution supports two different editorial approaches. The prevalence of in-depth content in GK reflects a commitment to scientific contextualization and data journalism, a strategy that is occasionally reinforced by media figures to validate the agenda (as in the case of the “sapo concho” and Leonardo DiCaprio). On the other hand, Ecuavisa’s concentration at the intermediate level corresponds to more descriptive coverage, prioritizing a “landscape aesthetic” and evocative language over structural understanding. Although this media outlet offers taxonomic data, the quali-

tative analysis detected factual inaccuracies in its descriptive zeal, such as the error in the size of the Palmira desert (reported as 182 hectares compared to the actual 10 hectares according to the Riobamba Turismo website).

Finally, Pearson's chi-square test was applied to identify statistically significant differences in the level of information depth according to the media outlet. Due to the presence of expected frequencies lower than 5 in more than 20% of the cells, significance was estimated using Monte Carlo simulation. The results showed a statistically significant association between the two variables ($p = 0.001$, two-tailed Monte Carlo). The effect size, measured using Cramér's V ($V = 0.440767$), indicated a moderate association, confirming relevant, although not extreme, differences in the information coverage offered by each media outlet on environmental sustainability.

Conclusions and discussion

The findings of this research show the coexistence of different narrative approaches in the communication of sustainability in the Ecuadorian media ecosystem. Rather than responding to a homogeneous discourse, the media analyzed construct narratives that operate in complementary registers: on the one hand, political vigilance aimed at identifying threats, characteristic of the native digital media outlet GK; and on the other, a narrative of an educational and emotional nature, predominant in the traditional media outlet Ecuavisa.

This divergence validates the approaches of framing theory (Entman, 1993; de Vreese, 2005), confirming that the selection of aspects of reality is not neutral, but rather delimits public interpretation and courses of action. When contrasting these results with international evidence, such as the study by Al-Zaman and Khan (2022) in Bangladesh, it can be seen how the geographical environment conditions the framing: while in contexts of extreme vulnerability the narrative of imminent catastrophe predominates, in Ecuador—protected by its identity as a megadiverse country—Ecuavisa reinforces a cultural framework of conservation and hope. However, as these authors warn, the repetition of pre-existing frames runs the risk of offering decontextualized representations where structural threats are downplayed.

The discussion on the effectiveness of these models also engages critically with recent literature on audiences. While GK offers greater thematic depth, research such as that of Høegh-Krohn *et al.* (2025) and Olausson and Berglez

(2014) warns that constant exposure to abstract and threatening problems can lead to “apocalyptic fatigue” and paralysis if no courses of action are offered. In contrast, Ecuavisa’s focus on hope seems to respond intuitively to the need to construct more dialogical and accessible narratives (Mateos and Montero, 2025). However, this capacity for emotional connection is built at the expense of analytical depth, reducing sustainability to well-intentioned individual actions and leaving the political causes of environmental deterioration in the background.

The statistical evidence gathered in this research allows us to establish, first of all, that media support acts as a structural determinant in the quality of public deliberation on sustainability. The data confirm a significant association between the platform and the depth of information: while the native digital media (GK) statistically favors the production of in-depth and contextualized content, the traditional model (Ecuavisa) tends toward standardization at an intermediate and descriptive level. This difference is reinforced by a polarization of frames, with GK prioritizing narratives of threat and political responsibility linked to extractivism, while Ecuavisa focuses its agenda almost exclusively on the frame of hope associated with biodiversity.

In terms of agency construction, the results show substantive differences in how prominence is attributed to climate action. The generalist model tends toward uncritical “solutionism,” presenting citizens and non-governmental organizations as agents of change without identifying the causes of the conflict. In contrast, the digital model politicizes coverage by giving statistical visibility to those “responsible” and “affected,” constructing a narrative closer to environmental justice. These findings show that, currently, “eco-citizenship” is not being satisfied by a single media outlet, but rather depends on complementary consumption in a fragmented media ecosystem.

Based on this observation, the results of the study not only identify the limitations of the media narratives analyzed, but also outline a set of guidelines that could contribute to strengthening the role of journalism in building a more integrated eco-citizenship. It is imperative to move towards a hybridization of formats that overcomes current limitations: generalist media must integrate data and structural context to avoid simplifying the problem, while digital natives must explore more empathetic and constructive narratives to avoid saturation and “apocalyptic fatigue” in their audiences. Likewise, we suggest the institutionalization of specialized editorial guidelines (*Climate Beat*) that allow for systematic and cross-cutting coverage, capable of articulating the global dimensions of the climate crisis with its impact on local

daily life, thus ensuring accountability and avoiding *greenwashing* practices. It is necessary to promote collaborative and follow-up projects—such as news series, databases, and *accountability-based* solutions journalism—that integrate a greater diversity of territorial, scientific, state, and business voices, as well as participatory formats that foster reciprocity between media and audiences and contribute to the construction of eco-citizenship.

Finally, this study contributes to the field of environmental communication by empirically demonstrating the tensions between the production logics of native and traditional media. However, it should be recognized that the research is limited to a specific period and cases, so its results constitute a situated approximation that should not be generalized to the entire national media ecosystem. Likewise, although observation using a rubric allowed for the systematization of the analysis of topics, frames, actors, calls to action, and levels of informational depth, the interpretation of the elements involves an analytical component that may be subject to margins of subjectivity. To mitigate this aspect, the instrument was validated by expert judgment and double-checked by peers during its application. However, the perspective of the editors and journalists who construct the news is missing; therefore, future research should incorporate their voices to complete a more accurate picture of the journalistic treatment of information on sustainability.

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Declaration of Authorship - CRediT Taxonomy	
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Declaration on the Use of Artificial Intelligence
<p>The authors DECLARE that, in the preparation of <i>the</i> article <i>Communication for sustainability: a comparative analysis of media coverage</i>, ChatGPT artificial intelligence was used to assist in the classification and organization of the scientific articles used in the preparation of the state-of-the art. In no case did artificial intelligence replace critical analysis, interpretation of results, or final drafting of the manuscript, which were carried out by the authors.</p>

The environmental agenda under dispute: misinformation and discursive desistance in the Vatican

La agenda ambiental en disputa: desinformación y resistencia discursiva en El Vaticano

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Received on: 05/12/2025 **Revised on:** 24/01/2026 **Approved on:** 08/02/2026 **Published on:** 01/03/2026

Suggested citation: Salguero-Antelo, J. H., Gaytán-Alcalá, F. & Méndez-González, A. (2026). The environmental agenda under dispute: misinformation and discursive desistance in the Vatican. *Universitas XXI*, 44, pp. 57-79. <https://doi.org/10.17163/uni.n44.2026.03>

Abstract

This paper is justified in the context of digital polarization and ecological crisis, wherein the encyclical Laudato Si' by Pope Francis, a moral call to secular action, was the subject of a discrediting campaign through a series of strategies characteristic of post-truth and infodemic by groups opposed to the ecological agenda of Pope Francis presented in the document. The main objective is to analyze the discursive strategies employed by conservative political, media, and religious actors, principally American, to discredit said agenda. Methodologically, Critical Discourse Analysis and Relevance Theory are employed on a sample of statements from media outlets such as Fox News, The Federalist, the Heartland Institute, among other actors and media. The results identify three strategies: the delegitimization of papal authority in science and economics; the negative ideological association with Marxism and globalist agendas; and the disassociation from Catholic orthodoxy through the articulation of macro-themes reinforced by diverse lexical, argumentative, and syntactic resources, as well as the presence of ostensive and inferential resources linked to these strategies. The encyclical, which represents an ethical-religious call for ecological responsibility, was processed by its opponents not as a proposal to be debated but as an identity threat to be neutralized.

Keywords

Ecology, desinformation, infodemia, postruth. Catholicism, moral, ethics, ideologies.

Resumen

El presente trabajo se justifica en el contexto de polarización digital y crisis ecológica, donde la encíclica *Laudato Si'* del Papa Francisco, un llamado moral a la acción secular, fue objeto de una campaña de descalificación mediante una serie de estrategias propias de la posverdad e infodemia por parte de grupos adversos a la agenda ecológica del Papa Francisco presentada en el documento. El objetivo principal del estudio presentado en este escrito es analizar las estrategias discursivas empleadas por actores políticos, mediáticos y religiosos conservadores, principalmente estadounidenses, para descalificar dicha agenda. Metodológicamente, se emplea el análisis crítico del discurso y la teoría de la relevancia sobre una muestra de pronunciamientos de medios como Fox News, The Federalist, el Heartland Institute, entre otros actores y medios. Los resultados identifican tres estrategias: la deslegitimación de la autoridad papal en ciencia y economía; la asociación ideológica negativa con el marxismo y agendas globalistas; y la desvinculación de la ortodoxia católica mediante la articulación de macrotemas reforzadas por diversos recursos lexicográficos, argumentativos y sintácticos, así como la presencia de recursos ostensivos e inferenciales vinculados a estas estrategias.

Palabras clave

Ecología, desinformación, infodemia, posverdad, catolicismo, moral, ética, ideología.

Introduction

Decades ago, with the recent emergence of the internet, the digital space was imagined as a great space for pluralistic coexistence. However, with the passage of time, the result has taken a different turn: segmentation based on

affinities in opinions, misinformation, and the infodemic, from which polarized positions are taken in various fields.

In this context of digital polarization and out of concern for the current global environmental crisis, Pope Francis issued a document that will be central to his pontifical legacy, the encyclical entitled *Laudato Si* (2015), which establishes a moral and ethical position from Catholicism on urgent ecological and humanitarian issues to be resolved on earth, in secular, non-religious political and economic decision-making. This implies that Pope Francis is making a pastoral and doctrinal call to the secular world to act in the face of the threat to humanity in the coming years.

In this text, we analyze how the environmental message of Pope Francis' proposals in his encyclical *Laudato Si* has been discredited. This is done from the perspective of Teun Van Dijk's discourse analysis and relevance theory, analyzing the positions that were constructed from the post-truth space in response to the Gospel message. The first section discusses the conceptual perspective of the infodemic and post-truth, a second section analyzes the position of Christianity and Catholicism in the face of the world crisis, a position that is not placed in the theological world but in the secular moral world so that it can be received not only by Catholics but by society as a whole, and a third section presents the results and discussion of the positions taken by various economic and political actors who responded to and discredited the papal message.

Post-truth, disinformation, and infodemic

Contemporary politics and public discourse are immersed in an epistemic crisis originating in the complex interaction of hypermoralizing tribalism, post-truth, disinformation, and infodemic. These elements form a reciprocal causal chain in which an ancestral psychological predisposition is transformed into a strategy of ideological manipulation (Marina, 2025), amplified by a chaotic and saturated communicative ecosystem. The fundamental driver is hypermoralizing tribalism (Malo, 2021), understood as the human propensity for social division into "Them-Us" (Maffesoli, 2004), an anthropological universal that sets limits on the application of ethical norms. This division is driven by ideology, which acts as an identity marker:

Ideology is a marker of belonging to a group or coalition of great relevance; beliefs confer group identity, open the doors to group membership, and also

signal that identity to the outside world. Ideas and beliefs are not only a personal matter, but fundamentally a group matter. (Malo, 2021, p. 175)

The further beliefs are from neutral truth, the better they function as a distinguishing sign of group loyalty.

From moral imperative to rejection of reality

Hypermoralizing tribalism provides the cognitive and affective infrastructure that paves the way for post-truth, exploiting the individual's need to protect their group identity (McIntyre, 2018). This dynamic manifests itself through three interconnected psychological mechanisms. First, the rejection of dissonant facts (García-Marín and Aparici, 2019): when empirical evidence challenges the moral convictions of the group, it is systematically reinterpreted or dismissed. Second, motivated reasoning (Ruiz, 2023), which operates alongside confirmation bias; instead of seeking the truth objectively, the tribal mind finds justifications for pre-established conclusions that favor the group, facilitated by the automatic functioning of cognition that minimizes cognitive effort. Third, moral disengagement (Marina, 2021): by perceiving convictions as absolute, the ends justify the means, legitimizing lies or manipulation if they serve a morally superior goal, which makes morality a powerful and dangerous force in contemporary politics (Malo, 2021). These mechanisms culminate in post-truth, defined as the circumstance in which objective facts are less influential in shaping public opinion than appeals to emotion and personal beliefs (McIntyre, 2018), subordinating factual truth to emotional or ideological truth.

Disinformation and infodemic: strategy and environment

If tribalism establishes the psychological cause and post-truth the ideological end, disinformation acts as a deliberate weapon to deceive (García-Marín and Aparici, 2019), while the infodemic represents the environment that guarantees its massive impact (Cárdenas Rica and Polo, 2019). Disinformation exploits pre-existing cognitive biases (Marina, 2025); by presenting narratives aligned with what the group already wants to believe, it finds fertile ground. Paradoxically, true evidence that contradicts a false belief can strengthen it through the backfire effect, as it activates defensive mechanisms that reinforce the original belief. Another central feature is its emotional content (Murolo, 2019): false narratives activate fear and outrage, powerful emotions

that mobilize and motivate sharing. This content is amplified by the infodemic, understood as the environment of information overload and unregulated digital communication (Gabelas and Marta-Lazo, 2019), which facilitates the spread of errors and falsehoods into social epidemics (Marina, 2025).

The decline of traditional media as guardians of factual truth has contributed to the phenomenon. In their attempt to show “objectivity,” many media outlets have created “false equivalencies” between verified information and opinion (García-Marín, 2020), undermining public confidence in factual truth (Desmurget, 2020). Social media has transformed the information ecosystem, creating echo chambers that reinforce tribal beliefs and amplify confirmation bias (Hoechsmann *et al.*, 2019). Digital platforms act as “supernormal stimuli” (Barret, 2010) for moral outrage: anger spreads faster than other emotions (Silverman, 2016), and misinformation designed to inflame rage is more successful when shared (Hari, 2023). Furthermore, fake news reaches more people and spreads faster than real news (Vosoughi *et al.*, 2018), becoming established before it can be corrected.

The confluence of tribalism (willingness to believe), post-truth disinformation (strategy of deception), and infodemic (means of propagation) creates a vicious circle: moral division facilitates the success of disinformation, which, amplified digitally, reinforces tribal identity, weakening the critical thinking and epistemic humility necessary for democracy. Post-truth and the infodemic are manifestations of ideological supremacy triumphing over factual reality (McIntyre, 2018), immersing the individual in a reality where the distinction between true and false becomes blurred, undermining the foundations of rational debate and representing the greatest epistemic challenge to democracies.

The Catholic Church and its environmental stance

One of the main characteristics of Christianity, unlike two other historical universal religions such as Judaism and Islam, is its relationship with the world through the figure of Christ, who acts as a link between the sacred and the profane, between the transcendent and the immanent (Gaytán, 2012).

In this relationship, Christianity promotes a secularized view of the world based on the autonomy of the temporal from the sacred, a view akin to modernity (Cruz Esquivel and Mallimaci, 2017; Gaytán, 2012). This elective affinity between Christianity and modernity will drive an accelerated process of secularization, in which religion will be displaced as the center of the ex-

planation of the world by a multiplicity of dimensions that have in common that they derive from the decisions of individuals and not from God. The link will prevail by appealing to the ethical and moral responsibility of human beings (Sánchez Echeverría, 2022).

At this point, we observe the double effect of Christianity in placing its evangelical message about human dignity and nature in and from the secular: the first effect is the power of its moral and ethical message, which challenges individuals for their actions under the gaze of the sacred. Despite this, it has a contrary effect, as it leads to questioning that message not from the transcendent, but in the secular world itself, so that everything it expresses or points out becomes debatable, rejected, and even refuted in its interpretation.

Morality and environmental ethics from the perspective of the Catholic Church

The Catholic Church, as a relevant institution within Christianity, has significant normative importance in modern society. This relevance is manifested both in its criticism of anomie or loss of morality in the face of phenomena such as individualism and social relativism, and in its role within the process of secularization itself.

The Church highlights three key moments that gave meaning to its message on human dignity and the environment. Paradoxically, this message took root in the secular sphere, placing it in a field of political conflict with economic and political actors who are not governed by religious morality, but by an ethic oriented toward performance and remuneration within legal agreements (Massaro, 2023).

The first moment corresponds to the 19th century, with the Social Doctrine of the Church, defined in the Encyclical *Rerum Novarum*, promulgated by Pope Leo XIII in 1891. Although this encyclical did not explicitly address the environment, it set precedents regarding the dignity of workers in the face of industrial capitalism and the defense of private property as a natural right. *Rerum Novarum* sought a balance between human dignity, denouncing labor exploitation, and the defense of individual freedom for the achievement of the common good. It also raised an implicit concern for the care of the environment by stating that the earth was given to all human beings, and therefore the hoarding of goods should be avoided. Similarly, it recognized responsibility toward future generations and the poor, themes taken up again by Pope Francis in his encyclical *Laudato Si* (2015), which extends

the concept of social justice to environmental justice, criticizing the irrational exploitation of resources and consumerism that deepens poverty in the 21st century (Raso, 2025).

The Catholic Church and the environment in the 21st century

The second crucial moment is the Second Vatican Council (1962-1965), convened by Pope John XXIII and concluded by Pope Paul VI. This council sought to update the presence and evangelical message of Catholicism in the face of contemporary challenges. Among its documents, the encyclical *Gaudium et Spes* stands out. Although it did not explicitly address the environmental crisis, it outlined theological and pastoral principles that point to human responsibility both towards our fellow human beings and towards the world. The Council emphasized that the earth and the life it sustains are gifts from God entrusted to humanity for its care, criticizing the unlimited overexploitation characteristic of capitalism (Madrigal, 2025).

However, secular society, especially the capitalist sectors responsible for negative environmental impacts, did not interpret *Gaudium et Spes* as a clear criticism of unlimited progress, perceiving its message as rather diffuse and focused on justice, poverty, and the Church's social commitment (Télez, 2006).

Pope Francis, who participated in the Council and inherited this social agenda, issued the encyclical *Laudato Si* in 2015, which represents an explicit commitment to the environment and a direct criticism of the paradigm of capitalist progress. Among its central points is a model of integral ecology that calls for the urgent care of our common home, taking up the legacy of *Rerum Novarum* and *Gaudium et Spes*. The message focuses on environmental degradation, indifferent individualism, and the need to rediscover the divine meaning of God in the world, emphasizing human responsibility for the world given by God, a concept he defines as Integral Ecology (Ballinas, 2016).

Materials and method

The heuristic route followed in this study is based on critical discourse analysis, which analyzes the ideological, cognitive, and contextual components of discourse. Critical discourse analysis is understood as the study of language in use, i.e., the understanding of the relationship between context and communicative acts (Van Dijk, 2017).

The objective of this text is to recover the phenomenon of disinformation through moralization and ideologization in Pope Francis’ proposal for integral ecology in his ecological agenda manifested in the encyclical *Laudato Si*.

To this end, statements in different media outlets, press releases from commentators, political and religious actors identified with ideological orientations critical of Pope Francis’ proposal for integral ecology were analyzed, clarifying the existence in the same media outlets analyzed of voices in favor of the Pope’s proposal. However, for the purposes of this paper, the analysis focuses on those who oppose the document.

Both direct and indirect sources are used for this analysis. Direct sources are those in which the direct discourse of political actors is retrieved from textual or video media, and indirect sources are press releases or columns in which statements by actors from various sectors are retrieved. These speeches were retrieved from Google’s news search engine by entering the search terms “criticism” + “*Laudato Si*,” with the search coinciding with either indirect or direct sources involving political and religious actors and media leaders in the United States. The sources consulted are presented below:

Table 1

Media and news outlets consulted

Source	Media
What Pope Francis gets right and wrong about climate change (Montgomery, 2015)	Fox News
Pope Francis is the Catholic Church’s Obama – God help us (Shaw, 2013)	Fox News
Gutfeld: Pope Francis should love capitalism (Gutfeld, 2015)	Fox News
Greg Gutfeld ‘Marxist’ & ‘Malthusian’ Pope Francis is ‘the most dangerous person on the planet’ (Gutfeld, 2015)	Fox News
Fox Business Host Stuart Varney Lectures Pope Francis About Capitalism (Varney, 2013)	Fox Business
Pope’s ecological agenda questioned: “He is badly advised” (Infobae, 2015)	Infobae
The Pope’s Economic Populism. It’s a Problem (Stanley, 2015)	Religion & Liberty Online
‘The Pope is imprudent when he speaks of scientific conjecture’ (Stanley, 2015)	Religion & Liberty Online

Rush Limbaugh Bashes Pope Francis (Limbaugh, 2013)	CowgerNation
Letter #21, 2024, Thursday, June 20: Viganò (Viganò, 2024)	Inside the Vatican
The Return of Catholic Anti-Modernism (Reno, 2015)	First Things
The reputation of being a “Marxist” that haunts Pope Francis in the US (BBC Mundo, 2015)	BBC News Mundo
A Roundtable On ‘Laudato Si’ (The Federalist editors, 2015)	The Federalist
Heartland Institute Experts React to Pope Francis’s Comments about the Climate Before Congress (Burnett et al., 2015)	Environment & Energy (The Heartland Institute)
J.D. Vance Is Right and the Pope Is Wrong on “Climate Change” (Ruse, 2024)	Crisis Magazine
The False Prophets of Climate Change (Clark Schal, 2019)	Crisis Magazine

Based on discourse analysis and relevance theory, the methodological development is presented on three levels:

Macrostructural and contextual analysis

Macrostructures represent the overall content or meaning of a discourse. They are essentially the themes of the text (Van Dijk, 2005). In the present context, the analysis of the macrostructure and context models is carried out on the major themes presented by the various articles and/or press releases analyzed in this study, as well as the context models that give meaning to the interpretation of the various statements in relation to Pope Francis’ ecological agenda.

Microstructural and semantic analysis

Microstructures focus on how meanings are constructed to influence the interpretation of the recipients. Through microstructures, ideologies become apparent through the use of terms and syntactic resources (Van Dijk, 1996). In addition, they are fundamental tools for executing the general strategy of positive self-presentation and negative presentation of the other. They emphasize and/or mitigate characteristics of one’s own group and of others (Van Dijk, 2002). The aspects to be recovered are semantic elements such as lexicography and syntax, rhetorical and argumentative construction, in order to trace the construction of meanings in the discourses used by the sources consulted.

Cognitive pragmatic analysis

Cognition is the set of beliefs and social representations shared by its members, which is why it is assumed from a pragmatic perspective, promoting mutual understanding of discourse without the need for exhaustive explanations (Van Dijk, 2002).

With the support of the ostensive-inferential model of relevance theory, which is based on the communicative and informative intention of the senders and the inference of the receivers in acts of communication (Pons Bordería, 2004), the elements that are recovered are the use of ostension in the text, inferential processes, and the evaluation of the relevance of the information.

This methodological approach is more clearly represented in the following table:

Table 2

Search elements by level of analysis

Level of analysis	Search elements
1. Macrostructural and contextual analysis	<ul style="list-style-type: none">• The geopolitical context at the time.• The media outlets publishing the article.• Main ideas and global themes of the articles and speeches.
2. Microstructural and semantic analysis	<ul style="list-style-type: none">• Positive and negative lexicography: words used to describe “us” versus words used to describe “them” (communists, globalists, among others).• Use of metaphors (Agenda 2030 is a Trojan horse).• Use of fallacies, including <i>ad hominem</i> fallacies, which consist of the sender disqualifying the content of the discourse; false dilemmas, which consist of establishing inconsistent relationships, among others.
3. Pragmatic cognitive analysis	<ul style="list-style-type: none">• Identification of ostensive elements in the text such as rhetorical questions, striking metaphors, and categorical statements.• Analysis of inferential processes such as explicatures, which consist of identifying information that is already taken for granted by the receivers; and implicatures, which are ideas that are suggested without being explicitly stated.• Evaluation of relevance based on the knowledge that reinforces the discourse, the confirmation of pre-existing biases, and the identification of the absence of effort on the part of the receivers to understand the messages.

Subsequently, the corresponding cross-referencing of information was carried out, analyzing how macro-themes are constructed through the micro-structures of discourse, and how cognitive and pragmatic resources acquire relevance for the recipients.

The information was processed with the technical support of the atlas.ti program in thematic coding, in which, first, an open coding process of emerging ideas and themes was carried out, and subsequently, an axial coding process was carried out by classifying and grouping them into more generic codes according to the levels of analysis.

Results

This section presents the results of the analysis carried out in two stages: the first presents the macrostructural and contextual analysis, and the second articulates the microstructural analysis with the cognitive-pragmatic analysis.

Criticism of *Laudato Si*: The context and major macro-themes

On May 24, 2015, Pope Francis' encyclical *Laudato Si* on the care of our common home was published. From that moment on, various reactions emerged, both of openness and resistance, in different sectors. This document arrived in the United States amid tensions between acceptance and rejection of the 2030 agenda, with prior aversions to Pope Francis and some of his orientations, with statements such as "Pope Francis is the Obama of the Catholic Church: God help us" (Shaw, 2013), and "[...] This is pure Marxism coming out of the Pope's mouth" (Limbaugh, 2013).

The reasons for rejection have been diverse, including the denial of the link between human actions and climate change; the apology for capitalism and consumer society as engines of development; the rejection of global efforts to address complex, systemic, and multifactorial realities that go beyond the local level; and the link between ecological issues and other agendas such as gender equality, which provokes adverse reactions from some sectors.

Opposition to the social and ecological agenda intensified in the context of Pope Francis' visit to the United States on September 25 of the same year, preceded by his visit to Cuba. At that time, the president was Democrat Barack Obama, who was favorable to the 2030 agenda (Naciones Unidas, 2015).

Prior to the emergence of the *Laudato Si* document, Pope Francis had already presided over two world meetings with popular movements in October 2014 at the Vatican and in July 2015 in Bolivia. The second meeting in particular generated adverse reactions:

[...] some of the expressions used by Pope Francis in Bolivia last week, during the second World Meeting of Popular Movements, not only reflected specific issues emphasized by Latin American populists, but also shared some of their misguided diagnoses of the region's problems. (Stanley, 2015)

In the various meetings with popular movements, a common agenda is proposed: the slogan of land, housing, and work; the defense of our common home and the promotion of integral human development; and the overcoming of exclusionary globalization and a culture of waste (Francisco, 2024).

In various critical statements regarding Pope Francis' ecological agenda, there is questioning of the scientific and political legitimacy of the content of the *Laudato Si* document and its warnings about the effects on integral ecology as the center of his proposals, receiving criticism such as that stated by Robert Sirico, founder of the Acton Institute: "The Pope is imprudent in speaking about scientific conjecture." (Stanley, 2015).

As for the scientific assumptions, they question the impertinence of incorporating controversial information into an encyclical, which is a prescriptive document for believers. In the opinion of some actors and media outlets, these areas go beyond the Pope's authority. The Pope exceeds his religious authority in seeking to influence political decisions on climate change, according to the media, with complete ignorance or silencing of the moral implications. Thus, by taking his discourse into a secular arena in which he lacks competence, his discourse is discredited, as stated by a Fox News commentator:

[...] Personally, I don't want my spiritual life mixed up with my political life. I go to church to save my soul; it has nothing to do with my vote. Pope Francis has linked the two. He has made direct criticisms of a specific political system and characterized that system negatively. I think he wants to influence my politics. (Varney, 2013)

The discrediting of Pope Francis' statements in this vein has the following discursive mechanisms: 1) the separation of the pope's role as a spiritual authority and his lack of authority to speak on matters related to science, despite the ethical implications underlying them; 2) linking Pope Francis' proposals

on integral ecology with discourses belonging to particular political agendas, even left-wing ideologies, as part of a program that transcends the ecological aspects of ideologies judged by opponents as left-wing; 3) dissociating Pope Francis' statements from traditional Catholic orthodoxy.

In the footsteps of ideology: microstructural and pragmatic cognitive analysis

Below is an articulation of each macro-theme with microstructural and semantic analysis, and with cognitive and pragmatic analysis interrelating the macro-themes, their semantic resources, and the implied relationships assumed in the recipients.

The disassociation of Pope Francis' authority

One of the discursive strategies used to delegitimize Pope Francis' proposal for integral ecology is the transfer from the pastoral to the secular sphere. Among the syntactic resources used in the secular context is the separation between "them," the ecclesiastical hierarchy and its sphere of authority, and "us," the laity with the legitimacy to enter spheres from which the ecclesiastical hierarchy must remain outside. This idea is reinforced by establishing inferences aimed at denying the binding nature of the document for all believers. As it is not a dogmatic document and contains controversial information, as stated by Nicholas G. Hahn III, editor of *Real Clear Religion*:

[...] The problem with posing as a scientist or legislator is that it dilutes the Catholic Church's authority on matters of faith and morals. Sometimes, it can also lend itself to climate alarmism or peculiar advice. Such as when Pope Francis worries about the melting of the polar ice caps and claims that catastrophic predictions are not so far off. Or when he criticizes the use of air conditioning and considers it an "act of love" to wear a sweater or turn off unnecessary lights. (The Federalist editors, 2015)

This remains controversial, especially for all believers for whom Pope Francis represents an important moral and spiritual authority. There are even those, especially political actors, who assert the need to distance themselves from the contents of these documents in their role and functions as religious leaders, given the pope's supposed lack of authority on these issues, as sta-

ted by Jeb Bush, Republican presidential candidate in 2015, using dysphemisms: [...] I hope the priest in my parish doesn't punish me for saying this, but I don't get my economic policies from my bishops, cardinals, or my Pope (BBC Mundo, 2015).

Similar to the discrediting of Pope Francis in relation to scientific information, some actors inside and outside the Church point out Pope Francis' ignorance of technical issues of capitalism, arguing that the economic and social content of the document is irrelevant. Thus, the link between certain practices of capitalism and the increase in poverty and inequality is, in the opinion of some media, technically untenable. This criticism is reinforced by some lexicographical resources such as those used by J.D. Vance:

In short, as faithful Catholics, we are not obliged to believe that the world is turning into a huge pile of garbage, as Pope Francis claims. Nor are we obliged to agree with his personal scientific view that catastrophic climate change is already here or even real. (Ruse, 2024)

Some of the more moderate critics on this issue consider Pope Francis' warning about the relevance of linking technical decisions on economic policy with their moral implications to be pertinent. However, they discredit these points in the document as technically irrelevant given the irrationality of criticizing the capitalist production model and the use of non-renewable energies as logical and unquestionable, as stated below: "The poor have no time for those who romanticize their 'customs' as something other than poverty from which they deserve to escape" (The Federalist editors, 2015).

These statements are reinforced by misrepresenting the contents of the encyclical, promoting fear and rejection through fallacies that are easy to assimilate on an emotional level: "He condemned progress, technological advancement, and innovation; he believes that the Enlightenment was a mistake. If it were up to him, we would not even have the innovations that save lives" (Gudfeld, 2015).

In his view, Pope Francis' statements are more ideological than moral or technical in nature. The criticism contains an apology for capitalism for its benefits in generating wealth, its relationship with freedom, and the latent danger of a system that nullifies the creation of wealth and freedom.

While in other areas the Church has pointed out the divorce between faith and life, those opposed to Pope Francis' agenda endorse this divorce, as Republican candidate Rick Santorum stated at the time: "[...] the Church has been

wrong on scientific issues several times and should ‘leave science to scientists’ and focus on issues of ‘theology and morality’” (BBC Mundo, 2015).

This implies that the document is not prescriptive, as it addresses an issue outside the scope of the Catholic hierarchy.

Ideologies linked to Pope Francis’ integral ecology

By linking proposals on climate change to certain partisan or political factions, Francis’ proposals are discredited *a priori*. The identification of criticism of capitalism and its effects on poverty and social inequality links the document’s ethical proposal to the social representation that links any criticism of this system to communism or left-wing ideologies or movements.

The document is described as a shift by the Church beyond its mission and a prelude to the introduction of proposals contrary to its essence, as stated by artist and writer Maureen Mullarkey: [...] “*Laudato Si*” is a Trojan horse that justifies the Catholic Church’s embrace of leftist ideology and the powers that promote it (The Federalist editors, 2015).

The use of metaphors and dysphemisms are some of the microstructural resources used to discredit *Laudato Si*, which is identified in the analyzed discourses as an ideological deviation reinforced by fallacies that promote infodemic and misinformation. One of the fallacies used is that of improper generalization:

The only novelty here is the rejection of gender ideology, a phenomenon that in itself deserves magisterial attention. But these orthodox inclusions serve as a vehicle to insinuate total surrender to pseudoscience and the eco-fascism derived from it. (in A Roundtable On ‘*Laudato Si*’)

Among the ostensible elements presented in the speeches is Pope Francis’ link to ideologies that are considered risky. As Michael McKenna states, the Pope is “[...] selling a brand of Latin American-style socialism,” and in an article in *Crisis Magazine*: “But the left-Catholic political divide says we must believe that the world is becoming one big pile of garbage.” (Ruse, 2024).

The links between Francis’ agenda and other agendas with which the Church has significant differences, such as gender ideology, the family model, abortion, among others. Pope Francis’ ecological agenda is discredited by linking it to other agendas in the speeches of his opponents.

As an apology for the criticism against Pope Francis, the benefits of industrial and technological progress are endorsed, which Pope Francis also does in the document. However, pointing out its side effects on human and natural life is judged as aversion to progress itself, which is magnified by the various media outlets opposed to Pope Francis' agenda through discursive resources that appeal more to the emotional than the rational sphere in seeking reactions from the recipients of the discourse based on fear and rejection, as stated in an article in *First Things*:

[...] In this encyclical, Francis expresses surprisingly anti-scientific, anti-technological, and anti-progressive sentiments. In fact, this is perhaps the most anti-modern encyclical since the Syllabus of Errors, Pius IX's arrogant rejection in 1864 of the presumptions of the modern era. (Reno, 2015)

Any moral reference to the need for limits on the dynamics of capitalism is identified as the product of a political ideological bloc that is disqualifiable *per se*. That is why Francis is criticized for distancing himself from the most relevant issues that had been addressed in the past due to the importance of the ecological agenda in criticizing the current production model. As a mechanism of ideological linkage, Pope Francis' proposal is associated with actors and proposals that are morally rejected by conservative sectors, as stated in a publication by the Heartland Institute: "The agenda promoted by President Obama, Pope Francis, the United Nations, and Climate Crisis, Inc. means that our crowded masses will be forced to share ever-increasing scarcity, ever-lower living standards, and ever-fewer jobs and opportunities" (Burnett *et al.*, 2015).

The disconnect between Pope Francis' pronouncements from traditional Catholic orthodoxy

The inappropriateness of his content and approach stems from the ideologies and sectors linked to his ideas, which are reinforced by negative lexicography:

[...] The most dangerous person on the planet is someone who seeks a strange new respect from his adversaries, and that is precisely what the Pope is doing. He does not want to be the grandfather Pope; he wants to be a modern Pope. All he needs is dreadlocks and a dog with a bandana to look like an Occupy Wall Street participant. Meanwhile, the meeting will focus on the right

and ask: how will conservative Catholics deal with the “apostles” of climate change? (Gutfeld, 2015)

In this text, it is possible to see microstructural elements such as the use of metaphors (*grandfather Pope*, *his dreadlocks and a dog with a scarf*, and *Occupy*) as a lexical device to discredit the consistency of Pope Francis’ proposals, while also being a fallacious *ad hominem* device, as it is a criticism directed at Pope Francis himself. The criticisms do not recognize the systemic and multifactorial dimension that transcends the local in the impacts of climate change, which require coordinated efforts, a role that has been carried out by the United Nations with the 2030 agenda. These initiatives are rejected as *globalist* or as initiatives of *the new world order*. One way in which criticism of Pope Francis’ agenda is intensified is through its association with groups that are morally reprehensible to Catholic orthodoxy:

[...] Globalism demands ethnic replacement: Bergoglio promotes uncontrolled immigration and calls for the integration of cultures and religions. Globalism supports LGBTQ+ ideology: Bergoglio authorizes the blessing of same-sex couples and imposes the acceptance of homosexuality on the faithful, while covering up the scandals of his *protégés* and promoting them to the highest positions of responsibility. (Viganò, 2024)

What is judged to be an infiltration of ideologies or proposals into the Church is the prelude to the delegitimization of Pope Francis as an authority. Such infiltration was not allowed in the past: “Benedict XVI and John Paul II refused to bow to the liberal agenda, and as a result, such displays of tenderness received little media coverage” (Shaw, 2013).

Thus, the rejection of the *Laudato Si* document takes on an ideological aspect in the face of what is judged to be the technical impropriety of the document due to its criticism of capitalism and the proposed practices of self-restraint, self-limitation, and the search for alternatives that are more friendly to an integral ecology.

Furthermore, it takes on a moral aspect when the document is judged for its use of emphatic language that alerts readers to its affinity with groups, movements, and initiatives that are distant from, or even opposed to, traditional Catholicism. The emphasis on social issues rather than traditional issues such as the family and sexual morality, rather than being related to an urgent need, is linked to a sectoral infiltration:

[...] Yes, there are obligatory reaffirmations of the Catholic Church's traditional positions on the sanctity of life, the primacy of the family, and the rejection of abortion... But these inclusions of orthodoxy serve as a vehicle to insinuate a total surrender to pseudoscience and the eco-fascism derived from it. (The Federalist editors, 2015)

Thus, based on these ideological implications, rather than rejecting content, the morality of ideology and the possible groups linked to it are rejected, as stated in an article entitled "The False Prophets of Climate Change" (Clark Schal, 2019).

[...] Consider, for example, the impending moral disaster of the Amazon synod. In the wake of *Laudato Si* and other apocalyptic statements by Pope Francis, the synod seems poised to adopt such a laudatory tone toward the environment that it threatens to drift into neo-paganism, denigrate humanity's special role in creation, and subvert the Church's primary function: to bring souls to salvation. (Clark Schal, 2019)

Conclusions and discussion

The analysis developed in this study allows us to identify the discursive strategies through which traditional American political, media, and even religious actors articulated their opposition to Pope Francis' encyclical *Laudato Si*. The findings confirm that resistance to the pontiff's ecological message does not operate primarily on the level of scientific or theological refutation, but rather through mechanisms of disqualification typical of the post-truth ecosystem and the infodemic.

Three predominant discursive strategies were identified. The first consists of dissociating Pope Francis' epistemic authority from scientific and economic issues through various lexical devices such as warnings to the recipients of the discourse. The second strategy identified corresponds to negative ideological linkage, whereby the content of the encyclical is associated with previously stigmatized social representations: Marxism, communism, Latin American socialism, the globalist agenda and, by extension, movements such as gender ideology and woke activism, through the saturation of these inconsistent labels and associations in the discourses. The third strategy involves disassociating Francis' pontificate from traditional Catholic orthodoxy. The Pope is presented as an agent of ideological infiltration who has diverted

the Church from its spiritual mission toward unrelated secular causes. This narrative constructs a discontinuity between Francis and his predecessors—particularly Benedict XVI and John Paul II—suggesting that the ecological agenda constitutes a break with magisterial tradition. Paradoxically, this reading ignores the doctrinal continuity that the document itself establishes with *Rerum Novarum* and *Gaudium et Spes*.

These three strategies, operating in an articulated manner, cast doubt on the legitimacy of the sender. The findings reinforce the theoretical characterization of post-truth as the subordination of objective facts to emotional and ideological appeals.

The limitations of this study include the bias inherent in the selection of exclusively critical sources, which, while consistent with the stated research objective, prevents the characterization of the entire discursive field surrounding *Laudato Si*. However, it corroborates the findings of other studies that document resistance to the contents of the encyclical through silence and the absence of its contents in Catholic and conservative Protestant worship in the United States (Kaurov *et al.*, 2025), as well as the rejection of the document from various sectors (Chaves, 2023).

In short, opposition to *Laudato Si* is a prime example of how post-truth works in contemporary public debate. In discourses critical of the encyclical, which represents an ethical-religious call for ecological responsibility, rather than a proposal for debate, it is seen more as an ideological threat to be neutralized. This study contributes to the understanding of the discursive mechanisms through which infodemics and hypermoralizing tribalism can undermine the conditions for democratic dialogue on the civilizational challenges of the 21st century.

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Declaration of Authorship - CRediT Taxonomy	
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Declaration on the Use of Artificial Intelligence
The authors DECLARE that, in the preparation of <i>the</i> article <i>The environmental agenda in dispute: disinformation and discursive resistance in the Vatican</i> , no Artificial Intelligence tools were used at any stage of the research process.

Micronarratives of eco-communication for sustainable mobility in intermediate cities

Micronarrativas de ecocomunicación para la movilidad sostenible en ciudades intermedias

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Received on: 09/12/2025 **Revised on:** 16/01/2026 **Approved on:** 23/02/2026 **Published on:** 01/03/2026

Suggested citation: Oporto-Berrios, J. I. (2026). Micronarratives of eco-communication for sustainable mobility in intermediate cities. *Universitas XXI*, 44, pp. 81-115. <https://doi.org/10.17163/uni.n44.2026.04>

Abstract

Active mobility and micromobility require communicative devices capable of translating sustainability and proximity goals into observable micro-habits, especially in Latin American intermediate cities where calls for behavioral change often circulate without explicit anchoring in verifiable environmental conditions. This study aimed to identify combinations of format, function, and framing that enhance operational clarity, traceability, and territorial anchoring, and to propose a replicable typology and scoring rubric for comparative assessment. A non-reactive qualitative design with abductive logic and content analysis was applied to a verifiable corpus of N=14 public pieces (micro-videos, carousels, short texts, and verification content) drawn from digital press, digital television, and institutional websites (02/04/2024-07/12/2025) in Bolivian intermediate cities (Cochabamba, Sacaba, Sucre, Oruro, and Tarija). Additionally, a Latin American reference corpus (Nref=24) was compiled for contextual purposes only and was not included in coding. The results identify five recurrent frames—health, road safety, justice, efficiency, and climate—and greater clarity when instructional micro-videos align with safety and health. Verification carousels articulate norms, evidence, and public benefit, while short texts require sources and spatial anchoring to avoid generic promises. The study concludes with a four-layer integrative model and operational rules to close the message-infrastructure-practice loop. Limitations include the absence of inter-coder reliability estimation and lack of independent time series. Future steps include interrupted time series, non-reactive counters, and single-variable micro-experiments.

Keywords

Ecocommunication, micronarratives, active mobility, micromobility, intermediate cities, sustainability, tactical urbanism.

Resumen

La movilidad activa y la micromovilidad requieren dispositivos comunicativos capaces de traducir metas de sostenibilidad y proximidad en microhábitos observables, especialmente en ciudades intermedias latinoamericanas, donde el llamado al cambio de hábito suele circular sin anclaje explícito en condiciones verificables del entorno. El objetivo fue identificar combinaciones de formato, función y encuadre que incrementen la claridad operativa, la trazabilidad y el anclaje territorial, y proponer una tipología con rúbrica replicable para su evaluación comparada. Se aplicó un diseño cualitativo no reactivo, con lógica abductiva y análisis de contenido, sobre un corpus verificable de N=14 piezas públicas (microvideos, carruseles, textos breves y piezas de verificación) provenientes de prensa digital, televisión digital y sitios institucionales (02/04/2024-07/12/2025), en ciudades intermedias de Bolivia (Cochabamba, Sacaba, Sucre, Oruro y Tarija). Además, se compiló un corpus de referencia latinoamericano (Nref=24), utilizado solo para contextualización, sin ser incorporado en la codificación. Los resultados identifican cinco encuadres recurrentes (salud, seguridad vial, justicia, eficiencia y clima), y mayor claridad cuando los microvideos instruccionales se alinean con seguridad y salud. Los carruseles de verificación articulan norma, evidencia y beneficio público, mientras que los textos breves requieren fuente y anclaje espacial para evitar promesas genéricas. Se concluye con un modelo integrador en cuatro capas y reglas para cerrar el bucle mensaje-infraestructura-práctica. Entre los límites, no se estimó confiabilidad intercodificador ni se dispuso de series independientes. Se recomiendan series temporales interrumpidas, contadores no reactivos y microexperimentos de variable única.

Palabras clave

Ecocomunicación, micronarrativas, movilidad activa, micromovilidad, ciudades intermedia, sostenibilidad, urbanismo táctico.

Introduction

Environmental communication in the digital age has become a strategic component in translating the commitments of the 2030 Agenda into concrete citizen practices, especially in complex urban contexts with limited resources. Evidence shows that the most effective institutional strategies combine clarity of purpose, traceability of sources, and cultural appropriateness of messages, aspects that influence the audience's understanding, trust, and willingness to act (García-Sánchez *et al.*, 2020; Naciones Unidas, 2015). In intermediate cities, where scale favors proximity and co-production of policies, eco-communication finds fertile ground for aligning health, climate, and mobility goals with everyday habits, since situated and verifiable narrative language is used.

This premise guides the present research toward the examination of digital micro-narratives that seek to promote walking, cycling, and last-mile solutions based on sustainability criteria. In the field of mobility, the interaction between digital formats and citizen perceptions operates as a decisive channel for shaping attitudes and uses of public space. Studies on the dissemination of opinions on social media warn that the design of the message, its framing, and its circulation in local communities modify the social acceptance of sustainable mobility and micromobility measures, with visible effects on public conversation and daily practice (Borowski *et al.*, 2020; Metastasio *et al.*, 2024). The specific literature on cycling campaigns also suggests that the combination of clear calls to action and local empirical evidence increases communicative effectiveness, which is reflected in observable variations in use with independent indicators (Olsson *et al.*, 2021; Biondi *et al.*, 2022).

The theoretical approach assumes that micro-narratives, understood as short stories that condense meanings and enable adherence, are the predominant form of communication in digital environments and are particularly useful for translating sustainability into immediate decisions by urban users. Their power derives both from their expressive economy and their ability to articulate metaphors and actionable instructions, since they are accompanied by verification signals and a framing consistent with the values of the receiving community (Venditti *et al.*, 2017; Matthes and Kohring, 2008). Rigorous measurement of these phenomena requires content analysis protocols and reliability criteria that allow for comparison of pieces, formats, and time windows without relying on reactive techniques (Krippendorff, 2018).

On this basis, the article proposes to analyze digital campaigns on active mobility and micromobility in intermediate Latin American cities, in order to identify combinations of format and framing that promote environmental literacy and willingness to act. The research is based on a previous framework that reinterprets the city from the perspective of complexity and documents the pedagogical role of mobility as a situated civic practice, connecting governance, tactical urbanism, and proximity with everyday learning and territorial co-responsibility (Oporto Berrios, 2025; Oporto Berrios and Oporto Rosso, 2025a, 2025b, 2025c, 2025d). By focusing on the communicative performance of verifiable micro-narratives, the study seeks to provide an operational typology and a set of replicable indicators that strengthen the design and evaluation of eco-communication at the local level.

Theoretical horizon

Complexity, transdisciplinarity, and intermediate cities

Sustainable mobility in intermediate cities requires an understanding based on complexity and transdisciplinarity, capable of articulating material, cultural, institutional, and technological dimensions on the same analytical plane. This horizon avoids sectoral reductionism and favors adaptive governance arrangements that connect everyday decisions with sustainability and proximity objectives. The city, understood as a complex system of flows and networks, demands frameworks that recognize non-linear dynamics and collective learning, reinforcing the need for eco-communication with traceability and cultural appropriateness (Batty, 2013; Naciones Unidas, 2015; García-Sánchez *et al.*, 2020). In this framework, proximity acquires strategic value by reducing the cognitive and logistical costs of adoption, enabling micro-decisions consistent with urban goals.

Recent developments in the analyzed corpus show that the combination of complex thinking, education, and urban transformation allows mobility to be reconfigured as a civic practice and a vector of sustainability. At intermediate and scales, relational density facilitates feedback loops between citizens and government, especially when governance opens spaces for co-production and social control. Institutional proximity enhances limited and verifiable achievements that sustain trust, since communication translates goals into feasible and measurable repertoires. The articulation between complexity, effective participation, and a proximity approach offers an operational framework for guiding short-cycle communicative and urban decisions, with the capacity to iterate and scale up based on public evidence (Oporto Berrios, 2025; Oporto Berrios and Oporto Rosso, 2025c, 2025d; Moreno *et al.*, 2021).

Eco-communication and participatory governance

Eco-communication, understood as the public translation of environmental goals into repertoires of action, requires integrating clarity, traceability, and cultural appropriateness with citizen co-production mechanisms. In intermediate cities, this integration avoids one-way campaigns and enables circuits of listening, adjustment, and accountability. Participation must go be-

yond merely consultative formats to become influential in decisions, so that messages are legitimized by their relationship to local needs and verifiable evidence (Arnstein, 1969; García-Sánchez *et al.*, 2020). This framework is reinforced by polycentric arrangements that distribute authority and responsibilities, allowing for adaptive responses to urban controversies or shocks (Ostrom, 2010).

Digital circulation operates as an interface between public decision-making and its implementation by making repertoires of action, the traceability of commitments, and accountability mechanisms visible. When governance fluidly coordinates neighborhood actors, institutions, and collectives, messages gain relevance and persistence; in environments of relational proximity, signals of shared benefit and situated evidence reduce the perception of risk and reactance to changes in road space (Borowski *et al.*, 2020; Metastasio *et al.*, 2024). This coupling is strengthened by addressing platform logic: the reputation of the issuer and coordination with trusted intermediaries stabilize circulation, while consistent editorial curation reduces algorithmic noise and prevents interpretive drifts (Ratan *et al.*, 2021; Törnberg and Törnberg, 2025). These conditions enable the adoption of sustainable mobility measures in scenarios with limited resources, by linking communicative promises with verifiable opportunities in the territory and sustaining, with public evidence, cycles of collective learning that legitimize successive adjustments.

Micronarratives: definition and functions

Micro-narratives are conceived as brief, action-oriented units of communication that are dense in meaning and condense complex objectives into concrete, localized instructions. Their power derives from their expressive economy, their consistency with community values, and the explicit incorporation of verification signals, whether through public data, technical criteria, or institutional references. In eco-communication for mobility, these pieces operate as translation devices that convert proximity and intermodality goals into feasible micro-habits, such as choosing safe pedestrian routes, opting for bicycles for journeys of less than 3 km, or using shared modes for the last kilometer. The literature on *framing* and communication design highlights its ability to articulate metaphors, norms, and calls to action in native digital formats, which facilitates the conversion of complex meanings into executable messages (Venditti *et al.*, 2017; Entman, 1993). At the same time, the re-

ception of campaigns linked to Agenda 2030 is conditioned by the credibility of the sender and the traceability of sources; when the evidence is vague, the piece is exposed to opportunistic readings or skepticism, even with consistent public intentions (López-Carrión, 2024; López-Carrión and Martí-Sánchez, 2024). To reduce vulnerability to climate misinformation circulating on social media, it is essential to integrate traceability and explicit verification, as summarized by recent evidence (Essien *et al.*, 2025).

The effectiveness of micro-narratives depends on fine-tuning to the context: credible promises, actionable instructions, and personal benefits connected to public goods. This anchoring is strengthened when the design considers control beliefs, perceived norms, and stages of change, so that the piece accompanies gradual transitions and reduces cognitive friction in diverse audiences (Ajzen, 1991; Prochaska and Velicer, 1997). In intermediate cities, institutional proximity and the visibility of urban interventions allow the loop between message and practice to be closed, generating collective learning and incremental legitimacy. To ensure comparability and transparency, code books must explicitly state narrative functions and frames, along with decision rules and boundary examples that allow for auditing and replication. Where feasible, reliability can be estimated using appropriate indicators; when resources prevent double coding, traceability must be maintained through explicit operational definitions, recording of counterexamples, and documented tiebreaker criteria, so that the analysis retains methodological control and accountability for the analysis applied to digital campaigns (Hayes and Krippendorff, 2007; Riffe *et al.*, 2024; Oporto Berrios and Oporto Rosso, 2025a, 2025b).

Framing and content analysis

Framing analysis allows us to observe how messages define problems, assign causes, propose solutions, and distribute responsibilities. Using explicit typologies, such as health, justice, road safety, or efficiency, enables comparisons between pieces and their intersection with independent indicators, since sampling and coding follow consistent protocols. Validity requires clear operational definitions, coding training, and reliability checks with estimators appropriate for nominal or ordinal scales, so that the analysis maintains replicability and interpretive rigor (Matthes and Kohring, 2008; Krippendorff, 2018). This methodological basis is compatible with non-reactive

designs and helps avoid spurious inferences when the study is based on textual and paratextual evidence.

Framing is related to performance when it is articulated with narrative format and function, allowing for the identification of combinations that maximize comprehension, persistence, and public verifiability. Evaluation is strengthened by integrating content analysis with time series and dissemination metrics; however, even when these are not available, the piece can maintain continuity if the meaning is organized as verifiable and reactivable action, rather than as an ephemeral slogan. In this sense, reframing is understood as reorganizing meaning to make it actionable without diluting evidence criteria, favoring conversational persistence beyond the initial peak of exposure (O'Callaghan *et al.*, 2025). Therefore, code books must document rules, boundary examples, and analytical decisions, safeguarding transparency and methodological auditing, especially when comparing campaigns and platforms with heterogeneous formats (Neuendorf, 2017; Riffe *et al.*, 2024).

Active mobility, micromobility, and digital campaigns

Mobility campaigns perform better when the call to action is aligned with attitudes, norms, and perceived control, as Ajzen (1991) explains, and when it accompanies progressions between stages of change, following Prochaska and Velicer (1997). From the perspective of innovation diffusion, adoption is favored when the message explicitly states relative advantage, preserves compatibility with local values, reduces perceived complexity, enables small-scale trials, and makes immediate results observable, without requiring abrupt transformations (Rogers, 2003). In urban cycling, the evidence synthesized by Heinen *et al.* (2010, 2011) and by Buehler and Pucher (2012) describes barriers and facilitators that must be translated into actionable instructions and tangible benefits. Fishman (2016) adds that public bicycle systems operate as a gateway to the practice, suggesting frameworks that reduce initial friction. When the communicated promise is synchronized with real opportunities in the environment, observable variations emerge in digital interaction and bicycle counters, as shown by Olsson *et al.* (2021) and Biondi *et al.* (2022).

In micromobility, acceptability rests on safety standards and self-explanatory design: NACTO (2023) and the synthesis by Turoñ *et al.* (2023) detail infrastructure typologies applicable to intermediate contexts. Reports from the International Transport Forum (2020, 2024) recommend continuous networks,

moderate speeds, and clear rules of coexistence, which strengthen health and time frameworks with technical verification and reduce reactance. In social ecosystems, dissemination depends on the reputation of the issuer and community structure; Borowski *et al.* (2020) and Metastasio *et al.* (2024) show that conversations are sustained when there is perceived consistency between the message and the urban experience. Consequently, coordination between digital elements and territorial micro-interventions increases credibility and facilitates gradual adoption in medium-sized cities (Oporto Berrios, 2025), consistent with the accumulated evidence on cycling, road safety, and public health (Dill and McNeil, 2013; Sarmiento *et al.*, 2010).

Tactical urbanism and territorial proximity

Tactical urbanism offers low-cost, rapidly implementable territorial support for testing active mobility and last-mile measures, reducing uncertainty and making communicated promises visible. Lydon and Garcia (2015) document how street prototypes, fairs, and pop-ups catalyze social appropriation when results are measured and institutional commitments are sustained. European experiences summarized by PopUpUrbanSpaces (2023) and recent reports by Mwaura (2024) show that transitional interventions strengthen legitimacy when they are coordinated with neighborhood participation and communication schedules. For novice users, NACTO (2023) provides infrastructure typologies that facilitate spatial reading and safe continuity between everyday nodes.

Proximity reconfigures the link between urban function and accessibility, but its translation to peripheries and intermediate areas requires micro-centralities and active networks that reduce effective access times. Moreno *et al.* (2021) highlight place identity, resilience, and well-being as pillars of the model, while Khavarian-Garmsir *et al.* (2023) and Arias-Molinares *et al.* (2025) specify conditions for adaptation in dispersed fabrics. TUMI (2021) offers operational guidelines for scaling proximity from pilot projects. Inserting these guidelines into campaigns allows for anchoring tangible benefits, such as safety and time savings, and evaluating variations before and after the intervention with independent indicators, favoring responsible scaling in scenarios with limited resources (Oporto Berrios and Oporto Rosso, 2025a, 2025b).

Integrative model for eco-communication in intermediate cities

The integrative model articulates four layers: epistemological-political, communicative, behavioral, and evaluative, to close the loop between message, infrastructure, and everyday practice. The first combines urban complexity and participatory governance, taking advantage of polycentric arrangements and thresholds of substantive participation to distribute authority, learn from implementation, and sustain legitimacy (Batty, 2013; Ostrom, 2010; Arnstein, 1969). The second defines typologies of micro-narratives and frames with criteria of verifiability and cultural appropriateness, using the *framing* to ensure consistency between problem, cause, solution, and responsibility (Entman, 1993). These two layers translate into operational decisions when connected with proximity, urban tactics, and security standards, so that the communicated promise is observable in the territory.

The third layer links narrative repertoires with stages of change and social diffusion mechanisms, facilitating gradual transitions and non-intrusive reinforcements; the fourth ensures transparent measurement through content analysis, diffusion metrics, and interrupted time series, with reliability reports and audit logs. Methodological manuals and guides specify estimators and best practices for coding, sampling, and documentation, an indispensable condition for replicability and comparative evaluation between campaigns and cities (Hayes and Krippendorff, 2007; Krippendorff, 2018; Riffe *et al.*, 2024; Matthes and Kohring, 2008; Venditti *et al.*, 2017). In medium-sized cities, the proximity between institutions and the social fabric enables low-cost iterations that accumulate verifiable incremental advances and stabilize collective learning around sustainable mobility (Oporto Berrios, 2025).

Methodology

Approach and purpose

The study adopts a non-reactive qualitative approach, aimed at understanding how digital micro-narratives linked to active mobility and micromobility in intermediate cities translate public goals into concrete repertoires of action. The central question explores which combinations of format, function, and framing favor clarity, traceability, and territorial an-

choring in contexts of proximity. An abductive logic is assumed: observations guide successive refinements of the conceptual framework, in dialogue with literature on *framing*, urban complexity, and message design for sustainability (Matthes and Kohring, 2008; Krippendorff, 2018; Venditti *et al.*, 2017). Since no platform metrics or independent series are available, the design restricts inferences to textual and paratextual evidence from the pieces, prioritizing semantic density, verification signals, and cultural appropriateness. This methodological choice preserves interpretive validity and avoids spurious conclusions, while laying replicable foundations for incorporating measurements when they become available (Neuendorf, 2017; García-Sánchez *et al.*, 2020).

Construction of the corpus and units of analysis

The corpus brings together institutional and community digital pieces that promote walking, cycling, and shared last-mile modes of transportation in intermediate Latin American cities. It includes microvideos, carousels, short texts, and verification pieces that meet criteria of thematic relevance, identifiable authorship, limited time frame, and public availability. The unit of analysis is the piece and, where appropriate, the specific message; the unit of context is the campaign. Each record retains basic metadata (format, declared date, issuer, references to territory) and a literal extract of key elements of the *copy* and creativity when necessary for coding. This approach recognizes that, without platform exports, the explanation is based on observable content and its consistency with theoretical frameworks and technical guidelines, maintaining explicit traceability of decisions and borderline examples to reduce interpretive ambiguity (Matthes and Kohring, 2008; Riffe *et al.*, 2024). To reinforce the comparability of formats and selection criteria, recent taxonomies and discussions on digital pieces proposed by Tomassi *et al.* (2025) and Storani *et al.* (2025) were also considered. To promote replicability, each piece was recorded with minimum observation metadata (platform, date declared when available, identifiable issuer, and format), along with the identification of verification signals and a literal excerpt of key elements of the *copy* or creativity; this criterion allows us to track how operational definitions and coding decisions were applied even in the absence of proprietary metrics.

The analyzed corpus was reconstructed from available records and archived public sources, purging duplicates by matching headers, domains, and visible metadata. The final verifiable corpus consisted of N=14 pieces with identifiable institutional or media authorship, visible date, and public access, whose standardized record per piece (declared city, observation platform, broadcaster, format, visible date, type of evidence, and internal code) is recorded in Annex A1. The sources correspond to digital press, digital television, and institutional websites; the time frame covers from 04/02/2024 to 12/07/2025, and the territorial coverage includes intermediate cities in Bolivia (Cochabamba, Sacaba, Sucre, Oruro, and Tarija). The capture strategy combined a search using keywords related to active mobility, micromobility, pedestrian day, and road safety with intentional sampling based on thematic relevance and metadata availability, so that the selection did not depend on territorial inferences or undeclared attributions. Duplicates, items without a visible date or identifiable author, and content not directly related to sustainable mobility were excluded.

Additionally, to maintain the Latin American scope of the framework and prevent the regional discussion from relying solely on the Bolivian case, a reference corpus of Latin American institutional sources (Nref=24) was compiled, documenting active mobility campaigns, repertoires, and guidelines in different cities and countries. This set was used exclusively as contextual and comparative support to identify patterns of design, verifiability, and institutional traceability, but was not incorporated into the coding process or the counts reported in the results, which are based solely on the main corpus (N=14). The origin, platforms, time window, and complete metadata of these sources are detailed in Appendix A2.

Coding protocol

A deductive-emergent categorical system is applied. Health, road safety, justice, efficiency, and climate frames are coded deductively; narrative functions of instruction, motivation, and verification; and verification signals (sources, data, and institutionality). Emergent subcategories of territorial anchoring, clarity of the call, and visualization of public benefits are recorded. Coding is performed by a trained analyst with prior piloting to adjust definitions and boundary examples. Since double coding is not avai-

lable, alpha is not estimated; instead, decision rules, counterexamples, and tiebreaker criteria are documented in a replicable audit log. This procedure prioritizes construct validity through transparent operational definitions and conceptual triangulation, in line with good content analysis practices when resources prevent formal reliability estimates (Krippendorff, 2018; Neuendorf, 2017).

Validity criteria, limitations, and ethics

Validity is supported by theoretical consistency, procedural transparency, and conceptual saturation: the corpus is expanded until the format-function-framing combinations cease to contribute new features. The explanatory scope is deliberately limited: no effect magnitudes are inferred, nor are completion rates, normalized interaction, modularity, or temporal discontinuities reported. References to circulation, literacy, and adoption are formulated as plausible interpretations based on textual evidence and technical guidelines for mobility and climate communication, avoiding causal extrapolations. Only public material is used, with basic anonymization where relevant and in accordance with terms of service. The report retains minimal literal examples to justify coding decisions and protects the personal identity of non-institutional users (García-Sánchez *et al.*, 2020; NACTO, 2023; International Transport Forum, 2024). For reproducibility purposes, the inventory of the main corpus is reported in Annex A1 with observable metadata per piece (platform, visible date, issuer, and declared city when applicable), and the Latin American reference corpus is documented in Annex A2 as contextual input, without incorporating it into the coding or results counts.

Analytical procedure

The analysis proceeds in three layers: first, detailed reading and coding per piece; second, qualitative synthesis per format that identifies dominant frames, functions, and verification signals; third, construction of co-occurrence matrices and a narrative quality rubric that relates clarity, traceability, and territorial anchoring with recommendations for use. These outputs are expressed in qualitative tables ready for auditing and comparison between campaigns, even without metrics. When future broadcast data or indepen-

dent series become available, the matrices allow for incremental updating without rewriting the methodological framework (Venditti *et al.*, 2017; Riffe *et al.*, 2024).

Results

Distribution of frames in the corpus

Examination of the corpus identifies a recurring presence of five operational frames in mobility: health, road safety, justice, efficiency, and climate. Microvideos were most frequently associated with health and road safety when they served an instructional function, as they articulated action verbs, clear objects, and conditions of execution, reducing ambiguity and cognitive friction. Carousels favored justice and health in verification pieces, where sequentiality allows rules to be exposed and evidence to be anchored in territory. Short texts oscillated between efficiency and climate, with performance dependent on spatial anchoring and the presence of sources. This distribution suggests that the format conditions the way in which problems, causes, solutions, and responsibilities are presented, in line with framing analysis frameworks that recommend operational definitions and stable coding rules to maintain comparability and replicability (Matthes and Kohring, 2008; Krippendorff, 2018; Helgeson *et al.*, 2022).

Format-frame-function performance

Comparative reading indicates that certain combinations achieve greater operational clarity without resorting to proprietary metrics. When the objective is to modify a specific safety gesture at an intersection or stretch of road, instructional microvideos with a road safety frame are the most effective in qualitative terms because they condense a single, specific call to action and often include a verification signal. To legitimize changes in the use of urban space, verification carousels with health or justice framing integrate a dated source, technical criteria, and a visual representation of the public benefit, which stabilizes interpretation and reduces reactance. In the activation of short journeys, brief text works if it specifies the node, schedule, and plau-

sible benefit and, preferably, adds a simple map. These decision rules derive from observed patterns and align with recommendations on clarity, traceability, and cultural appropriateness in short sustainability narratives (Guenther *et al.*, 2023; Venditti *et al.*, 2017).

Dissemination and circulation structure

Without formal network analysis, qualitative evidence allows us to outline an expected circulation mediated by reputation and proximity. Pieces issued or reissued by actors with territorial legitimacy, such as municipal agencies, cycling groups, and neighborhood organizations, retain their meaning better when they show the physical support for the promise, for example, pacified intersections, bike parking, or calm corridors. Coordination between the street calendar and the editorial calendar favors conversational plateaus over ephemeral peaks, as the visibility of the intervention reinforces the credibility of the message and enables sustained conversations. This guideline is consistent with studies on opinion dissemination in local contexts and polycentric public decision-making frameworks, where trust is distributed and community alliances modulate the reception of changes in mobility (Borowski *et al.*, 2020; Guenther *et al.*, 2023). Consequently, it is recommended to publish in windows close to tactical milestones and prioritize trusted intermediaries.

Indicators of inferred environmental literacy

A review of descriptions, comments, and paratextual elements suggests qualitative signs of action-oriented literacy. In verification pieces with health and safety frames, explicit mentions of sources, operational questions such as where and how, and spontaneous references to infrastructure or standards are observed. These markers, even without quantification, are consistent with procedural understanding and confidence derived from traceability. When crossing formats, carousels more frequently host executable steps due to their sequential narrative, while microvideos concentrate on arrival and parking queries due to their focus on a specific gesture. This reading supports prioritizing repertoires that combine clarity, verification, and territorial anchoring when seeking to guide microdecisions in resource-limited environments, in line with communication guidelines for the 2030 Agenda that recommend

brief, verifiable, and culturally appropriate messages (García-Sánchez *et al.*, 2020; Helgeson *et al.*, 2022).

Pre/post effects in time series

Given that no independent consolidated series are available, this section is limited to methodological criteria and qualitative findings compatible with future evaluations. Campaigns that synchronize publications with visible milestones in the territory, for example, the creation of a traffic-calmed intersection or the opening of a bicycle parking facility, present better conditions for detecting compatible discontinuities in automatic records, such as bicycle counters. A prudent reading requires equivalent pre- and post-windows, rules of atypicality, and annotation of concurrent events, so that the convergence between public conversation and real opportunity is not interpreted as strong causality. Even so, the documentation of sequences and physical supports facilitates citizen auditing and paves the way for incorporating non-reactive indicators when they exist, following good evaluation practices in urban cycling campaigns (Biondi *et al.*, 2022; Olsson *et al.*, 2021).

A/B microexperiments

Microexperiments are conceived as single-variable tests with comparable windows and audiences and non-intrusive data ethics. The evidence from the corpus suggests that variants with a specific call to action and explicit verification outperform generic motivational ones when the goal is to guide a clear, low-friction gesture. For learning to be transferable, each trial must record hypotheses, definition of variants, time of publication, territorial anchoring, and decision criteria based on practical relevance, avoiding survival bias by documenting null or marginal results. In the absence of proprietary metrics, value lies in establishing replicable editorial rules, such as action verb, object and condition, dated source when applicable, and mention of the everyday node. This testing policy dialogues with frameworks that integrate beliefs of perceived control and stages of change in urban mobility campaigns (Olsson *et al.*, 2021; Venditti *et al.*, 2017).

Table 1
Qualitative matrix of frames by format

Format	Predominant framing(s)	Dominant narrative function	Verification signals (example)	Territorial anchoring (example)	Observation of clarity
Microvideo	Health; road safety.	Instruction	Reference to safety protocol; mention of local authority.	Safe route; nearby bicycle parking.	Explicit low-friction steps.
Carousel	Justice; road safety.	Verification	Municipal regulation; public indicator.	Traffic-calmed intersection; identified section.	Verifiable and visual criteria.
Short text	Efficiency; climate.	Motivation	Promise of time savings without source.	Generic reference to “neighborhood.”	General appeal; clarity dependent on context.
Verification	Health; road safety.	Verification	Institutional source and dated data.	Photograph of specific intervention.	High traceability; sober language.

Note. Qualitative matrix based on manual coding of the corpus; illustrative examples.

Table 2
Narrative quality and traceability rubric

Item (ID or title)	Clarity of appeal (high/medium/low)	Presence of sources/ data (yes/no)	Territorial specificity (yes/no)	Visible public benefit (yes/no)	Risk of ambiguity (low/medium/high)	Room for improvement
Case A: Microvideo “Safe school crossing”	High	Yes	Yes	Yes	Low	Keep verb-object-place; add school hours.
Case B: Carousel “Verification of bike lane X”	High	Yes	Yes	Yes	Low	Simplify technical jargon with iconography.
Case C: Short text “Save time on foot”	Medium	No	No	No	Average	Anchor to micro-centrality and estimate distance.
Case D: Microvideo “Park your scooter here”	High	Yes	Yes	Yes	Low	Include a miniature map of the bike parking area.

Item (ID or title)	Clarity of appeal (high/medium/low)	Presence of sources/data (yes/no)	Territorial specificity (yes/no)	Visible public benefit (yes/no)	Risk of ambiguity (low/medium/high)	Room for improvement
Case E: Carousel “Rules of coexistence”	Medium	Yes	No	Yes	Medium	Land at specific section and intersection.
Case F: Short text “Breathe better on a bike”	Low	No	No	No	High	Incorporate local data and suggested safe route.

Note. High = verb, object, and condition; Medium = one element missing; Low = generic. “Yes” in sources/data = explicit citation. Territorial specificity “yes” = identifiable node/route/place or map.

Table 3

Co-occurrences of format–function–framing (qualitative reading)

Format	Function	Framing	Textual evidence (brief excerpt)	Possible bias/noise	Recommendation for use
Microvideo	Instruction	Road safety	“Stop at the line and cross at the crosswalk.”	Gap between novices and experts.	Campaign launch and weekly reinforcement.
Carousel	Verification	Health	“Source: Municipal Health Department (year).”	Excessive technicality.	Combine with iconography and plain summary.
Short text	Motivation	Efficiency	“You gain 10 minutes walking in your neighborhood.”	Promise without visible support.	Add a simple map and destination point.
Verification	Verification	Fairness	“Regulation 0XX/20XX: pedestrian priority in zone Z.”	Legal text not very accessible.	Minimal glossary and photographic example.

Note: Illustrative excerpts; adjust with minimal direct quotes according to editorial policy.

Table 4
Guide to territorial insertion of messages

Communicated promise	Visible opportunity on the street	Suitable territorial actor	Recommended timing	Suggested narrative variant	Operational risk	Safeguard
Safe school route.	Traffic-calmed crossing in front of educational facility	Educational facility; neighborhood watch	School entrance/exit	Instructional microvideo + verification	Crowding	Signage and traffic support
Last kilometer by bike.	Bike parking installed	Cycling collective; urban management	Fair weekend	Verification carousel with map	Theft/perception of insecurity	Surveillance and lighting
Time savings on foot.	Access to micro-centrality	Merchants; neighborhood associations	Peak hours	Short motivational text + simple map	Unbelievable promise	Visible before/after measurement

Note: Operational template for coordinating publications with local tactical milestones; adjust to actual availability.

Table 5
Minimum tree for choosing repertoire according to campaign objective

Operational objective	Recommended repertoire	Main framing	Minimum quality requirement	Essential territorial support	Most common risk	Recommended safeguard
Change safety gesture at intersections or along stretches of road.	Instructional microvideo.	Road safety	A single specific call with verb, object, and condition.	Traffic-calmed intersection or visible signage.	Saturation of similar messages.	Vary copy by time and audience, keep iconography stable.
Legitimize change of use of space.	Verification carousel.	Health or justice	Dated and visual source of public benefit.	Photographic evidence of the section or intersection.	Excessive technicality.	Plain summary and pictograms, minimal glossary.
Encourage short journeys on foot or by bike.	Short text with simple map.	Efficiency or climate	Hub, schedule, and plausible benefit.	Recognizable micro-centrality.	Unbelievable promise, credible promise.	Visible before and after measurement, adjust if there is no improvement.

Operational objective	Recommended repertoire	Main framing	Minimum quality requirement	Essential territorial support	Most common risk	Recommended safeguard
Guide parking and order of micromobility.	Brief instructional microvideo.	Safety and coexistence	Clear rule in one sentence and pictogram	Bicycle parking or marked operating area.	Regulatory confusion.	Summary sheet of rules with institutional reference link.
Inform about network continuity or detours	Carousel with map and short technical note.	Health and weather	Section, schedule, and main rule.	Calm corridor or signposted operational detour.	Outdated information	Update date and person responsible, maintain institutional contact.

Note: Qualitative table prepared to close the section with operational criteria. Does not use metrics. Aligns with rules 1 to 3 described in the text and with the recommendations of the references cited.

Discussion

Contributions of the study and framing in the literature

The findings confirm that the operational clarity of micro-narratives depends on the alignment between format, function, and framing, and that visible traceability reduces ambiguity and reactance. This behavior is consistent with framing theory, which requires operational definitions and stable rules to support valid comparisons in digital environments with high semantic compression (Matthes and Kohring, 2008; Krippendorff, 2018). In turn, they converge with sustainability narrative observatories that recommend brief, auditable, and culturally situated repertoires, in which verification plays a central role in building public trust (Helgeson *et al.*, 2022; Guenther *et al.*, 2023). In intermediate cities, where the proximity between institutions and communities enables rapid learning cycles, these principles take on special relevance because they allow urban goals to be translated into everyday micro-decisions, reinforcing incremental legitimacy and enabling verifiable partial achievements that consolidate active mobility networks.

Diffusion and adoption: a reading from innovation

The consistency between results and adoption frameworks suggests that the canonical templates derived from the corpus operate as complexity reduction artifacts. From the perspective of innovation diffusion, the probability of adoption increases when the message makes the relative advantage clear, reduces perceived complexity, enables small-scale testing, and makes observable results visible in the immediate environment (Rogers, 2003). In this sense, instructional microvideos with a road safety focus serve as “situated demonstrations” that shorten the distance between intention and execution, while verification carousels demonstrate compatibility with collective norms and values. The articulation with tactical milestones maximizes the observability of results, a key condition for sustaining conversations beyond the initial peak and preventing aspirational promises from fading away in the fragmented attention circuits typical of platforms. In intermediate cities, where relational and institutional density enables rapid learning cycles, these principles translate urban goals into everyday micro-decisions and sustain verifiable progress, in line with comparative evidence on conversational persistence in urban campaigns by O’Callaghan *et al.* (2025).

Ibero-American media logics and message governance

The patterns identified are better understood when considering the media logics that order the public visibility of environmental issues in the Ibero-American space. Recent studies emphasize that the credibility of the sender, the traceability of sources, and territorial proximity are decisive filters of reception when messages seek to guide behavior in the short term, particularly in sensitive policies such as mobility (López-Carrión, 2024; López-Carrión and Martí-Sánchez, 2024). In this context, explicit verification serves a dual purpose: it reduces the semantic uncertainty of the message and acts as an institutional anchor in controversial contexts. Coordination with actors of territorial reputation stabilizes the reading and distributes the burden of legitimization, reinforcing a polycentric governance of the message in line with the relational scale of intermediate cities and the need for visible and continuous accountability.

Implications for repertoire design and infrastructure

The proposed decision rules involve adjusting the editorial design to the physical support available and the moment of intervention, avoiding dissonance between promise and real opportunity. Technical literature supports prioritizing self-explanatory environments, continuous networks, and basic safety elements that facilitate citizens' reading of road space, as urban design conditions the plausibility of the communicative call and its frictionless execution (NACTO, 2023; International Transport Forum, 2024). In campaigns to promote short trips, simple maps and references to micro-centers convert arguments of efficiency or climate into feasible routes, while, to legitimize changes in use, carousels with rules and visual evidence reduce the cognitive costs of acceptance. This coupling favors iterative learning and avoids externalizing problems that can be solved by urban design in communication.

Contributions and limitations for responsible evaluation

The study provides an operational typology based on manual coding and paratextual reading that allows narrative quality to be evaluated without relying on proprietary metrics. This contribution is especially useful in administrations with limited resources, where methodological transparency and replicability are more valuable than isolated indicators. However, limitations are recognized: the absence of double coding prevents the estimation of statistical reliability, and the lack of independent series restricts inferences about the magnitude of effects. The reasonable agenda is to incorporate, when available, non-reactive counters and equivalent pre- and post-windows, as well as documented A/B stacks with practical significance decision criteria, maintaining data ethics and avoiding intrusive segmentation (Biondi *et al.*, 2022; Olsson *et al.*, 2021). This route combines rigor and prudence and is aligned with communication recommendations for the 2030 Agenda.

Projection: transfer and scaling in intermediate cities

The results are transferable if three conditions are preserved: clarity of the call with a territorial milestone, explicit verification with a dated source,

and articulation with observable urban support. In intermediate cities, where relational density facilitates co-production, these guidelines can be scaled up through editorial manuals that formalize templates, decision rules, and safeguards, complemented by catalogs of low-cost micro-interventions. The literature on cycling mobility and adoption supports the idea that qualitative leaps are consolidated when the environment reduces the initial effort and when the community recognizes shared benefits without the need for aggressive persuasion (Buehler and Pucher, 2012; Heinen *et al.*, 2011). Integrating actors with territorial reputation, maintaining traceability, and scheduling calendars synchronized with street works are conditions of possibility for sustaining the conversation and turning micro-narratives into everyday habits.

Conclusions

The analysis shows that eco-communication micro-narratives perform best when they clearly articulate the problem, the specific action, and the verification criteria, and when this triad is aligned with the format-function-framing coupling. Along these lines, instructional microvideos with health and road safety frames, and verification carousels with health or justice frames, tend to offer greater operational clarity by combining action verbs, territorial milestones, and explicit sources, reducing the distance between intention and execution. In intermediate cities, institutional and community proximity favors these learning loops by reducing cognitive friction and enabling verifiable achievements that sustain short-distance habits with visible public benefits. In methodological terms, Krippendorff (2018) emphasizes the need for operational definitions and stable rules to sustain traceable comparisons between pieces and campaigns (Matthes and Kohring, 2008; Helgeson *et al.*, 2022; Guenther *et al.*, 2023; García-Sánchez *et al.*, 2020).

Communicative effectiveness is increased when pieces are synchronized with tactical milestones and legible infrastructure in the territory. Demonstrative microvideos, understandable signage, and verification carousels function as situated demonstrations that bring promise and practice closer together, while tactical urbanism provides low-cost support to make benefits visible and stabilize emerging routines. In this environment, polycentric governance and substantive participation broaden listening circuits, distribute authority, and reinforce public legitimacy; in turn, inter-institutional and neighborhood coordination operates as a reputational anchor that sustains the

circulation of the message. In line with the logic of adoption described by Rogers (2003), effectiveness tends to increase when change offers relative advantage, preserves compatibility, and makes near-term results observable, and when these attributes are sustained by verifiable repertoires that reduce reactance to road space adjustments (Borowski *et al.*, 2020; Metastasio *et al.*, 2024; Venditti *et al.*, 2017).

Methodologically, the combination of content analysis with abductive logic allowed for the comparison of pieces and campaigns without relying on proprietary metrics, based on a categorical system with explicit definitions, documented decision rules, and an audit log. Given the non-reactive nature of the design and the absence of double coding, the contribution focuses on interpretive patterns and operational rules based on observable evidence, with declared limits. To strengthen the bridge between public conversation and behavior, it is important to incorporate independent measurements when they exist: interrupted time series with equivalent windows, non-reactive usage counts, and single-variable microexperiments with prior criteria of relevant magnitude and recording of null results. The annotation of concurrent events, the explicitation of assumptions, and the transparency of criteria reduce interpretive risks and improve accountability, enabling successive evaluations of the appropriation and effective use of space (Biondi *et al.*, 2022; Olsson *et al.*, 2021; PopUpUrbanSpaces, 2023; Mwaura, 2024).

In terms of public policy, intermediate cities present favorable conditions for scaling these guidelines if verifiable communication, secure infrastructure, and adaptive governance are articulated. It is advisable to institutionalize templates for each use case, align editorial repertoires with stages of change, and schedule communication windows close to the implementation of pacified crossings, bike parking, or calm corridors, so that the message is supported by visible evidence and not generic promises. The immediate agenda includes operationalizing a narrative quality rubric, strengthening coordination with actors with territorial reputation, and consolidating evaluation routines before and after each intervention. Although the absence of double coding and independent series limits generalization and inferential contrast, the set of proposed operational rules, templates, and safeguards constitutes a transferable toolkit for translating sustainability goals into observable micro-decisions, supported by standards that facilitate citizen reading of the space and reduce initial friction (NACTO, 2023; Buehler and Pucher, 2012; Heinen *et al.*, 2011).

Appendices

Appendix A1

Corpus and origin of sources analyzed for micro-narratives of eco-communication in sustainable mobility

ID	City	Country	Platform/ Source	Issuer/Author	Type of item	Title (abbreviated)	Date	Domain	Capture/sampling strategy
P01	Cochabamba	Bolivia	Digital press	Los Tiempos	Web news	Vehicle restrictions for Pedestrian and Cyclist Day (Law 150)	2024-04-02	lostiempos.com	Targeted search + intentional selection (audience, date, and author).
P02	Cochabamba	Bolivia	Digital press	Opinion	Web news	Law 150: scope and schedule of Pedestrian Day nationwide	2024-08-26	opinion.com.bo	Targeted search + intentional selection (audience, date, and author).
P03	Cochabamba	Bolivia	News aggregator	eju.tv (source: Los Tiempos)	Web news	Caravan for Pedestrian Day: emphasis on local origin	September 1, 2024	eju.tv	Targeted search + intentional selection (audience, date, and author).
P04	Cochabamba	Bolivia	Digital television	ATB	Web news	Pedestrian Day with walks and bike rides	May 19, 2025	atb.com.bo	Targeted search + intentional selection (audience, date, and author).
P05	Cochabamba	Bolivia	Digital press	Los Tiempos	Web news	Last Pedestrian and Cyclist Day of 2025	December 7, 2025	lostiempos.com	Targeted search + intentional selection (audience, date, and author).
P06	Cochabamba	Bolivia	Digital media	Red Uno	Web news	Last Day of Pedestrians and Cyclists: parades and fairs	December 6, 2025	reduno.com.bo	Targeted search + intentional selection (audience, date, and author).
P07	Sucre	Bolivia	Digital press	Correo del Sur	Web news	National Pedestrian and Cyclist Day: restrictions and environmental focus	September 1, 2024	correodelsur.com	Targeted search + intentional selection (audience, date, and author).

ID	City	Country	Platform/Source	Issuer/Author	Type of item	Title (abbreviated)	Date	Domain	Capture/sampling strategy
P08	Oruro	Bolivia	News aggregator	eju.tv (source: La Patria)	Web news	Bicycle Day: municipal vehicle restrictions	July 10, 2024	eju.tv	Targeted search + intentional selection (audience, date, and author).
P09	Tarija	Bolivia	Digital press	El País (Tarija)	Web news	Pedestrian and Cyclist Day in defense of Mother Earth	November 19, 2024	elpais.bo	Targeted search + intentional selection (audience, date, and author).
P10	Tarija	Bolivia	Digital media	Tarija News	Web news	Pedestrian Day: recreational and sporting activities in the city center	2024-11-22	tarijanoticias.com.bo	Targeted search + intentional selection (audience, date, and author).
P11	Tarija	Bolivia	Digital media	La Voz de Tarija	Web news	Municipal restrictions for Pedestrian and Cyclist Day	2025-11-25	lavozdetarija.com	Targeted search + intentional selection (audience, date, and author).
P12	Tarija	Bolivia	Digital media	La Voz de Tarija	Web news	Strict controls for Pedestrian and Cyclist Day	2025-11-28	lavozdetarija.com	Targeted search + intentional selection (audience, date, and author).
P13	Sacaba	Bolivia	Institutional website	Autonomous Municipal Government of Sacaba	Institutional note	National Pedestrian and Cyclist Day: parade and activities	September 9, 2025	sacaba.gob.bo	Targeted search + intentional selection (audience, date, and author).
P14	Sacaba	Bolivia	Institutional website	Autonomous Municipal Government of Sacaba	Institutional note	Sacaba enjoyed Pedestrian and Cyclist Day with activities	2024-12-02	sacaba.gob.bo	Targeted search + intentional selection (public, with date and authorship).

Note. Corpus time window: 04/02/2024 to 12/07/2025. Inclusion criteria: thematic relevance (active mobility, micromobility, and restrictions or promotion of non-motorized modes), identifiable authorship, visible date, and public access. Capture strategy: intentional sampling by relevance, through keyword searches in local digital media and institutional websites. The use of proprietary metrics or intrusive extraction techniques was avoided. Total number of pieces analyzed: N=14.

Appendix A2
Latin American sources analyzed: origin, platform, time window, and capture strategy

ID	Country	City Area	Platform Source	Type of part	Author Institution	Title Description	Date of publication	URL	Time window	Observation
A2-01	Colombia	Bogotá	Bogota.gov.co	Web news	District Institute of Recreation and Sports (IDRD) / Bogotá	Activities organized by the IDRD for Bike Week in Bogotá, mi Casa	September 22, 2024	https://bogota.gov.co/mi-ciudad/cultura-recreacion-y-deporte/semana-de-la-bici-en-bogota-mi-ciudad-2024-actividades-de-idd	September 23–29, 2024	Bike Week; schedule of activities and workshops
A2-02	Colombia	Bogotá	Bogota.gov.co	Web news	District Mobility Secretariat (SDM) / Bogotá	Enjoy the academic agenda for Bike Week in Bogotá	September 23, 2024	https://bogota.gov.co/mi-ciudad/movilidad/agenda-academica-de-la-semana-de-la-bicicleta-en-bogota-en-2024	September 23–29, 2024	Forum and discussion spaces; focus on sustainable mobility
A2-03	Colombia	Medellin	Medellin.gov.co	Web news	Medellin City Hall	With Mobility Week, road safety takes the streets of Medellín	Nov. 26, 2024	https://www.medellin.gov.co/es/sala-de-prensa/noticias/con-la-semana-de-la-movilidad-la-prevencion-vial-se-toma-las-calles-de-medellin/	Nov. 26–30, 2024	Road safety; interventions in public spaces
A2-04	Mexico	Mexico City	SEMOVI (CDMX)	Institutional website	Mexico City Mobility Secretariat (SEMOVI)	Muévete en Bici: Sunday Bike Ride and institutional activity	n.d.	https://www.semovi.cdmx.gob.mx/tramites-y-servicios/mi-bici/muevete-en-bici	Institutional series (2007–present)	Description of the program; attendance figures (aggregate)
A2-05	Mexico	Mexico City	CDMX Government Headquarters	Press release	Government of Mexico City	SEMOVI Announces Day of the Dead Night Bike Ride	October 13, 2025	https://jefaturadegobierno.cdmx.gob.mx/comunicacion/nota/annunciamos-mi-paseo-nocturno-muevete-en-bici-de-dia-de-muertos	Oct–Nov 2025	Call for entries; nighttime event associated with active mobility
A2-06	Mexico	Mexico	CDMX Government Headquarters	Press release	Government of Mexico City	Successful conclusion to the Day of the Dead Night Bike Ride	October 26, 2025	https://jefaturadegobierno.cdmx.gob.mx/comunicacion/nota/concluye-con-exito-paseo-nocturno-muevete-en-bici-de-dia-de-muertos	Oct–Nov 2025	Post-event assessment; participation and operation

ID	Country	City Area	Platform Source	Type of part	Author Institution	Title Description	Date of publication	URL	Time window	Observation
A2-07	Mexico	Mexico City	CDMX Government Headquarters	Press release	Government of Mexico City	Muevete en Bici ended 2025 with more than 10 million participants	Jan. 2, 2026	https://je.faturadegobierno.cdmx.gob.mx/comunicacion/nota/muevete-en-bici-finalizo-2025-con-mas-de-10-millones-de-personas-participantes	2025 year-end closing	Aggregate figures; institutional report
A2-08	Argentina	Rosario	Rosarioticias.gob.ar	Web news	Municipality of Rosario	The city celebrates Sustainable Mobility Week	September 12, 2025	https://www.rosarioticias.gob.ar/page/noticias/id/609576/titulo/La-ciudad-celebra-la-Semana-de-la-Movilidad	September 16-22, 2025	Local agenda; active mobility and education
A2-09	Argentina	Rosario	Rosarioticias.gob.ar	Web news	Municipality of Rosario	World Car-Free Day: the public bicycle system will be free of charge	September 19, 2025	https://www.rosarioticias.gob.ar/page/news/id/611915/titulo/D%C3%A1-Da-Mundial-sin-Auto%3A-este-lunes-22-el-sistema-de-bicicletas-p%C3%BAblicaser%C3%A1-gratuito	September 22, 2025	Operational measure; low-cost incentive
A2-10	Argentina	Rosario	Rosarioticias.gob.ar	Web news	Municipality of Rosario	Invitation to a family bike ride for World Car Free Day	September 18, 2025	https://rosarioticias.gob.ar/page/noticias/id/523128/titulo/Invitan-una-bicicleta-en-familia-por-el-D%C3%ADa-Mundial-sin-auto	Mobility Week 2025	Call for participation; Street Recreativa
A2-11	Argentina	City of Buenos Aires	Buenosaires.gob.ar	Web news	Government of the Autonomous City of Buenos Aires	Bike ride for Spring Day (as part of Sustainable Mobility Week)	September 19, 2014	https://buenosaires.gob.ar/noticias/bicicleta-por-el-dia-de-la-primavera	September 16-22, 2014	Includes mention of World Car-Free Day and weekly schedule
A2-12	Uruguay	Montevideo	Montevideo.gub.uy	Institutional website	Municipality of Montevideo	Montevideo by bike	n.d.	https://montevideo.gub.uy/montevideo-en-bici	Institutional program	Information and services portal
A2-13	Uruguay	Montevideo	Montevidata.gub.uy	Observatory/data portal	Municipality of Montevideo	Montevidata: Montevideo Data Observatory	n.d.	https://montevidata.montevideo.gub.uy/	Open platform (updatable)	Data and visualizations; public access

ID	Country	City Area	Platform Source	Type of part	Author Institution	Title Description	Date of publication	URL	Time window	Observation
A2-14	Uruguay	Montevideo	Enlace Sur	Program page	Enlace Sur	Mobility Observatory Montevideo	n.d.	https://enlaceur.org/programas-desarrollo/observatorio-de-movilidad-montevideo/	Program/observatory	Description of the observatory and indicators
A2-15	Chile	Santiago (RM)	Institute for Occupational Safety (ISL)	Web news	Occupational Safety Institute	National Car-Free Day: ISL, Conaset, and Undersecretary of Transportation promote road safety with Bike Breakfast	September 27, 2024	https://www.isl.gob.cl/dia-nacional-sin-auto-isl-conaset-y-subsecretaria-de-transportes-promueven-seguridad-vial-con-bic-i-desayuno/	Sep 2024	Awareness activity; road safety
A2-16	Chile	National	CONASET	Guide (PDF)	National Traffic Safety Commission (CONASET)	Mobility Week Guide	September 12, 2024	https://www.conaset.cl/wp-content/uploads/2024/09/guia-semana-de-la-movilidad-12-09-2024-1.pdf	Mobility Week 2024	Awareness-raising material and guidelines
A2-17	Chile	National	CONASET	Web news	National Traffic Safety Commission (CONASET)	During Mobility Week, MTT launches new version of the Guide for Cyclists	n.d.	https://www.conaset.cl/en-la-semana-de-la-movilidad-mtt-lanza-nueva-version-de-la-guia-para-ciclistas/	Mobility Week (referred to)	Guide launch; active mobility
A2-18	Ecuador	National	MTOP	Web news	Ministry of Transportation and Public Works (MTOP)	The MTOP joins in the commemoration of World Car-Free Day	September 16, 2021	https://www.obraspublicas.gob.ec/el-mtop-se-une-a-la-comemoracion-del-dia-mundial-sin-auto/	Sep 2021	Latin American framework; institutional call
A2-19	Peru	Trujillo	Instagram (TMT Trujillo)	Social media post	Trujillo Metropolitan Transport (TMT)	Campaign for Provincial Sustainable Mobility Week	n.d.	https://www.instagram.com/p/DOoN6A9V17/	Sep (Year not specified)	Public publication; awareness raising
A2-20	Peru	Trujillo	TMT news website (gov. pc, limited access)	Web news	Trujillo Metropolitan Transport (TMT)	MPT and TMT promote 12 Safe School Environments in Trujillo	September 22, 2024	https://www.gob.pe/institucion/tmt/noticias/1039441-mpcy-tmt-impulsan-12-entornos-escolares-seguros-en-trujillo	Mobility Week 2024	Institutional reference; web access may require JavaScript

ID	Country	City Area	Platform Source	Type of part	Author Institution	Title Description	Date of publication	URL	Time window	Observation
A2-21	Mexico	Mexican cities	WRI Mexico	Guide (PDF)	WRI Mexico	Guide to Safe Walkable Environments: Design Guidelines for Access to Urban Facilities and Public Transportation in Mexican Cities	n.d.	https://es.wri.org/sites/default/files/guia-de-entornos-caminables-seguros.pdf	Technical support document (downloadable)	Technical support for verifiable calls to action
A2-22	Chile	National	National Curriculum (Ministry of Education)	Guide (PDF)	Chilean Ministry of Education	Active School Transport Guide 2024	2024	https://www.curriculumnacional.cl/614/articulos-353463_recurso_pdf.pdf	Year 2024	Road safety education and active transportation in school environments
A2-23	Mexico	National	WRI Mexico / Walkability	Guide (PDF)	WRI Mexico	Guide to Safe Walkable Environments (support resource)	n.d.	https://es.wri.org/sites/default/files/guia-de-entornos-caminables-seguros.pdf	Technical document	Intentional duplicate entry if cited by chapters; use only one in analysis
A2-24	Uruguay	Montevideo	UCLG Digital Cities	Practice sheet	UCLG	Montevideo Observatory and Open Data Platform (practice description)	n.d.	https://ueig-digitalcities.org/es/practica/120685/	Institutional description	Contextualization of open data and urban observatories

Note. Reference corpus for non-coded contextualization: Nref=24 units listed. Selection made by intentional sampling and public availability. A keyword search was applied (e.g., “mobility week,” “car-free day,” “active mobility,” “public bicycle,” “get around by bike”), filtered by institutional or municipal identification and metadata record (date, platform, and city/country). In cases where the source page requires JavaScript or has access restrictions, the link is retained solely as a reference to its origin.

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Declaration of Authorship - CRediT Taxonomy	
Author	Contributions
Jhonny Iván Oporto-Berrios	Conceptualization, methodology, research, formal analysis, writing of the original draft, writing: revision and editing, visualization, resources, validation.

Declaration of Use of Artificial Intelligence
<p>The author DECLARES that, in the preparation of the article entitled <i>Micronarratives of eco-communication for sustainable mobility in intermediate cities</i>, Artificial Intelligence tools were used in a complementary manner and not as a substitute for the intellectual work of the authors.</p> <ul style="list-style-type: none"> • Tool used: ChatGPT (OpenAI) • Tasks performed: Cross-linguistic editing: style correction, adjustments for clarity and formal accuracy. • Verification of results: All textual production was carefully reviewed by the author, who validated each reformulation to ensure argumentative coherence and conceptual fidelity. <p>Scope of use: AI tools were not used for the development of theoretical or methodological content or for the analysis of results. All analytical, interpretative, and conclusive content is the direct work of the researcher.</p>

Narratives of environmental misinformation and public perception of climate change

Narrativas de desinformación ambiental y percepción pública del cambio climático

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Received on: 08/12/2025 **Revised on:** 15/01/2026 **Approved on:** 22/02/2026 **Published on:** 01/03/2026

Suggested citation: Juárez-Jiménez, V. B., Chafloque-Capuñay, J.E. and Borges-Huanca, A. (2026). Narratives of environmental misinformation and public perception of climate change. *Universitas XXI*, 44, pp. 117-144. <https://doi.org/10.17163/uni.n44.2026.05>

Abstract

Environmental disinformation poses a critical challenge in the digital age, distorting perceptions of climate change, eroding trust in science, and weakening public commitment to sustainability. The objective is to conduct an integrative analysis of recent scientific output (2020-2025) on environmental misinformation and public perception of climate change, with an emphasis on dominant narratives, digital platforms, the social effects involved, and proposed mitigation strategies. An integrative review was conducted based on the PRISMA 2020 criteria and the methodology of Whittemore and Knafl (2005), using searches in Scopus, Web of Science, SciELO, and Redalyc. From a total of 335 records, 41 theoretical and empirical studies were selected. The findings identify three recurring narratives: denialist, delayist, and conspiratorial, which circulate on social media through highly emotive multimodal formats. These narratives generate effects such as skepticism, polarization, and climate cynicism, reducing pro-environmental attitudes. Mitigation strategies, focused on critical literacy and information verification, show partial effectiveness. As a main contribution, a structured typology of narratives and an integrative conceptual model are proposed that not only strengthen theoretical analysis but also offer practical guidance for the formulation of more effective public policies and communication strategies against climate misinformation.

Keywords

Disinformation, climate, networks, perception, media, opinion, governance, sustainability.

Resumen

La desinformación ambiental constituye un desafío crítico en la era digital, al distorsionar la percepción del cambio climático, erosionar la confianza en la ciencia y debilitar el compromiso ciudadano con la sostenibilidad. Este estudio analiza de forma integrativa la producción científica reciente (2020-2025) sobre desinformación ambiental y percepción pública del cambio climático, con énfasis en las narrativas dominantes, las plataformas digitales, los efectos sociales implicados y las estrategias de mitigación propuestas. Se llevó a cabo una revisión integrativa basada en los criterios PRISMA 2020 y en la metodología de Whittemore y Knafl (2005), a partir de búsquedas en Scopus, Web of Science, SciELO y Redalyc. De un total de 335 registros se seleccionaron 41 estudios teóricos y empíricos. Los hallazgos identifican tres narrativas recurrentes: negacionista, retardista y conspirativa, que circulan en redes sociales mediante formatos multimodales de alta carga afectiva. Estas narrativas generan efectos como escepticismo, polarización y cinismo climático, reduciendo la disposición proambiental. Las estrategias de mitigación, centradas en la alfabetización crítica y la verificación informativa, muestran eficacia parcial. Como aporte principal, se propone una tipología estructurada de narrativas y un modelo conceptual integrador que no solo fortalece el análisis teórico, sino que también ofrece orientaciones prácticas para la formulación de políticas públicas y estrategias comunicativas más eficaces frente a la desinformación climática.

Palabras clave

Desinformación, clima, redes, percepción, medios, opinión, gobernanza, sostenibilidad.

Introduction

Climate change is a fundamental problem of the 21st century, not only because of its environmental repercussions, but also because of its social, economic, and political implications. Although there is broad scientific consensus on its anthropogenic origin, public perception of the phenomenon remains uneven and fragmented, influenced by simultaneous informational, ideological, and emotional factors (Ko *et al.*, 2024; Sultana *et al.*, 2024; IPCC, 2023). Against this backdrop, environmental misinformation has gained prominence as a major challenge to advancing concrete and sustained climate action.

Unlike spontaneous ignorance, which responds to a genuine lack of information, misinformation involves the intentional and systematic circulation of distorted or false content whose purpose is to induce skepticism, generate confusion, or promote inaction (Tomassi *et al.*, 2025; van der Linden *et al.*, 2021). This phenomenon can be understood using the *Gateway (mis)Belief Model*, which argues that repeated exposure to inaccurate information undermines the perception of scientific consensus and, by extension, weakens support for evidence-based public policies (Logemann *et al.*, 2025). In contemporary digital ecosystems, this dynamic is intensified, as amplification algorithms and the very architecture of social networks favor the rapid spread of emotional and decontextualized messages (Cardoso *et al.*, 2025; Storani *et al.*, 2025).

Several studies show that narratives such as denialism, delayism, and conspiracy theories not only weaken trust in science but also alter environmental emotions and reduce citizen engagement with sustainability-oriented policies (Vivion *et al.*, 2024; Freiling and Matthes, 2023). The growing politicization of climate science accentuates these effects, as many people consume and share information that aligns with their ideological frameworks, reinforcing polarization and skepticism toward scientific sources (Ophir *et al.*, 2024). However, attempts to counteract this phenomenon remain scarce and, in general, concentrated in contexts in the Global North, with little evidence of their impact over time (Essien *et al.*, 2025; UNDP, 2025). In contrast, recent research in less represented regions, such as Latin America, reveals dynamics. Spektor *et al.* (2023) identify that although most Latin American citizens recognize the existence of climate change, varying levels of trust in science and risk perception persist, highlighting the need for contextualized approaches. Along the same lines, Gómez-Casillas and Gómez (2023) show

that the use of social media in these contexts can have a positive impact on the development of climate awareness, reinforcing the importance of adopting situated and comparative approaches.

In this sense, it is necessary to explore how narratives of misinformation arise and are articulated in digital environments, what social consequences they produce, and what forms different strategies that are attempting to adopt to respond to this problem. To do so, this article uses integrative review, a useful review technique for articulating both theoretical and empirical contributions without being subject to overly partial perspectives or excessively sectorized views (Whittemore and Knafl, 2005; Torraco, 2005).

From this approach, the study aims to provide an integrative analysis of recent scientific output (2020-2025) on environmental disinformation and public perception of climate change, with an emphasis on narratives, digital platforms, social effects, and mitigation strategies. In addition, it proposes an explanatory typology and a conceptual model that can guide both future research and the formulation of more effective public policies in the face of the advance of climate misinformation.

Theoretical framework

Environmental disinformation: conceptual definition and link to public perception

Environmental disinformation is defined as the *intentional* production and circulation of false, misleading, or decontextualized content about environmental phenomena, climate policies, or scientific consensus, with the aim of generating confusion, skepticism, or social inaction (van der Linden *et al.*, 2021; Vivion *et al.*, 2024). Unlike a mere lack of information, this type of disinformation operates strategically in digital media ecosystems, where recommendation algorithms, multimodal formats, and emotional activation amplify its reach and persistence.

In the specific case of climate change, these narratives not only distort available scientific knowledge, but also directly influence public perception of climate risk, trust in science, and citizens' willingness to support mitigation and adaptation policies. Therefore, the analysis of environmental disinformation requires articulating scientific production with its media circu-

lation and the social effects derived from such exposure, a conceptual axis that structures this study.

In recent years, the systematic dissemination of misinformation in the environmental sphere has become a global phenomenon, with direct impacts on climate communication. This practice, based on the deliberate manipulation of content related to ecological processes, public policies, or environmental regulatory frameworks, contributes to eroding the social perception of scientific evidence, hinders the timely adoption of political decisions, and weakens institutional trust, favoring the emergence of discourses that minimize or deny the seriousness of the climate crisis (Christner *et al.*, 2024).

From a communication perspective, Vivion *et al.* (2024) argue that environmental disinformation is not limited to the dissemination of false data, but also incorporates discursive strategies aimed at undermining scientific consensus. These strategies rely on multimodal formats, such as pseudoscientific graphics or misleading visualizations that simulate objectivity and technical rigor (Törnberg and Törnberg, 2025). Similarly, Essien *et al.* (2025) argue that this phenomenon is conditioned by digital infrastructures, ideological and economic interests, as well as amplification algorithms that operate according to specific cultural logics, differentially influencing different social groups. In this context, the circulation of disinformation responds to structural dynamics capable of shaping the reception of scientific knowledge, as is the case with the advancement of far-right narratives that present climate policies as ineffective or risky (Nicolosi *et al.*, 2025).

In terms of dissemination channels and formats, various digital platforms such as Twitter/X, Facebook, Instagram, YouTube, and TikTok have taken on a particularly active role in the circulation of this type of content. The work of Storani *et al.* (2025), based on the analysis of more than 20 million posts, shows that, although messages containing disinformation do not always represent the majority, their reach and impact in terms of virality are considerably higher. This trend is intensified in pieces with a strong visual or emotional charge (memes, microvideos, images with text), designed to trigger emotional responses that reinforce already established ideological positions. Once integrated into the digital ecosystem, multimodal messages circulate between platforms with such fluidity that their disarticulation is particularly complex (Micallef *et al.*, 2022).

Digital narratives around climate change not only take on varied formats, but also express ideological interests that, to a greater or lesser ex-

tent, influence both public perception and institutional decisions. Elroy *et al.* (2024), distinguish four discursive frameworks: scientific, anthropogenic, political, and conspiratorial. The latter seeks to delegitimize scientific consensus and undermine mitigation efforts. These narratives, which circulate in highly mediatized digital environments, tend to strain the link between expert knowledge, ideological positioning, and hegemonic discourse. Beling Loose and Carvalho (2023) warn that this symbolic dispute also shapes how the environmental crisis is represented.

The consequences of climate misinformation go beyond the cognitive level, as it structurally affects how the environmental problem is socially configured. Repeated exposure to manipulated or outright false content undermines public trust in science and weakens support for mitigation policies (Essien *et al.*, 2025). In spaces such as TikTok, the emotional circulation of ironic or angry discourse is no coincidence: these resources serve persuasive functions, as indicated by Cardoso *et al.* (2025). At the regional level, Gómez-Casillas and Gómez (2023) emphasize that Latin America requires communication strategies situated within specific cultural frameworks.

For this reason, various strategies are being proposed to counteract climate misinformation in digital environments, with the aim of strengthening information resilience, restoring public trust, and encouraging collective action (Freiling and Matthes, 2023). So much so that Herasimenka *et al.* (2024) propose a comprehensive approach that includes media literacy, algorithmic transparency, effective regulation of digital platforms, and strengthening fact-checking mechanisms. However, the study by Holder *et al.* (2023) warns about the circulation of paid campaigns on Facebook that promote obstructionist discourse, strategically financed to weaken public support for climate policies. Therefore, various challenges remain, such as effectively comparing the performance of different platforms, clearly identifying the institutional actors involved, longitudinally measuring the effectiveness of the strategies implemented, and developing communication responses adapted to the cultural diversity of the affected territories.

Methodology

This study was developed using an integrative literature review approach, which allows for the synthesis of empirical and theoretical research results to

generate a broader and more systematic understanding of a complex phenomenon (Whittemore and Knafl, 2005; Torraco, 2005). This design was chosen because it makes it possible to articulate diverse disciplinary approaches and compare heterogeneous results, an essential characteristic for addressing environmental misinformation from the perspectives of communication, social psychology, and environmental sciences.

Type of study and methodological design

The research corresponds to an integrative review of an exploratory and descriptive nature, applied to the analysis of scientific production published between January 2020 and August 2025 on environmental misinformation and public perception of climate change. The procedure was structured in six phases, adapted from Whittemore and Knafl (2005), Broome (2000), and the PRISMA 2020 guidelines (Page *et al.*, 2021):

- Formulation of the problem and delimitation of the thematic areas.
- Definition of inclusion and exclusion criteria.
- Systematic search of academic databases.
- Critical evaluation and quality validation of studies.
- Extraction and coding of data using an analytical matrix.
- Narrative synthesis and thematic categorization.

Sources of information

The search was conducted in the Scopus, Web of Science, SciELO, and Redalyc databases, supplemented by Google Scholar and scite.ai to include open-access literature. The search period was from August 5 to 10, 2025.

Search strategy

Bilingual Boolean equations (English/Spanish) were designed, adapted to each platform, combining key terms related to climate change, misinformation, and public perception. Example equation: (“climate change” OR “global warming”) AND (“misinformation” OR “disinformation”) AND (“public perception” OR “public opinion”) AND (“social media” OR “digital platforms”).

Inclusion and exclusion criteria

Inclusion

- Publications between 2020 and 2025.
- Languages: English and Spanish.
- Peer-reviewed studies, with full text available.
- Direct focus on environmental misinformation, social perception, or climate change.

Exclusion:

- Theses, non-refereed reports, or reports without full access.
- Documents prior to 2020 or in other languages.
- Publications focused on non-environmental misinformation.

Selection and analysis process

The corpus selection and analysis process was carried out systematically and sequentially, in accordance with the criteria established for the integrative review. In the first stage, the records were identified and refined by eliminating duplicates and reviewing titles and abstracts, in accordance with the defined inclusion and exclusion criteria.

Subsequently, the selected articles were read in full to assess their thematic relevance and methodological consistency. Next, the relevant information was coded and a narrative synthesis of the findings was produced, aimed at identifying patterns, trends, and research gaps surrounding environmental misinformation and public perception of climate change.

Documentary analysis and methodological validation tools

The analysis of the included studies was carried out using documentary instruments designed specifically for this integrative review. First, a data extraction matrix was applied to systematize key information from each article (authorship, year, country, objectives, methodological approach, main findings, and contributions).

Secondly, a critical quality assessment guide based on the PRISMA 2020 guidelines and CASP criteria was used to verify the methodological consistency, thematic relevance, and analytical soundness of the selected studies.

Finally, a thematic analysis protocol was applied to identify recurring patterns, conceptual categories, and research gaps in relation to narratives of environmental disinformation and their effects on public perception of climate change.

To reinforce the validity and replicability of the process, the corpus was analyzed independently by two reviewers, achieving a level of agreement greater than 90%. Triangulation was also applied between theoretical approaches and theoretical frameworks, geographical contexts, and study types. The matrices and criteria used are available upon editorial request, allowing for external verification of the procedure followed.

PRISMA diagram and quantitative summary

The adapted PRISMA 2020 diagram (Figure 1) shows the flow of identification, screening, and selection of the 41 articles included. Table 1 summarizes the number of records per database, duplicates excluded, documents reviewed, and studies finally included.

Figure 1

PRISMA diagram adapted to the systematic study selection process for the integrative review (2020-2025)

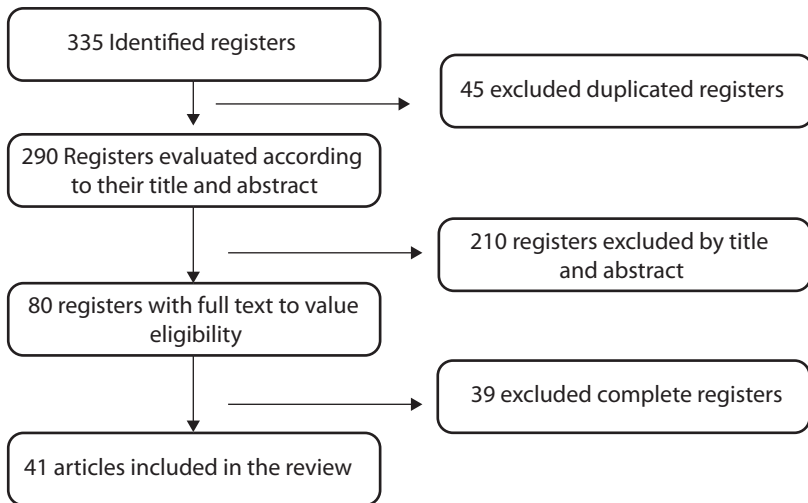


Table 1
*Sources of information and records identified
in the integrative review (2020-2025)*

Database	Records identified	Duplicates excluded	Records reviewed (title/abstract)	Records with full text	Included articles
Scopus	110	12	98	30	18
Web of Science	85	9	76	22	11
SciELO	55	5	50	13	6
Redalyc	40	4	36	9	4
Google Scholar	35	10	25	6	2
scite.ai	10	5	5	—	—
Total	335	45	290	80	41

Note. Data compiled from the systematic search process described in Figure 1 (PRISMA 2020).

Results

The thematic analysis of the 41 studies included allowed us to identify four main themes that structure the narratives of environmental disinformation and their relationship with public perception of climate change: (i) the construction of uncertainty and scientific skepticism, (ii) the politicization of climate discourse, (iii) the role of digital media ecosystems in amplifying misleading narratives, and (iv) the effects of disinformation on public trust and climate action. These themes emerge consistently throughout the analyzed corpus and form the basis for the presentation of the results developed below.

Types of disinformation and dominant narratives

The studies reviewed agree that environmental disinformation is articulated through various discursive forms, notably climate denial, conspiracy narratives, and the so-called *discourse of climate delay* or strategic delay of discourse (Elroy *et al.*, 2024; Torrico *et al.*, 2024; Lamb *et al.*, 2020). The-

se narratives do not always directly deny climate change, but they tend to downplay its severity, postpone urgent measures, or disseminate arguments cloaked in apparent scientificity. Within denialism, recurring categories can be identified: denying that the phenomenon occurs, that it is anthropogenic, that it poses a real threat, or that the proposed solutions are effective (Coan *et al.*, 2021).

A common pattern is the use of rhetorical frameworks that emphasize uncertainty or appeal to the need for more research, a common strategy in certain corporate communications that simultaneously promote individual responsibility as a solution (Supran and Oreskes, 2021). These narratives tend to erode the credibility of scientific institutions or discredit expert voices, alleging financial motivations or labeling science as a “hoax” (Tam and Chan, 2023). More recently, a “new denialism” has been identified which, far from rejecting climate change, focuses its discourse on delegitimizing solutions, branding them as inefficient or driven by “hidden agendas” (Nicolosi *et al.*, 2025).

Storani *et al.* (2025) and Suarez-Lledo and Alvarez-Galvez (2021) warn that, although this type of message represents a minor portion of the information ecosystem, its potential to generate interaction, mobilize reactions, and spread rapidly is considerably amplified on platforms governed by recommendation algorithms.

From a complementary perspective, Cann *et al.* (2021) highlight that the ideological biases of audiences have a significant impact on how climate information is interpreted and shared in digital environments. These biases drive polarization and the consolidation of echo chambers resistant to refutation, where users with specific ideological inclinations tend to consume and replicate erroneous content (Treen *et al.*, 2020; Jylhä *et al.*, 2020). This phenomenon is exacerbated during episodes of extreme weather, when misinformation narratives emerge and the contagious effect of conspiracy theories intensifies, as is the case with *chemtrail* theories, which distort perceptions of technologies such as solar geoengineering (Debnath *et al.*, 2023).

In the Latin American context, authors Gómez-Casillas and Gómez (2023) report that social media can also be spaces for environmental awareness, thus creating a hybrid scenario where the objectives of disinformation strategies coexist with sustained awareness-raising practices.

Platforms, formats, and agents involved

YouTube, Facebook, TikTok, Instagram, and X (formerly Twitter) are among the most active platforms in spreading climate disinformation. The latter has been particularly analyzed, especially for its role in denialist narratives and discussions about solar geoengineering (Daume, 2024; Thapa Magar *et al.*, 2024). Facebook, on the other hand, has served as a space for experimental tests evaluating corrective strategies against misleading content (Christner *et al.*, 2024).

One of the most problematic features is the multimodal nature of this disinformation, which, by mixing text, images, and video, not only appeals to emotions such as fear or irony, but also complicates its verification (Nasser *et al.*, 2025). AI has enhanced this effect through generative resources applied to voices, images, and avatars (Díaz-Soloaga and Pelzer-Peinado, 2024). Micallef *et al.* (2022) argue that its circulation across platforms reduces the margins of control. On YouTube, for example, this dynamic is evident: videos facilitate the spread of messages that erode public understanding of climate change.

Various actors intervene in this circulation of formats to spread these messages. González-Bailón and De Domenico (2021) point to the participation of automated accounts, *bots*, and disinformation networks, especially in times of political or environmental crisis (Treen *et al.*, 2020). Populist leaders, *think tanks* opposed to mitigation policies (Coan *et al.*, 2021), and media outlets that reinforce conservative ideological frameworks (Thapa Magar *et al.*, 2024) are also involved. In turn, some corporations maintain communication strategies that delay public consensus through paid campaigns or *advertorials* in the traditional press (Supran and Oreskes, 2021). Taken together, these factors show the complexity of the media environment and the urgency of coordinated responses to climate misinformation.

Despite the centrality of dominant platforms, studies such as that by Proferes *et al.* (2021) draw attention to the role of less explored spaces, such as Reddit, which also contribute to the circulation of misinformation. This observation reinforces the need to broaden the analytical focus to unconventional digital environments (Treen *et al.*, 2020).

In response to this scenario, various mitigation agents are emerging. These include fact-checking organizations, artificial intelligence-based systems for detecting false claims (Leippold *et al.*, 2025), and government entities that

promote digital governance policies aimed at transparency and information resilience (Bravo *et al.*, 2024).

Effects on public perception

In recent years, there has been a significant increase in academic consensus regarding the structural impact that climate misinformation has on social perceptions of climate change. Continued exposure to deliberately falsified content leads to mistrust of science, undermines the credibility of expert institutions, and even provokes cynical responses to the climate crisis.

Essien *et al.* (2025) and Vivion *et al.* (2024) demonstrate that exposure to conspiracy theories increases the triggering of negative emotions that undermine willingness to support mitigation policies. Systematic reviews suggest that continued exposure to conspiracy theories can be harmful, as it contributes to rejecting the anthropogenic origin of climate change and decreasing the intention to act (Tam and Chan, 2023). These effects are mediated by emotions such as discouragement or helplessness, which in turn affect collective self-efficacy (Christner *et al.*, 2024).

Conspiracy narratives, such as the *chemtrail* theory, tend to have prolonged impacts on the legitimacy of sustainable measures (Debnath *et al.*, 2023). Furthermore, this type of discourse undermines trust in science and the institutions that manage climate knowledge (Hameleers and van der Meer, 2021). In fact, Tohidi *et al.* (2025) observe a discrepancy between visible digital discourse and perceptions obtained through traditional surveys (Gounaridis and Newell, 2024).

At the same time, research such as that by Cann *et al.* (2021) shows that ideological beliefs strongly influence the type of information people consume, share, and consider credible. This behavior reinforces the creation of echo chambers where misinformation becomes normalized (Treen *et al.*, 2020). Humprecht *et al.* (2020) emphasize that this vulnerability depends not only on content, but also on the media and political ecosystem in which it circulates. In this context, it has been documented that attitudes characteristic of radical right-wing populism (RRWP) increase adherence to misperceptions, with political affiliation (e.g., being a Republican voter in the US) being a significant predictor of information reception and processing (Christner *et al.*, 2024; Thapa Magar *et al.*, 2024).

Even personal experiences with extreme weather events are filtered by ideological factors and so-called motivated reasoning, which acts as an interpretive filter (Daume, 2024). Finally, recent studies highlight the role of psychosocial factors such as collective narcissism in amplifying or containing the disinformation effect, as well as the relevance of strategically designed visual elements to modulate its impact according to context (Scherer *et al.*, 2021; Agle *et al.*, 2021; Bertin *et al.*, 2021).

Mitigation strategies, gaps, and recommendations

The continuous increase in climate misinformation has led the scientific community to propose, among other things, strategies that are not limited to correcting false data. One of the most relevant is the *technocognition* approach, which integrates educational, regulatory, and technological aspects to promote cognitive skills that lead to critical analysis of the information in circulation (Treen *et al.*, 2020). This approach becomes even more relevant in contexts of low digital literacy, where persuasive discourses are more likely to take root. For this reason, several studies insist on promoting, from the earliest stages, the use of tools that allow for the early detection of misleading narratives (Essien *et al.*, 2025).

The introduction of content on climate misinformation in educational settings has proven to be more effective when the educational content is complemented by digital regulation and active correction mechanisms (Freiling and Matthes, 2023; Herasimenka *et al.*, 2024). In this context, there are two approaches that can be applied: *prebunking*, which prepares people for exposure to misleading content, and *debunking*, which is applied after the content has been disseminated, refuting the logic behind it (Christner *et al.*, 2024). As the urgency to scale up responses increases, artificial intelligence tools such as CLIMINATOR generate introductions to verification processes in complex scenarios thanks to linguistic models (Leipold *et al.*, 2025). In addition to its connection with scientific-epistemic indicators from the IPCC, it bases the way it detects and validates itself institutionally on its form of representation. On the other hand, teaching materials such as infographics, diagrams, and mnemonic devices have been valued as resources that simplify and help to enhance critical thinking at a very early age (Stokes-Parish, 2022).

The effectiveness of these strategies is far from uniform and often depends on the environment in which they are applied. Previous research agrees that there are no universal recipes: each intervention requires slight adjustments to local cultural, media, and political conditions (Debnath *et al.*, 2023). Added to this is a strong geographical asymmetry in the production of knowledge, centered mainly in countries of the Global North, which has created substantial gaps in regions such as Latin America and Southeast Asia (Tam and Chan, 2023). At the same time, there has been a progressive deterioration in trust in scientific institutions, weakened both by events such as the pandemic (Papakyriakopoulos *et al.*, 2020; Moore *et al.*, 2023) and by complex psychosocial factors, including collective narcissism (Narayan *et al.*, 2021). Faced with this reality, several studies highlight the urgent need to develop tools that allow for a more accurate assessment of the persistent effects of disinformation in highly dynamic contexts (Nasser *et al.*, 2025).

In light of these difficulties, some proposals focus on improving digital governance as a way of attempting to resolve the problem in a more structural manner, including, in particular, strengthening transparency through more powerful monitoring systems that attempt to track the progress of public policies (González, 2020) or standardizing climate data, emphasizing its openness, quality, and accessibility to citizens (Bravo *et al.*, 2024). It is also suggested that the institutional responsibilities contained in the governance models themselves be redefined, promoting more spaces for participation that encourage accountability and co-responsibility in decision-making (Bravo *et al.*, 2024; González, 2020).

Typology of disinformation narratives and proposed conceptual model

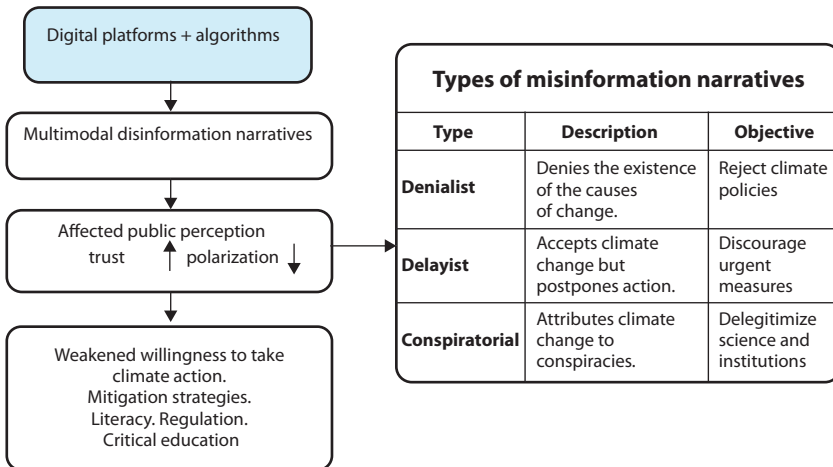
Thematic analysis of the selected studies reveals recurring patterns in disinformation discourses on climate change. These regularities made it possible to construct a structured typology and an integrative conceptual model aimed at understanding how these narratives circulate, shape public image, and determine climate action behaviors.

The typology distinguishes three main categories:

- Denialist narratives: these reject the existence or severity of climate change.
- Delaying narratives: they delay action by appealing to uncertainty or unrealistic solutions.
- Conspiracy narratives: they erode trust in science and spread unfounded theories.

Although these narratives differ in content and objectives, they can easily be reappropriated in multimodal digital environments, reinforced by algorithms and short formats. The conceptual model developed articulates these dynamics based on the relationship between digital platforms, narrative plots, shared emotions, and institutional weakening. It shows how prolonged exposure to altered content evolves scientific trust, deteriorates citizen behavior, and deepens polarization. To counteract these effects, the model includes three strategic axes obtained from various analyses: critical literacy, technological verification, and digital governance.

Figure 2
Conceptual model and typology of disinformation narratives on climate change



The conceptual model presented in Figure 2 organizes the key dynamics identified in the review, where digital platforms and algorithms act as drivers of multimodal disinformation narratives. Taken together, these studies show that environmental disinformation operates as a structural mechanism that directly influences public perception of climate change, reinforcing narratives of doubt, polarization, and mistrust of science.

Discussion

The results obtained allow us to understand how narratives of environmental disinformation, widely documented in recent scientific literature, influence public perception of climate change by reinforcing dynamics of mistrust, polarization, and resistance to climate action.

In this sense, the findings of this integrative review confirm a growing consensus in the literature: environmental disinformation not only distorts public understanding of climate change, but also directly influences citizens' willingness to adopt sustainable practices and support mitigation policies. Authors such as Vivion *et al.* (2024) and Essien *et al.* (2025) emphasize that continued exposure to misleading narratives, whether through outright falsifications, more subtle distortions, or discursive delay mechanisms, affects the scientific interpretation of the phenomenon and reduces the perception of urgency to act.

This scenario brings back concerns raised years ago in the context of post-truth (Lewandowsky *et al.*, 2017), although now with more robust empirical support and within increasingly complex digital environments. Research in fields such as vaccination reinforces this same line of thinking: the credibility attributed to sources, rather than being a simple addition, becomes a critical variable in scenarios of uncertainty (Stecula *et al.*, 2020).

A relevant change identified in this review is related to the formats and spaces where disinformation circulates. Unlike classic studies focused on traditional media (Boykoff and Boykoff, 2004), more recent analyses highlight the prominence of visual networks and algorithmic environments that amplify the circulation of manipulated content through multimodal resources, artificial intelligence, and emotional stimuli (Micallef *et al.*, 2022; Törnberg and Törnberg, 2025). This is not only a technological shift, but also a symbolic one: the images, tones, rhythms, and emotions used contribute to the

persistence of misleading content, even in the face of attempts at correction (Nasser *et al.*, 2025).

However, these dynamics do not unfold uniformly. Research such as that of Gómez-Casillas and Gómez (2023) warns that, in certain Latin American contexts, social media can also be allies in raising climate awareness. This ambivalence requires the adoption of culturally situated interpretive frameworks capable of capturing the nuances and resistances inherent in local digital narratives.

Among the key findings is the leading role of the delayist narrative, currently one of the most influential forms of climate disinformation. Unlike outright denialism, this strategy does not deny the phenomenon, but manages to neutralize its seriousness by delaying, relativizing, or delegitimizing the available solutions. Several studies have clearly documented its presence (Elroy *et al.*, 2024; Lamb *et al.*, 2020), and it has even been recognized by IPCC reports (2023), which highlights its impact in the political and media arena.

In this sense, the findings confirm that environmental disinformation is not only an informational problem, but also a communicational phenomenon with direct effects on how citizens interpret, value, and respond to climate change.

Likewise, it has been shown that public perception of climate change is influenced by psychosocial factors. Emotional states such as anxiety, apathy, or skepticism tend to intensify when exposure to conspiracy theories is frequent and sustained. At the same time, there has been a progressive erosion of trust in scientific institutions (Tam and Chan, 2023; Christner *et al.*, 2024), while variables such as political affiliation continue to influence the way climate information is interpreted (Jylhä *et al.*, 2020; Thapa Magar *et al.*, 2024).

Regarding mitigation approaches, the literature agrees on three main lines: media literacy, corrective interventions (*debunking and prebunking*), and automated verification technologies. Although these strategies have shown some effectiveness, their impact is uneven and depends largely on the type of message, the platform used, the sender, and even the timing of their application (Freiling and Matthes, 202). Tools such as CLIMINATOR, based on artificial intelligence, show promising potential by automating real-time verification and reinforcing educational efforts (Leippold *et al.*, 2025).

However, there are still gaps that hinder a more comprehensive approach to the phenomenon. Most academic production comes from the Global North, which overshadows the experience and contributions of regions such as Latin America, Africa, and Southeast Asia. On the other hand, the work carried

out tends to focus on platforms such as Twitter/X or Facebook, leaving aside other platforms with a large reach in the Global South where users spend much of their time, such as WhatsApp, Telegram, or TikTok (Milan and Treré, 2020). At the same time, there are many questions about the effectiveness of institutional responses, which are often limited by ethical, political, and technological dilemmas regarding digital governance (Papakyriakopoulos *et al.*, 2020; Gisondi *et al.*, 2022).

In view of the different variables, this review proposes a typology of disinformation narratives that introduces denialist, delayist, and conspiratorial narrative forms, which allows us to map the audiences they target beyond their persuasive objectives and channels of circulation. In turn, these avatars and narrative forms enable a conceptual model that links digital environments, algorithmic mechanisms, public perception, and responses to the climate crisis. Rather than a closed theoretical model, a flexible tool is developed to guide interventions in public policy, critical education, or digital regulation.

Finally, three lines of work are presented in the context of communication policies: a) the structural regulation of platforms, focusing on algorithmic transparency and the assumption of responsibility by intermediaries; b) media literacy that goes beyond the technical, anchoring itself in cultural and linguistic dynamics; and c) the contextualization of intervention according to the social network, emphasizing those that are used intensively in fundamentally underrepresented areas. These axes are relevant for moving toward a more equitable and resilient information ecosystem that is in tune with the challenges of climate change.

Limitations and projections for future research

Although this integrative review provides a comprehensive and up-to-date overview of the dynamics of environmental disinformation and public perception of climate change, it also has some limitations that should be acknowledged. First, the period analyzed (2020-2025) may have left out earlier research that would have been useful for understanding the historical evolution of digital narratives. Similarly, this integrative review has only included publications in English and Spanish, limiting the scope of languages and cultures that may have influenced the results. Another point to note is that the review has also had a certain degree of prevalence of descriptive works,

with relatively little comparative or longitudinal evidence that can be used to establish large-scale trends.

In terms of future projections, it is recommended that the review be expanded to areas that are underrepresented, such as Latin America, Africa, and South Asia, and that mixed and computational approaches (e.g., network analysis and semantic mining) be developed to more accurately observe the circulation of disinformation narratives in real time. It is also suggested that research be conducted to link the effects of disinformation with the processes of education and citizen participation, so that media literacy can be assessed as an impact variable rather than a theoretical recommendation. Finally, it is a priority to establish interdisciplinary alliances between communication, data science, and public policy that consolidate sustainable strategies against climate disinformation.

Conclusions

The integrative review confirms that environmental disinformation manifests itself as a structural, dynamic, and multidimensional phenomenon, the implications of which have a direct impact on public perception of climate change. Within this context, denialist, delayist, and conspiracy narratives operate strategically to distort public discourse, hinder urgent decision-making, and weaken the social consensus necessary to implement effective mitigation and adaptation policies.

Digital platforms, in their variability, play a decisive role in the spread of these narratives. Using multimodal formats, they become accomplices in their viralization, hindering information verification mechanisms. However, there are still significant gaps in the analysis of widely used platforms in the Global South, such as WhatsApp, TikTok, and Telegram, which have been scarcely studied in comparison to the flood of studies focused on Twitter/X and Facebook.

In terms of psychosocial effects, there is little public confidence in climate science, which adds to the reactivation of negative emotions (cynicism, mistrust, or apathy) that would limit the willingness to adopt pro-environmental behaviors, which are amplified by variables such as political ideology, polarization of information, and unequal access to verified information.

Although current strategies focus on media literacy, information correction, and the use of visual teaching resources, their structural impact is still limited. In this regard, it is necessary to promote empirically validated, culturally contextualized, and technologically up-to-date interventions that are capable of recognizing the particularities of the digital environment and responding to socio-territorial diversity.

As a substantive contribution, this review proposes a structured typology of disinformation narratives (denialist, delayist, and conspiratorial) and an integrative conceptual model that articulates the relationships between digital platforms, content viralization, citizen perception, and collective willingness to take climate action. Both resources strengthen theoretical analysis and guide the design of more effective public policies and communication strategies against climate disinformation.

Finally, it highlights the need to consolidate interdisciplinary, multilingual, and regionally situated analytical frameworks. Only through a critical, comprehensive, and contextualized approach will it be possible to address the informational challenges that hinder global climate action and move toward building sustained public consensus.

Ethical considerations

This study did not involve the direct participation of individuals or the processing of sensitive data, so approval from a research ethics committee was not required. The entire corpus analyzed comes exclusively from secondary sources, corresponding to indexed and freely accessible academic literature.

Complementary digital tools such as Google Scholar and Scite.ai were used to locate and verify references, in addition to the Mendeley bibliographic manager, which was used to organize and systematize academic citations. Generative artificial intelligence (Gemini) was used on an *ad hoc* basis as an auxiliary support, limited to the construction of search equations and the preliminary sorting of bibliographic information. It should be noted that neither the analysis nor the final draft were carried out using automated systems. All interpretative and methodological decisions were made exclusively by the authors. In accordance with the principles of academic integrity, it should be emphasized that the use of AI did not at any time replace the critical judgment or rigorous intellectual work required for an integrative review of this type.

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Declaration of Authorship - CRediT Taxonomy	
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Declaration on the Use of Artificial Intelligence
<p>The authors DECLARE that, in the preparation of the article entitled <i>Narratives of environmental disinformation and public perception of climate change</i>, Artificial Intelligence tools were used in a manner that complemented, rather than replaced, the intellectual work of the authors.</p> <p>The tools used were: Google Scholar, Scite.ai, and Gemini.</p> <p>The tasks for which they were used were: the first two for locating and verifying references, and the last for constructing search equations and preliminary sorting of bibliographic information.</p>

MISCELLANEOUS

MISCELÁNEA

Networking and audiovisual heritage in Ibero-American film festivals

*Networking y patrimonio audiovisual
en festivales de cine iberoamericanos*

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Received on: 09/14/2025 **Revised on:** 10/18/2025 **Approved on:** 11/23/2025 **Published on:** 03/01/2026

Suggested citation: Karbaum-Padilla, G., Barredo-Ibáñez, D. and Rejano-Peña, C. (2025). Networking and audiovisual heritage in Ibero-American film festivals. *Universitas XXI*, 44, pp. 147-169. <https://doi.org/10.17163/uni.n44.2026.06>

Abstract

Film festivals attract a diverse audience interested in the films being screened and the parallel activities offered. Additionally, these events perform various functions that support the development of the audiovisual sector. Therefore, the objective of this research is to examine the processes of networking and safeguarding of audiovisual heritage at some of the major Ibero-American film festivals. To achieve this, a qualitative approach was employed through semi-structure interviews with film journalists covering these events, as well as consultations with festival organizers. Among the main findings, it was discovered that festivals implicitly perform several functions that UNESCO identifies as part of the protection of audiovisual heritage. Furthermore, they promote various forms of interaction among different stakeholders in local and international audiovisual industries. Consequently, it is concluded that festivals facilitate in-person networking during the event itself, while virtual networking extends beyond the festival to maintain the relationships established or to collaborate on joint projects. These projects include initiatives related to the preservation of audiovisual heritage.

Keywords

Audiovisual heritage, audiovisual networking, preservation, film festival.

Resumen

Los festivales de cine atraen a una diversidad de públicos interesados en las películas que serán exhibidas y en las actividades paralelas ofrecidas. Además, estos eventos realizan diversas funciones que apoyan en el desarrollo del sector audiovisual. Por ello, el objetivo de esta investigación es examinar los procesos de *networking* y la salvaguardia del patrimonio audiovisual en algunos de los principales festivales cinematográficos iberoamericanos. Para lograrlo, se empleó un enfoque cualitativo mediante la aplicación de entrevistas semiestructuradas a periodistas cinematográficos que cubren estos eventos, además de consultar a gestores de festivales. Entre los principales resultados se encontró que los festivales realizan, de manera implícita, varias de las funciones que la UNESCO determina como parte de la protección del patrimonio audiovisual. Además, promueven distintas formas de relacionamiento entre los diversos actores de las industrias audiovisuales locales e internacionales. Por lo tanto, se concluye que en los festivales se propicia el *networking* presencial, realizado durante el desarrollo del certamen, mientras que el virtual se extiende más allá del evento para continuar con las interrelaciones que surgieron y colaborar en proyectos en común. Entre estos proyectos, también se incluyen iniciativas relacionadas con la preservación del patrimonio audiovisual.

Palabras clave

Patrimonio audiovisual, *networking* audiovisual, preservación, festival de cine.

Introduction

Film festivals are events that, in addition to contributing to the training of new generations of filmmakers, encourage encounters between specialized

and general audiences, who are drawn to the festival's programming (Ruoff, 2012; Peirano, 2016; Campos, 2020). One of the keys to festivals lies in the possibility of screening films that often cannot be seen in commercial theaters, providing exhibition windows for less commercial genres—such as documentaries—and thus constituting immersive and socializing experiences for the attending audience (Salles, 2021).

Authors such as de Valck (2007) argue that festivals tend to promote the strengthening of national and international audiovisual culture and, in general, the dissemination of alternatives to the dominant position of Hollywood. For his part, Vallejo (2012) defines the festival as an attractor that brings together creation, production, and the durability of genres thanks to its institutional nature and periodicity. For Moscoso *et al.* (2014), there is a relationship between space, community, and the preservation of heritage, social inclusion, and the recognition of diversity.

In this sense, festivals allow actors with disparate interests to converge (Dayan, 2013), as they are platforms where markets, cultural showcases, and competition sections come together, as well as organizers, audiences, exhibitors, among others (Peirano, 2016). Not all festivals, however, have the same interests; Devesa *et al.* (2012) state that these spaces can be classified according to their influence on aspects such as their economic, tourist, cultural, social, and physical repercussions.

In the following pages, we focus on the case of Ibero-American festivals, specifically seeking to understand two essential aspects within the relational and cultural structure of these spaces: *networking*, understood as the way in which common agendas are built among participants (Barcelona Activa, 2017); and the preservation of audiovisual heritage, which is linked to *networking* (Mata Caravaca *et al.*, 2014), as intangible works are preserved through their assimilation into the networks of festival participants. Next, from a theoretical point of view, we will examine both of these conceptual references.

Audiovisual heritage at festivals

Audiovisual heritage, in general terms, consists of audio, radio, film, and television recordings, whether or not they are intended for public broadcast (Edmondson, 2004). Also included in this set are any related video games, home recordings, and objects and artifacts that form part of audiovi-

sual culture, such as posters, press archives, manuscripts, photographs, and programs, among others (Ministerio de las culturas, las artes y el patrimonio de Chile, 2022).

Audiovisual heritage is a tool for learning about contemporary history, as well as a source of historical, scientific, or cultural information for future generations; it also provides insight into the technological context of its time (Comunidad Baratz, 2020). Audiovisual heritage contributes to the preservation and creation of collective memory (Cinemateca de Bogotá, 2022). It has a legal and juridical character due to the intellectual property rights it generates, as well as being documented and registered, which facilitates its inventorying (Díaz, 2014). Audiovisual heritage must be understood from four interrelated areas for its care: conservation, preservation, restoration, and access (Euroinnova, 2023). According to Edmondson (2004), preservation and access are two sides of the same coin. In the archival environment, this term is used to classify products, referring to them as documents that are preserved and managed in film and television archives, as well as in other institutions such as museums, universities, foundations, or private collections (Hidalgo, 2016).

The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO, 1980), in this now classic document, asserts that audiovisual heritage consists of content made up of moving images. This institution recommends that the relevant state agencies establish measures for its preservation. However, just a few decades later, Hoog (2004) estimated that 80% of humanity's audiovisual memory was at risk of disappearing. In 2011, Irina Bokova, then director of UNESCO, warned of the risk of losing humanity's audiovisual heritage forever due to deterioration and technological obsolescence (Señalmemoria, 2022). Regarding the preservation of audiovisual heritage, the archival community raises a worrying situation: it takes 10 to 15 years to recover content stored on magnetic media and safeguard it in digital format, and there is even content whose media are already irretrievable (IASA, 2020). Consequently, given its vulnerability, audiovisual heritage is in a critical situation because it becomes more sensitive over time. Its content tends to lose image and sound quality, making it essential to safeguard it with multi-platform strategies (Prestince and Gaustard, 2020) to prevent the fragmentation of a work that is not only cultural but also historical.

In some cases, such as television content, the situation is critical. Television was not created with archiving in mind, and much material has been

lost. Digitization is preserving content, but the medium itself has also entered a process of being considered necessary for preservation (Adduci, 2021). UNESCO (2015) argues that individuals and private and local institutions that have collections should have the support of the state and participate in the national directories responsible for this issue. The same organization recommends involving different social actors in order to promote research, policies, and models for the preservation of documentary heritage.

Against this backdrop, film and audiovisual festivals play a decisive role in the preservation of audiovisual heritage. In France, for example, more than half of film and audiovisual festivals dedicate sessions to film heritage in activities such as retrospectives, tributes, or one-off screenings, with some even focusing all their activities on heritage issues (Taillibert, 2016). The Museum of Modern Art in New York promotes a festival where restored works from archives, foundations, studios, and other institutions from around the world are exhibited (Moma, 2025). In Chile, the government has sought to promote the recovery, enhancement, and public access to audiovisual heritage through film festivals, exhibitions, traveling shows, film series, training activities, seminars, and other activities (CNCA, 2015).

In Latin America, the preservation of audiovisual heritage faces challenges that require a comprehensive approach. Ramos (2023) highlights the importance of creating a Peruvian Film Library to ensure conservation and cultural access. For his part, Cuarterolo (2020) identifies gaps in preservation policies and practices in regional film libraries, highlighting problems such as the loss of film heritage, institutional instability, and a lack of resources. Cossalter (2024) points out that the dictatorships imposed in Chile and Brazil during the last century created difficulties in the cultural sector, mainly by limiting economic resources, affecting institutional stability, and compromising the fate of audiovisual cultural collections.

Networking and film festivals

Networking is a good way to build professional and personal relationships, allowing solid connections to be established that help businesses grow (Alemán, 2023). Networking cannot be understood without talking about relational networks, which include formal relational networks, which are driven by an institution, and informal networks established by individuals

during their lives and are less structural (Factor Huma, 2004). There are two types of networking, depending on how it is carried out: physical or offline, which involves face-to-face interactions, and online or virtual, which is done through the internet and social media (Famet-Andalucía, 2014).

Table 1
Types of networking

	Advantages	Disadvantages
Physical networking	<ul style="list-style-type: none"> • It reinforces the message because it shows nonverbal communication. • It is close and natural. • You can receive and perceive the reactions of the people you are talking to. 	<ul style="list-style-type: none"> • Requires finding the right time and space. • It requires a proactive attitude and social skills among participants.
Virtual networking	<ul style="list-style-type: none"> • Communication is possible anywhere, anytime. • Allows you to focus on the message you want to communicate. • Allows you to connect with people you would not otherwise be able to meet. 	<ul style="list-style-type: none"> • Lacks nonverbal communication that reinforces the message being communicated (can lead to misunderstandings). • Depends on technology (telephone, computer, etc.). • Communication can be slow or one-way.

Note. Barcelona Activa (2017, p. 2).

For networking to be effective, all protocols established in the various communication channels used must be followed (Peset *et al.*, 2008). Networking can contribute to the following benefits: social capital, intellectual capital, internal and inter-area cooperation, and lasting relationships (Mendoza, 2022).

In the audiovisual context, Alberich and Roig (2010) argue that networking occurs through collaborative creative practices, which are both social and cultural, and which allow for decentralized production and management, alternating with the hierarchies and dominant models in cultural systems. A study on the instrumental preferences of Colombian communicators reveals

that their preferred means of communication are email—due to the formality it offers—and face-to-face interaction (Suárez, 2016).

An example of networking is taking place in Colombia: Cine SENA—a government initiative launched at the Cartagena Film Festival in 2016—aims to promote the Colombian audiovisual sector (EGEDA, 2022). By establishing interactive spaces, it has forged alliances that have benefited more than 1,500 trainees through links with international film festivals, companies, and production companies, as explained by this institution. But it is not only institutional spaces that serve as collaborative platforms. Networking can also take place through user participation. Thus, with the emergence of Web 2.0 and the accessibility of audiovisual production devices, users have become content creators, which has encouraged greater engagement with the community (Pérez and Gómez, 2010).

Another aspect of interest for networking is the protection of audiovisual archives. On this point, Deggeller (2012) concluded that the associations involved should establish relationships that would improve the networks linked to this issue and, in turn, link up with institutions related to heritage. In this regard, Mata Caravaca *et al.* (2014) argue that the preservation of audiovisual materials requires knowledge of the context in which the work was created. In addition to the management and creation of networks, it is advisable to include those involved in the issue.

Methodology

In the theoretical section, a significant gap in research on the relationship between the topics discussed has been observed. Therefore, the following research objective has been determined: To examine the processes of networking and the safeguarding of audiovisual heritage in some of the main Ibero-American film festivals. In addition, the following specific objectives were proposed:

- To describe the types of networking that take place at film festivals.
- Define the contribution of film festivals to the preservation of audiovisual heritage.

To obtain the information requested in the specific objectives, this research was carried out using a non-experimental approach, with a descriptive and cross-sectional scope, according to the data extraction. A qualitative methodology was chosen, as it allows us to delve into the experiences of

the people involved and to learn about the opinions, perceptions, and experiences of the participants in a research study (Quecedo and Castaño, 2002; Creswell, 2013; Katayama, 2014; Krauze, 1995). This is basic research, with the application of an analytical method, because the concepts of networking and protection of audiovisual heritage have been studied through the way in which their elements are developed at film festivals.

Empirical information was collected using the semi-structured interview technique. Specifically, a questionnaire was used, which contained guiding questions that were then supplemented with other unscripted follow-up questions asked during the interviews as they unfolded. Prior to the interviews, a bibliographic documentary research was carried out (Corbetta, 2013); this preliminary research work allowed for the compilation, comparison, and definition of the categories, subcategories, and operational indicators of the research. After the conceptual structuring of the research was completed, the interviews were conducted. The participants were selected using the criteria of contrast and complementarity. The first criterion—contrast—serves to gather the opinions that one group of participants has about another; the second criterion—complementarity—allows us to identify the aspects in which the participants in the sample agree, as well as their experiences and expertise. For this reason, the sample of interviewees consisted of two subgroups, the first made up of festival managers and the second of journalists specializing in covering them. The sample was selected using non-probabilistic sampling, which has the limitation that the results obtained from it cannot be generalized; however, it allows us to reach populations that are difficult to access in order to obtain the relevant information (Otzen and Manterola, 2017; Vasila-chis, 2006). Some of the participants met the above characteristic, given the high level of specialization required by subgroups in the sample.

In order to locate each interviewee, each of them was contacted through a key informant, who collaborated in the arrangements for conducting the interviews; others were contacted through their social or professional networks. The interviews were conducted via video calls from May to August 2023, with some participants being consulted a second time on emerging issues, which extended until December 2024. As these were semi-structured interviews, the interviewers relied on their experience to ask follow-up questions, which allowed them to access more in-depth and unprecedented information about the categories raised in the research. Participants were selected according to the following inclusion criteria:

- For festival managers: they were selected because their professional profiles indicated that they managed international festivals, admitting various audiovisual genres—fiction, animation, documentary, among others—and also carried out activities parallel to the competition and film screenings, such as workshops, discussions, and parallel exhibitions, among others.
- For film journalists: they were selected because their professional profiles indicated that they covered national and international festivals for various media outlets and platforms.
- The final sample consists of the following 11 interviewees:

Table 2
List of participants

Participant	Professional experience	Country	Years of experience
Luis Vélez (LV)	Journalist and film critic	Peru	11
Federico Karstulovich (FC)	Journalist and film critic	Argentina	18
Sergio López (SL)	Journalist and film critic	Mexico	23
Leopoldo Muñoz (LM)	Journalist and film critic	Chile	21
Rob Reyna (RR)	Cultural and film journalist	Peru	15
Sugey López (SL)	Director of the Cortos de vista International Short Film Festival	Peru	11
David Jean Robert Dupunchel (DD)	Director of the international festivals: Al Este	Held in France, Colombia, and Peru	17
Natalia Morales (NM)	Director of the Fusagasugá International Film Festival	Colombia	11
Enrique García (EG)	Director of the Ojo Móvil International Film Festival	Peru	14
Jon Apaolaza (JA)	Film journalist and film festival programmer	Spain	45
Joel Poblete (JP)	Film journalist and programmer for the Iquique International Film Festival and the Ñuble National Film Festival	Chile	20

Once the interviews were completed, they were transcribed and the results were coded and organized. Systematic coding was applied, which went through three interrelated phases: first, open coding, where the initial codes related to the categories of this research were identified; second, axial coding, in which the relationships between the codes and their correspondence with their categories and subcategories were established; and, finally, selective coding, which culminated in the formulation of the substantive theoretical approaches for the study (Creswell, 2013; Strauss and Corbin, 2002). The initials of each interviewee have been added to their surname to facilitate the description of the results. As can be seen in the table above, the average number of years of experience of the interviewees is 18.7 years.

Results

Festivals and the protection of audiovisual cultural heritage

The various audiovisual materials that have become cultural heritage must be conserved, preserved, restored, and made accessible to the public (Euroinnova, 2023), as indicated in the introductory sections of this paper. Accordingly, several of the interviewees stated that film festivals perform the specific functions of cataloging and storage, because they collect a variety of materials, which they exhibit at their events and then must store in an orderly manner.

As for the archiving of audiovisual works, this is done in different ways, mainly through hard drives, and in a few cases, some copies are stored on film (DD, SL, EG). At some of the festivals consulted, this archiving task is also complemented by the publication of the films on the festival's audiovisual social networks, many of them on their YouTube accounts. However, the transfer of publication rights must be managed because many of the films are in rotation at various festivals. Thus, publication on social networks may jeopardize their participation in other events that require exclusive screening rights:

In the case of short films, for example, if we know that they are going to be premiered at the festival or that their actual year of production is 2022 or 2023, we cannot broadcast them live and leave them on social media forever, because we know that some festivals do not accept short films that are freely available online. (Sugey López, personal communication, July 20, 2023)

As part of their management needs, festivals are required to purchase storage devices and must allocate funds within their budget for the purchase of the necessary *hardware*. However, state funds often do not allocate budget for these purchases: “I only asked for a subsidy once to strengthen the video library, and I didn’t get it, so I stopped insisting because I do better with traveling exhibitions” (Natalia Morales, personal communication, July 25, 2023). In any case, some managers argue that festivals that receive financial incentives from the state could be required to allocate part of their budget to the archiving and preservation of audiovisual material:

When we talk about having an archive, we are also talking about adding value. In particular, I believe that festivals that receive financial support from the state have an obligation to do so, and this obligation should apply in all aspects. And heritage is the worst aspect we have as a country. So yes, but it would have to start with the state and also be consistent with what festivals are. (Sugey López, personal communication, July 20, 2023)

Another technological resource for archiving and exhibiting material is the official websites of the festivals themselves (NM-SL). On the other hand, material is also stored on digital devices that were in use until recently, such as DVDs.

Festivals allow for the storage of a variety of audiovisual material, but thematic festivals also preserve the films that participate in them. This will allow those interested in researching these topics to directly access these particular repositories that address specific themes such as: films made with cell phones, films made by women, ecological films, inclusive themes, among others (EG). On the other hand, regional festivals become the only entities that systematically archive the audiovisual heritage of their locality: “There you have your stories from the region, whether they are from one side or the other, whether they are well photographed or poorly acted, whatever they may be, we are having the collection preserved there” (Natalia Morales, personal communication, July 25, 2023).

In addition to films and audiovisual works, manuscripts, posters, press archives, photographs, and programs, among other items, are also considered part of the audiovisual heritage (Ministerio de las culturas, las artes y el patrimonio de Chile, 2022). These materials are also archived by festival organizers on their disks or storage devices, but in some cases, they have been damaged. For this reason, the festivals’ social media accounts have become

alternative repositories for this type of material and, on some occasions, have served as backups, allowing the material that was originally published on these platforms to be recovered. In this sense, the preservation of these materials is important because they contain the memory of the festivals (NM-SL). It should also be noted that: “In the future, perhaps in 20 years, festivals will be a kind of repository, thanks to digital technology that allows films to be stored on the host” (Rob Reyna, personal communication, July 17, 2023).

Another aspect of audiovisual heritage protection is restoration. In this regard, film festivals perform some of these audiovisual heritage preservation functions, but not all of them do so, with some doing more than others (JA). In the festival world, this is already a more complicated task to carry out due to its high cost. Even so, some festivals do carry out some restoration activities, but this task is unusual because it requires an extra budget. The festivals that are able to do so are the so-called major festivals (DD-LV). Some festivals also have private preservation programs, which is positive, but this is usually more common in large festivals, as restoration and preservation are expensive activities that their budget can cover (LV):

It would be difficult for us to do the restoration ourselves. It would be great if we could do it. In fact, we have done it. We held a workshop on audiovisual material recovery in Barrios Altos [Lima, Peru], although it was not fully realized. During that event, we found 16 mm reels, cassettes, and other materials that were in the process of being restored. It was an effort that we carried out over two years, but the truth is that we do not have an extensive budget, which limits independent festivals. (David Duponchel, personal communication, July 28, 2023)

More and more films are being restored, and access to older films is becoming more difficult for young viewers. In this sense, festivals are becoming an excellent showcase for restored films, and some of them include this type of screening in their programming (JA-LV):

A film that is now being presented as new, 30 years from now, should be shown as a historical item. The festival should always have a section dedicated to the historical review of Peruvian audiovisual works because they are part of the nation’s heritage. Every festival should have a section for viewing the past, both internationally and nationally. (Luis Vélez, personal communication, July 22, 2023)

Out of all the functions mentioned with regard to the protection of audiovisual heritage, most of those interviewed agree that their work is geared toward the dissemination of audiovisual heritage. Festivals screen restored works, which may be by filmmakers from the festival's country of origin or by international authors, integrating them into their programming. Some festivals even create a section for restored classics. In addition, it is considered that what is currently being shown will in some years be the audiovisual heritage of that era and, therefore, all festivals should have a section for retrospective exhibitions (DD-JV).

In some circumstances, collaborative contributions are established between film journalists, their associations, and festivals. These links help to carry out activities that fall within the framework of audiovisual heritage protection—such as the dissemination of works that are already cataloged—through screenings or exhibitions that are integrated into the festival's parallel activities program:

We are celebrating the centenary of Armando Robles Godoy, and we have formed a committee within the association for this commemoration. We consider Robles Godoy to be our greatest reference point among Peruvian filmmakers. Fortunately, festivals have welcomed us as an association to hold screenings and exhibitions. (Luis Vélez, personal communication, July 22, 2023)

Compared to other festivals, some may offer retrospectives of William Wyler and, at the same time, highlight a new author, but they manage to establish a dialogue between the two proposals. I think that's great, and I wish all festivals had that. (Joel Poblete, personal communication, July 20, 2023)

Despite this, some of the interviewees state that there are no policies or legal instruments that promote links between the state entities responsible for protecting audiovisual heritage and festivals that allow for joint preservation actions under a legal framework and budgetary support (SL-NM).

Film festivals and audiovisual networking

In the audiovisual field, networking is carried out through collaborative creative practices, which are both social and cultural (Alberich and Roig, 2010). This research determined that film festivals are spaces where inten-

se social activity takes place, favoring the establishment of various types of networking. In this regard, the interviews revealed that there are various forms of networking at festivals. The first is between the organizers of these events, i.e., between the managers of various festivals, who form alliances with each other (DD, SL, EG). The other occurs among the participants of the event; in this sense, the organizers generate these links through planned activities. However, they also occur spontaneously during the event's activities, where attendees connect with each other in activities such as exhibitions, discussions, workshops, laboratories, etc. In some cases, specific activities are created with the aim of networking among event participants, especially filmmakers (DD, EB, SL):

We have a space created exactly for that purpose, called Networking CDV. It is a closed event where we bring together all the directors or producers with the jury, some guests, friends, and filmmakers from Lambayeque. (Sugey López, personal communication, July 20, 2023)

<...> I think that the strong point of a festival is precisely networking. When you go to a festival, it is precisely to meet other filmmakers, to meet people who are in the industry, and also to meet critics who are also looking for new filmmakers, new forms, new content, new stories. I think that's what connects people. It's like a hub that seeks to bring together different people who are directly or indirectly related to audiovisual production. (Enrique García, personal communication, July 26, 2023)

Networking involves initial contact between interested parties, and festivals become a hub for this, but the circuit closes when those involved extend the relationship beyond the initial encounter and establish relationships of mutual assistance, participation, or collaboration that transcend the time and space in which the festival took place:

Networking is based on establishing contacts with people who are then invited to other festivals; films and ideas are shared, the invitation to the festivals is also reflected upon, and artists form contacts. When people meet once, it is not networking. It is necessary for people to meet several times. (David Duponchel, personal communication, July 28, 2023)

Thematic audiovisual festivals, by their very nature, encourage networking among people who have a professional connection to the festival,

between national and international participants (EG). Another aspect that arises within the establishment of networking is the formation of alliances between participants with the same professional interests, such as when new filmmakers make contacts with whom they later carry out audiovisual projects. It also happens that the festival organizers are filmmakers themselves, so they invite former festival participants to take on production roles in their audiovisual projects, with co-production being one of the most common formulas among the projects they develop together (EG-SL). With so many changes affecting festivals, the interrelationships between them are also changing:

The networking that is taking place will continue to develop, because we are in the midst of this change; every year we discover new things, strengths and weaknesses, “this didn’t work out last year, we should call on this person,” “last year we did very well communicating this, but not that.” So, if before we could continue with the same approach, today we can no longer do so. (Joel Poblete, personal communication, July 20, 2023)

Similarly, in the responses analyzed, we found the existence of a type of *networking* among journalists or critics who are at the festival, from which they generate their national and international contact networks. This even helps them to support each other when they have to cover events abroad, since the media often does not cover all the expenses, so they turn to their contacts, either individually or as a group. This is the case with FIPRESCI (the International Federation of Film Critics) (LV-FK), which connects with producers, making it easier for them to obtain exclusive news stories (SL-RR-JA): “The more people, producers, directors, and actors you have in your address book, the more useful it will be later on for future interviews, to get exclusives on projects that are in the works.” (Rob Reyna, personal communication, July 17, 2023). At the same time, this possibility also encourages the establishment of professional relationships:

I can tell you that, as a result of these festivals, and also as a result of attending the Platino Awards, we have founded an association of Ibero-American film journalists, which did not exist before and of which I am the president. I think that has been thanks precisely to that networking. (Joan Apaolaza, personal communication, June 14, 2023)

Networking is something that happens naturally. People get to know each other and collaborative projects are achieved. There was the case of a critic who worked alone and then met another and they started a project together. There is also networking between critics and filmmakers. (Luis Vélez, personal communication, July 22, 2023)

Film journalists who cover festivals often establish connections with the organizers. In these spaces, after interaction, journalists are often invited to be part of the juries or to work in the management of these events, even taking charge of their communication departments, which constitutes an expansion of their professional experience (JP-JA-LV). At some large festivals, such as Berlin or BAFICI, spaces are created for the specialized press to meet with programmers, and training is provided where networking is also established (JV).

Based on the results, it has been established that the following types of networking take place at festivals:

- Institutional networking. This occurs when members of communities, associations, entities, or institutions come together and interact around common themes, interests, or projects.
- Inter-institutional networking. This occurs when members of different institutions or associations interact to carry out projects in which their interests converge, such as when film journalists join forces with festival organizers to hold screenings, training workshops, debates, among others.
- Audiovisual networking. This is a type of specialized networking in which different actors in the audiovisual field interact to carry out activities, projects, or alliances related to audiovisual production. Festivals are not the only space where this takes place, but they are one of the spaces where it is explicitly encouraged.
- Intentional networking. This arises from activities organized by the festival itself to bring participants together.
- Spontaneous networking. This arises from interactions between festival participants who connect with each other through the various activities offered in the event's program.

Table 3
Theoretical-empirical comparison matrix

Category	Subcategory	Definition and evidence
Networking	Forms: in-person and virtual	Types of networking at festivals: in person during the event and extended virtual networking afterwards for collaboration (Karbaum <i>et al.</i> , 2025; Barcelona Activa, 2017; Famet-Andalucía, 2014). Empirical evidence obtained in this study: Karbaum <i>et al.</i> (2025).
	Relational networks: formal and informal	Formal networks promoted by institutions and informal networks promoted by individuals; they enable collaboration and the creation of alliances (Factor Huma, 2004; Mata Caravaca <i>et al.</i> , 2014). In interviews, managers and journalists confirmed the fundamental role of these networks (DD, SL, EG).
	Benefits and protocols	Social and intellectual capital and lasting relationships strengthen networking; effectiveness depends on clear protocols (Mendoza, 2022; Peset <i>et al.</i> , 2008). According to interviewees, networking is key to contact between filmmakers (Enrique García, personal communication, 2023).
Safeguarding	Audiovisual heritage management	This includes conservation, preservation, restoration, and storage on hard drives and film material. Budget constraints hinder effective archiving (Euroinnova, 2023; Edmondson, 2004). Testimonies reveal a shortage of state funds and a continuing need for resources (Sugey López, Natalia Morales, personal communication, 2023).
	Dissemination and legal custody	Festivals promote the dissemination of restored works, establish classic film sections, and ensure legal protection in relation to copyright (UNESCO, 1980, 2015; Taillibert, 2016). Journalists' associations collaborate in commemorations and exhibitions (Luis Vélez, personal communication, 2023).
	Risks and strategies	Interviewees warn about technological obsolescence and loss of heritage, making multiplatform strategies and stable policies necessary (Hoog, 2004; Prestince and Gaustard, 2020; Cuarterolo, 2020). Restoration is costly and limited to large festivals (David Duponchel, personal communication, 2023).
Festivals	Audiences and segmentation	Training and segmentation of specialized and general audiences to support exhibitions of less commercial genres (Ruoff, 2012; Salles, 2021). Testimonials highlight the importance of these audiences for the continuity of the festival (Natalia Morales, personal communication, 2023).
	Economic and cultural roles	Festivals strengthen audiovisual culture and offer spaces for new genres and productions, also impacting the local and international market (De Valck, 2007; Peirano, 2016; Devesa <i>et al.</i> , 2012). Their role as cultural showcases is valued by journalists and managers (Joel Poblete, personal communication, 2023).

Discussion and conclusions

Festivals are events that bring together diverse participants with different objectives (Dayan, 2013). However, there is a common motivator: a love of cinema. Based on this, various actors share an interest in protecting audiovisual heritage, which gives rise to different activities within the festival program. In this regard, Moscoso (2014) states that festivals are related to the space and community where they take place, in addition to promoting heritage preservation, social inclusion, and recognition of diversity. Regarding the second aspect, this research concludes that these events not only contribute to the conservation of cultural heritage in general, but also to specific heritage, such as audiovisual heritage.

The four areas that make up the protection of audiovisual heritage are: conservation, preservation, restoration, and access (Euroinnova, 2023). Festivals play a role in the conservation and preservation of audiovisual heritage by archiving their materials, although restoration is limited by its high costs and is only viable at large events. Access to these archives is mainly provided through screenings during the festival and publications on their networks or websites, performing these safeguarding tasks unofficially. In this dynamic, there is a need for the integration or promotion of public policies that link all these efforts and the social actors who carry them out, as proposed by UNESCO (2015) and as is being done in Chile, where the state promotes preservation through film festivals (CNCA, 2015).

In this regard, the discussion of the results reveals that Ibero-American festivals play a fundamental role in the preservation and dissemination of audiovisual heritage, coinciding with Ramos (2023) on the need for institutions, such as film libraries, that guarantee such conservation and cultural access. However, state policies or governments in Latin America have not contributed to this purpose (Cuarterolo, 2020; Cossalter, 2024).

As seen, networking establishes formal and informal networks of relationships (Factorhuma, 2004) which, in the case of festivals, are common to both types of interaction. Managers schedule events to facilitate the integration of the various actors in the audiovisual industry. However, informal relationships also develop through interpersonal contacts that arise during the various activities that are part of the festival program. There are two types of networking: face-to-face and virtual (Barcelona Activa, 2017). Due to their face-to-face nature, festivals use the first type of networking for initial

contacts, while the second type is used for maintenance, with the first type being used again when those involved meet again at other festivals and develop joint projects.

As De Valck (2007) argues, film festivals contribute to the strengthening of audiovisual cultures in the face of Hollywood's dominant position. In this sense, the relationships established by managers, filmmakers, and young directors through the networking developed at these events constitute a specialized function. This function allows production to go beyond the hierarchies exercised by the predominant industries, becoming yet another manifestation of what Alberich Pascual and Roig Tello (2010) had already proposed as a counterpart to the dominant models in the audiovisual industry.

Regarding the preservation of audiovisual heritage, Mata Caravaca et al. (2014) proposed that this should be achieved through actions that enable networking or the establishment of collaborative networks among those involved in the issue. Following these authors, this research allows us to conclude that audiovisual festivals are events that bring together social actors linked to the issue, such as festival managers, film journalists, audiovisual industry agents, and film lovers, who establish relationships to develop initiatives and projects aimed at safeguarding audiovisual heritage.

Despite the effort made, this research had limitations, among which those related to the composition and contact of the sample of participants stand out. Although the data analyzed reveal particular circumstances regarding networking and the preservation of audiovisual heritage developed at film festivals, both topics are still current. They can continue to be studied individually or jointly in other areas of the audiovisual industries, because the literature review also revealed gaps in knowledge on the topics raised. For this reason, further research is needed to determine whether what has been proposed can be defined as audiovisual networking, breaking it down as one of the specialties of networking in general.

Acknowledgments

To the Research Department of the Peruvian University of Applied Sciences, for the support provided to carry out this research through UPC A-256-2025.

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Declaration of Authorship - CRediT Taxonomy	
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Declaration on the Use of Artificial Intelligence
The authors DECLARE that no artificial intelligence-based tools were used in the preparation of the article entitled <i>Networking and Audiovisual Heritage at Ibero-American Film Festivals</i> .

Citizens' Perceptions and International Relations in Latin America: A Systematic Literature Review (2020-2025)

*Percepciones ciudadanas y Relaciones Internacionales
en América Latina: una revisión sistemática de literatura
(2020-2025)*

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Received on: 15/09/2025 **Revised on:** 27/10/2025 **Approved on:** 09/01/2026 **Published on:** 01/03/2026

Suggested citation: Mila-Maldonado, A., Mila-Maldonado, J. y López-Díaz, I. (2026). Citizens' Perceptions and International Relations in Latin America: A Systematic Literature Review (2020-2025). *Universitas XXI*, 44, pp. 171-196. <https://doi.org/10.17163/uni.n44.2026.07>

Abstract

This research addresses the theoretical relationship between public opinion and international relations (IR) in Latin America from an interdisciplinary perspective that integrates political science, communication, and international studies in the Spanish language. It starts by recognizing that, within the context of globalization, digital technologies, and public diplomacy, public opinion has transcended its traditionally national analysis to acquire a transnational dimension. Utilizing the PRISMA methodology for a systematic literature review of recent academic work (2020-2025) within the Scopus database, the study focuses on the theoretical-conceptual nexus between public opinion, IR, and the Latin American context. The main objective is to map trends, identify gaps, and establish emerging lines of research. Additionally, the role of the media, social networks, and political actors in shaping opinion climates that directly impact the foreign policies and international image of the region's States will be discussed. This proposal aims to contribute significantly to the construction of research avenues linking public opinion with the discipline of International Relations in Latin America, an area insufficiently explored to date.

Keywords

International Relations, public opinion, Latin America, globalization, digital public sphere, Scopus, prisma methodology, foreign policy.

Resumen

Esta investigación aborda la relación teórica entre la opinión pública y las Relaciones Internacionales internacionales (RR. II.) en América Latina desde una perspectiva interdisciplinaria que integra la ciencia política, la comunicación y los estudios internacionales en lengua castellana. Se parte del reconocimiento de que, en el contexto de la globalización, las tecnologías digitales y la diplomacia pública, la opinión pública ha trascendido su análisis tradicionalmente nacional para adquirir una dimensión transnacional. Utilizando la metodología PRISMA para una revisión sistemática de la literatura académica reciente (2020-2025) en la base de datos Scopus, el estudio se centra en el nexo teórico-conceptual entre la opinión pública, las RR. II. and el contexto latinoamericano. El objetivo principal es mapear las tendencias, identificar vacíos y establecer líneas emergentes de investigación. Adicionalmente, se discutirá el rol de los medios, las redes sociales y los actores políticos en la configuración de climas de opinión que impactan directamente en las políticas exteriores y la imagen internacional de los Estados de la región. Esta propuesta aspira a contribuir significativamente a la construcción de líneas de investigación que vinculen la opinión pública con la disciplina de las Relaciones Internacionales en América Latina, un área insuficientemente explorada hasta la fecha

Palabras clave

Relaciones Internacionales, opinión pública, América Latina, globalización, esfera pública digital, Scopus, metodología prisma, política exterior.

Introduction and state of the art

Although the concept of public opinion has been studied predominantly in the fields of communication and political science, under precursors such as

Habermas (1994) this concept has gained greater importance in other disciplines such as International Relations. To understand this issue and establish a common thread with other branches of knowledge, visionary contributions such as those of McLuhan and Powers (2015[1989]) argue for the potential of a democratic macrocosm that would allow mediation between different societies and cultures, under the concept of the Global Village. These authors' dialogue was visionary in terms of a reality where "the medium is the message," in that these platforms will have the capacity to mold themselves to reality and build new mechanisms to generate stimuli in future audiences. Thus, authors of their stature were already betting on an environment marked by globalization.

It should be noted that, at present, public opinion is also developing within the framework of a digital public sphere, which "is not a sphere separate from society, but a dimension and aspect of the public sphere in societies where digital information and communication are predominant" (Fuchs, 2021, p. 19). Therefore, it is possible to refer to the behavior of public opinion—to which we could add, in this context, the adjective "international"—as inherent to the effective development of diplomatic relations between different states and supranational institutions (Valle de Frutos, 2024).

Likewise, with a view to constructing a phenomenon of 'international public opinion', the emergence and rise of Artificial Intelligence has led to a series of virtues and, at the same time, risks in the strengthening of diplomacy. For example, the efforts of major economic powers to revolutionize their research and strengthening are noteworthy, not only in terms of their strengths as tools for generating information, but also in terms of their predictive capabilities applicable to different sectors involving public and private entities (Mialhe *et al.*, 2020).

Taking the above into account, this article presents a literature review of existing studies that allow us to establish a link—it should be noted, a theoretical one—between public opinion and international relations in Latin America. To this end, taking into account the presence of all three terms, a systematic review of the literature will be carried out on the main results obtained from searches in the Scopus database, and a discussion will be held on their main contributions.

Construction of a concept of public opinion

In recent years, it has been difficult to establish a consensus on the concept of public opinion. Classic authors such as Jürgen Habermas (1994) have

made important contributions in this regard. It should be noted that his study has been approached from multiple areas of the social sciences, such as sociology, political science, and communication (Dader, 2008). In this sense, to understand its origins, it is necessary to go back to the context of the French Revolution, where precepts of political propaganda and messages disseminated to large groups of individuals characterized by reading habits proliferated.

Specifically, the origin of public opinion derived from the—at that time—growing reach of the press and other printed formats (magazines, books, etc.) among the citizenry, in addition to the emergence of radio and television media. This allowed citizens to gain new knowledge beyond books. For Habermas (1994), this led to the “politicization of social life” (p. 4). In principle, in the 19th century, the “opinion” press served as a powerful resource for political publicity to position interests, ideals, and other elements of interest. For Habermas (1994), there is a peculiar discrepancy when referring to public opinion, in that he suggests that, although the public may denote pluralism, it rather implies the uniqueness of the whole set of “opinions.” Thus, in constructing an analogy, for the author, public opinion is seen as a tree and ignores the set of roots, stems, and leaves (etc.) that compose it. Public opinion homogenizes—in this case—information, ignoring potential ramifications and paying greater attention to the communicative interest that appears to be dominant.

To understand the behavior of public opinion, it is necessary to glimpse the dual relationship between the sender and the receiver: under classic visions of leader-public (Habermas, 1994), dominant-dominated (Bourdieu, 2001), oligarchic bloc-popular bloc (Svampa, 2019) and even fatalistic views such as Lippmann’s (1931) elite-mass view, where the receiving public is conceived as passive, without the ability to provide feedback and/or critically filter the information received through the mass media.

Added to these views are positions such as that of Valenzuela (2017), who refers to the public under the category of ‘users’, in a vision of the digital ecosystem that encompasses new forms of interaction through social networks, to which digital media are added, broadening their information spectrum beyond television, radio, and the press, as was customary. Thus, this group of users is mobilized by newsworthy content (Trilling *et al.*, 2017) and constructed, from the point of view of *framing* theory, under the framework of Human Interest (Semetko and Valkenburg, 2000), in an effort “to personalize the news, dramatize or ‘emotionalize’ the news, to capture the interest of the audience” (p. 96).

In summary, rather than defining the concept of public opinion, this section presents a very general overview of the main authors who have worked on its understanding. To understand this phenomenon, it is necessary to understand public opinion as a phenomenon of constructing frameworks of social meaning, as “moments of generalized vibration” (p. 229) that are present in that “symbolic space of confrontation” (p. 227); or, that “world of life” referred to by Habermas (1994) and which is inherent to public opinion and the Bourdieuan political field (the parameters that govern the behavior of the individual in the ordinary social world, represented by the political class) (Bourdieu, 2001).

Public opinion and its applications in international relations

Currently, given the acceleration and transformation of media ecosystems, marked by the expansion of Information and Communication Technologies and the development of artificial intelligence, it is becoming increasingly less viable to think of public opinion solely in national and analog terms. On the contrary, it is necessary to incorporate the notion of the digital public sphere and its insertion into an increasingly interdependent international order (Carriquiry, 2024; Valle de Frutos and Díaz-Maroto, 2025). In this sense, the concept of the lifeworld proposed by Habermas (1994) has incorporated a more visible virtual component since the emergence and spread of COVID-19, when many processes of daily life were digitized, the media reinforced their digital channels, and multiple sectors of the economy (from large conglomerates to SMEs) had to opt for remote working (Mila-Maldonado, 2024).

In this context, various authors have explored the meaning of digital democracy as a set of new forms of political dispute that complement, rather than replace, the classic forms of activism proposed by McAdam *et al.* (2005). The figure of the user proposed by Valenzuela (2017) illustrates this transition, in that new audiences can alternate between the roles of sender and receiver in the construction of microclimates of opinion around topics of common interest. This is where the concept of subaltern counter-publics, proposed by Fraser (1997), gains strength, with greater visibility in times of social media and digital technologies (Melo and Alboreda, 2023).

In a context more directly linked to international relations, the dynamics of globalization and media interdependence have led to the consolidation of the concept of “international public opinion.” Authors such as Calduch (1991) highlight that contemporary international society is increasingly conditioned by the influence of the media in the formation of opinions and perceptions on transnational issues. This phenomenon does not arise spontaneously, but is constituted by complex communicative processes in which political, social, economic, and international actors participate in close interaction with the media itself.

From this perspective, public opinion can function as an element of pressure or legitimization on states and international organizations, influencing foreign policy positions and the social acceptance of certain decisions (Calduch, 1991). Beyond the genre of ‘international news’, international public opinion can be referred to as the set of communication processes involving political and social actors, the media, pressure groups, and major leaders on issues whose interest goes beyond specific borders (Baltar-Moreno *et al.*, 2024). In this scenario, public diplomacy becomes relevant as a tool for shaping external perceptions. Oliver-González (2023) points out that states combine public relations and communication strategies to influence their relationship with third countries; thus, states:

(...) Use public diplomacy to influence public opinion in other countries and to build positive international relations. Public diplomacy efforts include organizing cultural events, publishing informational material, and conducting academic exchanges, addressing different perceptions of the state and civil society. (p. 306)

Within this same framework, a final noteworthy aspect of this relationship between international relations and public opinion is the approach that has been taken based on the contributions of the so-called Almond-Lippmann Consensus and its three main postulates: the volatility of public opinion, its lack of structure and coherence with regard to foreign affairs, and its limited impact on the conduct of foreign policy (Lippmann, 1922; 1955), which became a benchmark for public opinion studies and foreign policy researchers. Although these postulates have subsequently been questioned and superseded, they served as a starting point for consolidating the *linkage* between foreign policy and public opinion. More recent research has shown that under certain historical and political conditions, public opinion can acquire stabi-

lity, structure, and even causal capacity over the direction and legitimacy of the external action of states (Foyle, 1999; Baum and Potter, 2008), demonstrating that the public can indeed be informed and have relatively stable opinions on foreign policy (Mila-Maldonado, 2022).

It should be noted that, during the decade 2010–2020, Latin America developed research exploring the relationship between public opinion and foreign policy based on the implementation of opinion studies focused on the foreign policy of countries in the region. In particular, research driven by specialized studies such as “Las Américas y el Mundo” (The Americas and the World) showed that citizens combine national pride with interest and support for active participation in the international system (Zepeda and Verdesoto, 2011; Kahhat, 2022; Morales Castillo and Schiavon, 2015). These findings reinforce the thesis of the structuring weight of public opinion, revealing stable preferences (Mexico) and concrete demands for regional integration and protection of migrants (Ecuador and Peru) (Zepeda and Verdesoto, 2011; Kahhat, 2022; Morales Castillo and Schiavon, 2015).

Although it is important to consider the relationship between foreign policy and public opinion, this article reviews the literature on the explicit link between the keywords “public opinion” and “international relations” as applied to research focused locally and regionally on “Latin America” (taken, then, as the third term to be incorporated into the search for scientific output from the last five years in the Scopus databases).

Materials and methods

The objective of this article is to conduct a systematic review of the literature on the relationship between public opinion and international relations in Latin America, based on research from the Scopus database for the period 2020–2025. Linking these relevant topics will allow us to understand how the media, political and economic actors, and citizens interact in the construction of opinion climates that influence the foreign policy framework of Latin American states, both in regional and global contexts.

Two specific objectives stem from this general objective: first, to identify the main criteria for the disciplinary relationship between international relations and public opinion in Latin America; and second, to identify the main lines of research that link both disciplines.

Based on these objectives, the following guiding questions were formulated to guide the review of research linking international relations with public opinion:

- To what extent does research in Latin America over the last five years (2020-2025) link International Relations with public opinion?
- What are the main topics addressed by this research?
- Are hegemony and new global actors the predominant themes?
- What are the potential lines of research that emerge from the systematic review of the literature?

Thus, based on the PRISMA methodology, the information was compiled from the Scopus database, using search terms in Spanish and a time frame starting in 2020. The approach of studies in Spanish responds to the need to promote the use of Spanish as a language of scientific communication, while the time frame seeks to ensure the relevance and pertinence of the sources, as well as to identify the main recent trends in the linking of these three keywords (public opinion, international relations, and Latin America) in high-impact studies (Codina, 2018). The relevance of using this methodological precept is based on its application in other works that have examined the behavior of different phenomena of study in various geographical areas, whether local or regional (López-López *et al.*, 2023).

Likewise, the methodological approach is fundamentally qualitative, given that the analysis focuses on the discussion and interpretation of the main research findings, beyond presenting the frequency of occurrence of certain topics compared to others (presented as context for the discussion). Therefore, this work is descriptive in nature, as it only seeks to characterize, from a theoretical point of view, the relationship between the three topics in previous research, and is not experimental, since it does not involve the formulation and testing of hypotheses (Hernández-Sampieri *et al.*, 2014).

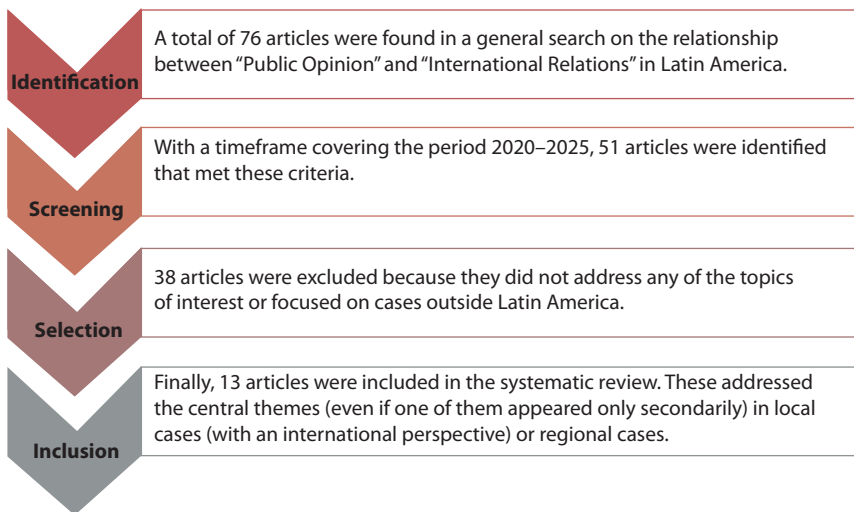
In the first phase, an initial search was conducted in the Scopus search engine—considered one of the most important today (Gusenbauer and Haddaway, 2020)—based on the presence of the terms in the content of scientific contributions in Spanish. This search yielded a total of 137 documents published since 1999. From this broad set, a subset of 89 documents produced since 2021 was selected.

In a second phase, given the lack of research in which the three terms appear in the title—and even the low number of contributions that relate two of the three keywords (Arnau and Sala, 2020)—it was decided to limit the search to research in Spanish that includes the three keywords and is related to the field of social sciences. This criterion of thematic relevance led to the exclusion of works belonging to areas such as Health Sciences, Engineering, and Exact Sciences, resulting in a total of 76 documents. Of these, 51 are available in open access in scientific journals belonging mainly to institutions in Latin American countries, which will be used for the literature review.

Below is a detailed presentation of the application in this work of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, used in review studies to identify, screen, select, and include research in databases and academic sources in line with the authors' interests and the object of study, for subsequent analysis (Barquero Morales, 2022; Valle-Cruz and Gil-García, 2022).

Figure 1

Application of the PRISMA methodology for searching for articles



Note. Prepared by the author based on the Scopus database.

As shown in the diagram above, based on keyword searches and the application of relevance and impact criteria, a total of 76 articles were identified in the Scopus database since 2000, of which 51 belong to the period 2020-2025. In turn, among these 51, 13 were selected that explicitly or substantively address the relationship between public opinion and international relations in Latin America. These articles form the basis for constructing the discussion around four analytical axes, as detailed in the following section.

Results: research related to public opinion and international relations in Latin America

Table 1

List of article citations

No. of citations	No. of cases
0	24
1	9
2	5
3	3
4	4
7	7
8	3
TOTAL	51

Note: Prepared by the author based on the Scopus database.

First, with regard to the number of citations, and taking into account the results of the previous table, the average number of citations per article is 1.02, which is not conclusive in terms of the impact of these topics on the scientific community. However, finding results for 51 articles with the search for the three keywords allows us to infer their potential in the study of the relation-

ship between public opinion and international relations in Latin America. It is a question, as observed, of an incipient approach, but with potential that appears as an opportunity to build new lines of interdisciplinary research. It should be noted that, although the time frame covers 2020, the results found in this regard would not be determinative—much less deductive—of their actual potential impact, but rather aim to illustrate the use of metrics by the scientific community indexed in Scopus. The following tables present the main themes and subthemes related to the articles under study:

Table 2
Main topics of the articles

Theme	Amount
International Relations	14
Communication	12
Democracy	6
Right to communication	1
Environmental rights	1
Economics	1
Migration	3
Miscellaneous	1
Public Policy	5
Religion and/or Ideology	1
Security	6
TOTAL	51

Note: Prepared by the authors based on the Scopus database.

Table 3
Main subtopics of the articles

Sub-theme	Amount
Election campaigns	4
Democracy	4
Law	5
Economics	4
Education	3
Governance	9
Minority groups	2
Freedom of expression	1
Communication	6
Migration	1
Pandemic	3
Foreign Policy	3
Public Policy	4
International Relations	1
Security	1
TOTAL	51

Note: Prepared by the author based on the Scopus database.

When analyzing both issues, initially taken as general areas, International Relations and Communication appear as the disciplines most addressed in the research—perhaps evident given the nature of the search. However, it is striking how they are linked to issues such as security and democracy. Likewise, with regard to sub-themes, the main one is governance, in many cases emphasizing bilateral or multilateral relations, not only between Latin American states, but also incorporating states that are influential in regional geopolitics, such as China and the United States.

Of the 51 articles selected for this study, only 13 cover, either fully or partially, the topics of international relations and public opinion in Latin America. In many cases, these topics appear when citing research related to the area and do not constitute the central focus of the analysis.

The table below provides a thematic overview of the 13 articles that are directly related to the topics under study, with the aim of understanding their current approach, identifying their main limitations, and proposing possible future lines of research. Four main recurring lines of research are identified in the articles analyzed: a) hegemony and new global actors; b) social consensus and its impact on foreign policy; c) communication, propaganda, and the media; and d) social, environmental, and transnational issues.

Table 4
Article analysis matrix

No.	Article	Hegemonies and new global actors	Social consensus and its impact on foreign policy	Communication, propaganda, and the media	Transnational social and environmental issues
1	Mexico's Elusive Partnership with China: The Search for Explanations (Tzili-Apango and Legler, 2020)	√	√		
2	Global Studies: Latin American Contributions in a Globalized World (Chenou and Quiliconi, 2020)	√			
3	The Role of Local Governments in Migration Research in Argentina (Nicolao, 2020)	√	√		√
4	Legal regulation of electoral polls: theoretical and comparative analysis (Marshall <i>et al.</i> , 2021)		√	√	
5	The contemporary content and scope of the right to access environmental participation (Aguilar, 2020)	√	√		√
6	Do all roads lead to Washington? Latin America's path toward a free trade agreement with the United States (1990-2015) (Cuevas Ossandón and Morillo Remesnitzky, 2020)	√	√		
7	Colombian presidential campaign on Twitter (2018): Appropriation, communication, and subjectivities (Acosta Valencia <i>et al.</i> , 2021)		√	√	

No.	Article	Hegemonies and new global actors	Social consensus and its impact on foreign policy	Communication, propaganda, and the media	Transnational social and environmental issues
8	Control of public opinion in the Canary Islands during the Great War (1914-1918): propaganda and foreign diplomacy (García Cabrera, 2022)	√	√	√	
9	Foundations, realities, and challenges of Colombian internationalization. The 1991 Constitution and its 30 years of history (Penagos Forero and Niño Amézquita, 2021)	√			
10	The evolution of Ecuadorian foreign policy during the 21st century: analysis from the perspective of peripheral realism theory (Paradela López and Jima González, 2023)	√			
11	Deployment of Chinese soft power in Latin America and its reception in the countries of the region (Brito Munita and Tagle Monti, 2023)	√	√		
12	What do Latin Americans think about the global system? (Luján, 2024)	√	√		
13	El Hispano Americano and Peruvian propaganda in Panama during the War of the Pacific (Ibarra Cifuentes, 2024)	√	√	√	

Note: Prepared by the author based on the Scopus database.

Discussion. Link between international relations and public opinion in Latin America

In the 13 articles analyzed, the link between public opinion and international relations in Latin America is structured around four main themes. The first focuses on the disputes over hegemony between the United States and Latin America's place in that scenario. The second theme analyzes how social consensus and public perceptions condition the foreign policy of states. The third examines the role of the media, propaganda, and social networks in shaping public opinion. Finally, the fourth axis incorporates social and environmental

perspectives, showing how public opinion influences transnational policies such as migration and environmental governance. These axes are discussed below in light of the concepts addressed and the research questions posed.

Hegemonies and new global actors

First, the reviewed works show that the relationship between public opinion and international relations in Latin America is mainly articulated around disputes over hegemony and the region's place in the global system. Chenou and Quiliconi (2020) offer a relevant starting point by positioning Latin America as a producer of knowledge in the field of international relations, questioning Eurocentrism and the preeminence of scientific production from the so-called Global North. Although their analysis does not focus specifically on public opinion, their contribution allows us to understand that knowledge production is part of perceptions about the dynamics of the international order, power hierarchies, and links between the great powers, thus shaping a field of symbolic dispute in which Latin America is not only a recipient but also a generator of interpretive frameworks.

In this context, a significant portion of the articles reviewed focus on China's growing relevance as an economic and geopolitical actor in the region, and how public opinion seems to be moving toward perceiving China as a source of dispute with US hegemony. Tzili-Apango and Legler (2020) highlight that, in the case of Mexico, Mexican public perceptions of China reveal mistrust and certain stigmas, which could hinder the deepening of bilateral relations despite economic incentives. This finding is relevant because it explicitly links public opinion with Mexican foreign policy, while exposing the tension between US hegemony and the emergence of China as an alternative.

Along the same lines, Brito and Tagle (2023) also explore the possibilities arising from a strengthening of trade relations between China and Latin America, reinforcing the idea that this is an alternative to US hegemony through the exercise of soft power, demonstrating that efforts are not only transferred to the economic sphere, but also to the realm of perceptions, narratives, and symbolic legitimacy. In contrast, Cuevas and Morillo (2020) analyze the reasons why several Latin American countries entered into free trade agreements (FTAs), highlighting that the main incentive was the expectation of market benefits associated with the relationship with the United

States. Although public opinion is not the central focus, the study suggests that political elites must make efforts to efficiently manage trade dependence and internal perceptions of the United States as a partner.

Taken together, these studies reinforce the idea that, although China is consolidating its position as a potential partner, the United States continues to have a strong presence in the region, especially in the trade structure, and that Latin America is shaping up to be an arena of hegemonic struggle for both actors. In this sense, public perceptions can be used to restrict or legitimize foreign policy decisions.

On a broader level, Luján (2024) integrates citizen perceptions from various Latin American countries regarding the role of the major economic powers. Among his findings, he highlights Latin America's potential to position itself as a global actor, provided it achieves greater regional cohesion. He also emphasizes how public perceptions of other powers influence the strategic orientation of political elites, making public opinion a key filter for foreign policy decision-making. Complementarily, the study by Ibarra Cifuentes (2024) shows how, during the War of the Pacific, the Peruvian state sought to project narratives aligned with its interests in Latin American countries, with the aim of gaining support and breaking the neutrality of certain actors in the conflict, showing that the dispute for hegemony is also communicative: appealing to regional identity and certain war-mongering narratives can serve as a resource to capture external audiences and shape sympathies.

Read together, these contributions show that, with regard to the United States and China, public perceptions tend to be stable and operate along lines of trust/distrust—thus confirming the first postulate of the Almond-Lippmann consensus (1955). At the same time, they show that Latin American states and elites are aware of this and have certain tools at their disposal to actively influence public opinion in the region.

Social consensus and its impact on foreign policy

Secondly, the articles reviewed show that public perceptions, the construction of political narratives, and the regulatory framework influence the way in which Latin American states articulate their international ties. This second line of research shows that so-called social consensus not only legi-

timizes strategic decisions, but can also be instrumentalized to position national interests in electoral campaigns, regulatory processes, or migration policies, especially when addressing the intermestic dimension of foreign and domestic policy (Manning, 1977).

Research such as that of Paradela and Jima (2023) shows how some governments in Ecuador prioritized relations with the great powers “at the expense” of what could be considered national interests. This can be understood within a broader ideological framework within the Correa-anti-Correa divide, which, according to the authors, generated an uncritical alignment that does not respond to a state strategy, but rather to disputes over internal legitimacy. Thus, in the absence of minimum agreements on the national interest, foreign policy is instrumentalized to become a mechanism for domestic political validation.

On the other hand, Nicolao (2020) highlights the importance of paradiplomacy in foreign policy, particularly in Argentina, emphasizing the need for further research into the role of local governments in the formulation and implementation of migration policies. These findings show that the boundaries between the internal and the external are blurred, as are perceptions, and that citizens' perceptions and expectations condition the way in which international commitments are implemented in the territory.

At the regulatory level, Marshall *et al.* (2021) analyze the application of legal regulations surrounding electoral polls, discussing the limits of censorship and transparency in the collection of opinion data. Although the emphasis of this study is on democratic quality, its findings suggest that the conditions under which public opinion is measured and communicated are important, as they can influence debates on public policy orientations, including foreign policy. Although the regulation of polls does not define the content of foreign policy, it can shape the way elites invoke what citizens think, whether in favor of or against certain international decisions.

This second line of research suggests that social consensus and public perceptions are also linked to foreign policy when elites perceive public opinion as a terrain for shaping or invoking the opinions of citizens to justify international orientations, especially when these are linked to internal cleavages and the management of transnational issues such as migration.

Electoral communication, political propaganda, and digital media

Thirdly, the articles by Marshall *et al.* (2021), Acosta Valencia *et al.* (2021), García Cabrera (2022), and Ibarra Cifuentes (2024) agree that public opinion is not a neutral effect of reality, but rather a space for symbolic dispute in which different actors compete to influence the perceptions, emotions, and decisions of citizens. These works show that the dispute unfolds both in electoral contexts and in scenarios of international conflict, and that it cuts across traditional media and digital platforms.

Marshall *et al.* (2021) argue that the publication of election polls affects the quality of democracy by potentially influencing voters' decisions. From this perspective, they propose the need to regulate them in order to mitigate undesirable effects on electoral behavior and ensure minimum conditions of transparency in information. In line with this concern about mediation devices, Acosta Valencia *et al.* (2021) analyze the role of social media, particularly Twitter, in the 2018 Colombian presidential campaign. Their results are in line with other recent studies that position "foreign policy considerations" (Acosta *et al.*, 2019), showing how Venezuelan migration has become a foreign policy *issue*, a means of opposition to the government of Nicolás Maduro, and a resource for electoral campaigns (Valera and Miranda, 2023). In this context, they show that narratives such as "Castrochavism" operate as polarizing ideological frameworks aimed at shaping public opinion in terms of political confrontation.

For their part, García Cabrera (2022) and Ibarra Cifuentes (2024) address the link between public opinion, propaganda, and international relations from a historical perspective. Both studies analyze how different states used the press as an instrument of foreign propaganda, seeking to shape international public opinion in favor of their strategic interests. As noted in the first section, in the case of the War of the Pacific, the construction of narratives about just cause, regional identity, or the attribution of characteristics to the enemy became a diplomatic resource for gaining support.

These articles show how traditional media and social networks act as mediators of public opinion, not only as inputs for politics, but also as strategic actors that influence both local processes and the international projection of states. This axis reinforces the aforementioned idea that the public sphere, both analog and digital, constitutes a communicative battlefield in which

domestic and international interests intersect, and in which public opinion can contribute to tension and questioning of issues related to foreign policy.

Social and environmental perspectives

Fourth and finally, the articles by Nicolao (2020) and Aguilar Cavallo (2020) introduce a social and environmental dimension. Both works emphasize that issues such as migration and environmental conflicts cannot be conceived solely from a state-centric perspective, but must be understood as regional and transnational phenomena, shaped by international regulatory frameworks and citizen participation dynamics.

In the case of Nicolao (2020), it is mentioned that local governments are the first actors to address the issue of migration, but that, ultimately, it is spaces such as Mercosur or transnational regulatory frameworks that decisively condition the regulation and management of these flows. This highlights the tensions between citizen demands and decisions made within broader regional and international frameworks.

For its part, the article by Aguilar Cavallo (2020) analyzes environmental governance in terms of participation rights. He points out that, although global governance instruments exist in the field of ecology, their effectiveness depends on the incorporation of participatory standards at the domestic level. When states adopt these standards, the relationship between citizens and public policy is reconfigured, and public opinion becomes a normative and procedural component of environmental policies, conditioning their legitimacy and implementation.

Both authors agree on the need for a multilevel governance approach. Nicolao (2020) presents this in terms of intergovernmental coordination between the state, provinces, and municipalities to implement migration policies with a paradiplomacy approach, while Aguilar Cavallo (2020) expands on this logic, pointing out that effective governance requires interaction between local, national, and regional levels, and that participation must be adapted to the sociocultural characteristics and specific vulnerabilities of each community.

In summary, a joint reading of these works suggests that, in Latin America, the effectiveness of policies on transnational social and environmental issues depends on the articulation between international frameworks, citizen participation and local management capacity, and the configuration of opinion climates around issues such as migration or the environment.

Conclusions, limitations, and future research perspectives

The analysis of the 13 selected articles provides an overview of the current state of analysis of the relationship between public opinion and international relations in Latin America over the last five years in high-impact journals. The findings highlight the nascent, fragmented, and still poorly consolidated nature of this area of study. Although there is academic interest in exploring the interrelationship between the two phenomena, most of the studies reviewed address public opinion tangentially, as a contextual factor rather than a central analytical variable. This trend suggests a theoretical weakness and the absence of robust conceptual frameworks that systematically articulate the role of public opinion in the processes of foreign policy formulation, implementation, and legitimization.

However, there are specific contributions that open up promising avenues for the future development of the field. Some studies focus on social perceptions of specific international actors, such as China or the United States, and demonstrate how these imaginaries influence cooperation decisions or the construction of strategic alliances (Tzili-Apango and Legler, 2020; Brito Munita and Tagle Monti, 2023; Luján, 2024). Other works highlight the instrumentalization of public opinion by governments, either through the use of polarizing narratives in electoral campaigns (Acosta Valencia *et al.*, 2021) or through communication strategies for propaganda purposes in conflict contexts (Ibarra Cifuentes, 2024; García Cabrera, 2022).

Likewise, studies have been identified that analyze public opinion as a factor of pressure, validation, or restraint in foreign policy, as evidenced in mechanisms such as referendums (Cuevas Ossandón and Morillo Remesnitzky, 2020), environmental citizen participation (r the regulation of polls as a guarantee of democratic transparency (Aguilar Cavallo, 2020). (Marshall *et al.*, 2021). These approaches provide valuable insights into the role that citizens can play in the international arena, beyond the institutionalized channels of state diplomacy.

In response to the research questions, in several areas: the link between IR and public opinion is not explicit, but is present in the positioning of global issues in places such as the press or, specifically, in citizens' perceptions of global actors such as the United States of America or China. Likewise, the main themes of the articles under study refer specifically to communication (14), communication (12), democracy (6), among others, which shows that

the research mainly focuses on one of the two disciplines under study. The articles position an important debate between US influence and the potential for diversifying relations with other economic actors such as China, which gives rise to new lines of research on new global actors and local potential, not only from an economic point of view, but also at a cultural level, to give another example.

However, significant limitations persist that hinder a more structured and comparative understanding of the phenomenon. First, most of the studies analyzed do not address the relationship between public opinion and foreign policy in an integrated and explicit manner, which limits the ability to construct generalizable theoretical inferences. Second, there is a geographical concentration on countries such as Mexico, Colombia, Ecuador, and Argentina, while other regions of the continent, particularly Central America and the Caribbean, remain virtually absent from the academic debate. Third, qualitative methodologies or conceptual review approaches prevail, with little use of quantitative empirical tools that would allow for the operationalization of the variables involved and the exploration of systematic correlations or causalities.

Given this situation, there is an urgent need to update and move towards a more articulated and comparative research agenda. It would be particularly valuable to encourage studies that analyze the differential impact of public opinion on foreign policy in different national contexts, considering variables such as the political regime, the degree of democratic institutionalization, press freedom, and the structure of the media ecosystem. In addition, the development of interdisciplinary theoretical frameworks that integrate elements of political science, international studies, communication sociology, and political psychology could provide more robust tools for interpreting how citizens' perceptions of the outside world are formed and how these perceptions directly or indirectly influence states' international decisions.

In conclusion, the systematic review—which is purely descriptive and dialogical in nature—shows that the relationship between public opinion and international relations in Latin America has rarely been addressed from an integrated perspective. It also shows that most of the studies identified focus on the period 2010-2020 and that, for the most part, they have not been published in Scopus-indexed journals.

Although there are some relevant contributions, the field continues to show weak theoretical articulation, limited methodological diversity, and in-

sufficient geographical coverage. Nevertheless, the set of articles analyzed allows us to affirm that there is significant potential for the consolidation of this line of research, especially if progress is made toward interdisciplinary approaches, comparative studies, and mixed methodological approaches that allow us to capture both the institutional structures and the social dynamics that permeate Latin American foreign policy. In this context, public opinion, far from being a passive actor, is presented as a dynamic component with the capacity to influence, strain, or legitimize the international relations of the countries in the region. The development of theoretical and empirical tools that allow for an understanding of this complex relationship is undoubtedly a pending challenge and, at the same time, an opportunity to renew international studies from and for Latin America.

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Declaration of Authorship - CRediT Taxonomy	
Authors	Contributions
Andrea Mila-Maldonado	Conceptualization; data curation; formal analysis; investigation; methodology; project management; supervision; validation; writing—review and editing.
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Declaration on the Use of Artificial Intelligence
The authors DECLARE that, in the preparation of the article <i>Citizen Perceptions and International Relations in Latin America: A Systematic Review of the Literature (2020-2025)</i> , the use of artificial intelligence was limited exclusively to searching and verifying sources, as well as supporting the spelling and style review of the manuscript (detecting redundancies, correcting spelling errors, among other formal aspects). In no case was artificial intelligence used to generate academic or substantive content for the article.

Note: Obtaining funding, resources, and software did not apply in this study, as no analysis software was used.

Disinformation and artificial intelligence in political discourse: Use of generative AI in the Parliament of Galicia (Spain)

*Desinformación e inteligencia artificial en el discurso político:
uso de IA generativa en el Parlamento de Galicia (España)*

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Received on: 10/10/2025 **Revised on:** 25/11/2025 **Approved on:** 8/02/2026 **Published on:** 01/03/2026

Suggested citation: Puentes-Rivera, I., Fernández-Souto, A. B. and Vázquez-Gestal, M. (2026). Disinformation and artificial intelligence in political discourse: Use of generative AI in the Parliament of Galicia (Spain). *Universitas XXI*, 44, pp. 197-222. <https://doi.org/10.17163/uni.n44.2026.08>

Abstract

The emergence of generative artificial intelligence (AI) tools poses challenges, ethical and moral dilemmas, the need for new regulatory frameworks, and the implementation of novel work routines, especially in the field of political and institutional communication. This article conducts an exploratory study on the use and application of these tools by members of the Parliament of Galicia (Spain). Its objectives include determining the degree of use, identifying the most frequently used tools, their main advantages and disadvantages, the parliamentary tasks in which they are most frequently used, identifying possible differences between ideological tendencies, and relating their use to the phenomenon of disinformation. To this end, a bibliographic review was carried out and the initial hypotheses were compared with the responses to an online questionnaire sent to the 75 members of the Galician Parliament and with the results of the analysis using ChatGPT and GPTZero to a sample of various initiatives from all parliamentary groups, those discussed in the plenary sessions of June 2025, in order to determine the percentage of AI-generated text and disinformation present in that sample. The results and conclusions show the widespread use of AI in the Galician legislative chamber, but at low percentages and with ethical limits that consist of using it only as a basis for work that has fundamentally human control and contribution. The members of parliament, in addition to using this tool, are generally in favor of its regulation, demand more specific training on the subject, and ChatGPT is the dominant software, with the use of other AI tools being anecdotal.

Keywords

Generative artificial intelligence, ChatGPT, DeepSeek, disinformation, speech, politics, parliament, Galicia

Resumen

La irrupción de herramientas de inteligencia artificial (IA) generativa plantea retos, dilemas éticos y morales, necesidades de nuevos marcos regulatorios e implementación de novedosas rutinas de trabajo, especialmente en el ámbito de la comunicación política e institucional. Este artículo realiza un estudio exploratorio sobre el uso y aplicaciones de estas herramientas por parte de los diputados/as del Parlamento de Galicia (España), destacando entre sus objetivos determinar el grado de uso, identificar las más utilizadas, las principales ventajas e inconvenientes, las labores parlamentarias en las que más se emplean, hallar posibles diferencias entre tendencias ideológicas y relacionar su uso con el fenómeno de la desinformación. Para ello se llevó a cabo una revisión bibliográfica y se contrastaron las hipótesis de partida con las respuestas de un cuestionario online remitido a los 75 diputados/as del Parlamento gallego y con los resultados del análisis mediante ChatGPT y GPTZero al que fue sometida una muestra de diversas iniciativas de todos los grupos parlamentarios, las tratadas en los plenos del mes de junio de 2025, a fin de determinar el porcentaje de texto generado por IA y de desinformación presente en esa muestra. Los resultados y conclusiones evidencian el uso generalizado de la IA en la cámara legislativa gallega, pero en porcentajes bajos y con unos límites éticos que consisten en recurrir a ella únicamente como base de un trabajo que cuenta con un control y una aportación fundamentalmente humana. Los diputados/as, además de utilizar esta herramienta, se muestran favorables, en general, a su regularización, reclaman más formación específica en la materia y es ChatGPT el software dominante, siendo anecdótico el uso de otras herramientas de IA.

Palabras clave

Inteligencia artificial generativa, ChatGPT, DeepSeek, desinformación, discurso, política, parlamento, Galicia.

Introduction and state-of-the-art

Although there are many large language models (LLMs), ChatGPT, developed in the US, is one of the most visible and widely used, while DeepSeek is a more recent variant. ChatGPT was launched in 2022 and reached 100 million monthly users in just two months (Baum and Villasenor, 2023). DeepSeek is a similar model, introduced in 2025, but more restricted in some institutional and governmental environments due to fears that its links to the government of the People's Republic of China generate in some states from a national security perspective (Deepes, 2025). Both systems were designed to generate coherent and contextual text, capable of supporting everything from speech writing to automated responses (Foos, 2024).

Since its launch in November 2022, ChatGPT has been the subject of multiple academic studies and research in the field of social sciences. Between November 2022 and April 2023, 156 publications indexed in Scopus were verified on this tool, and more than 4,600 throughout 2023, with more than 2,600 in the first months of 2024 (Marino and Giglietto, 2024), giving an idea of the massive interest in its application to discourse analysis, social experiments, and digital surveys, among other uses.

For its part, DeepSeek, the AI model developed in China, has been the subject of study in journals such as *Nature* (Conroy and Mallapaty, 2025), focusing in this case more on scientific production, as noted, than on its geopolitical impact. Some official documents and research, mainly from the United States, highlight concerns about DeepSeek in relation to the illegal extraction of knowledge from OpenAI, the company that developed ChatGPT, automated censorship, and the transfer of sensitive data to infrastructures associated with the Chinese government (United States Congress, 2025; Mok, 2025). In any case, there is also a line of research that highlights the advantages of DeepSeek from the point of view of democratizing global access to advanced AI (Baydemir, 2025).

Disinformation, artificial intelligence, and political discourse

Disinformation has established itself as a global threat to the integrity of public debate and democracy (Csernaton, 2024), especially with the rise of artificial intelligence (AI) and generative models, which allow false information to be produced and amplified on a large scale and with high persuasive-

ness. In particular, it has been observed that large language models (LLMs), such as ChatGPT, can flood media and social spaces with content that blurs the line between reality and *ad hoc* fabrication, eroding public trust (Kreps and Kriner, 2024).

Authors such as López Borrull and Lopezosa (2025) analyze 64 academic studies published between 2021 and 2024 on this subject and confirm the ambivalent nature of generative AI (GAI), which can both disseminate disinformation and offer tools to detect it, identifying six key areas: political, educational, and scientific disinformation; automated fact checking; media literacy, and deepfakes. For their part, Raman *et al.* (2024) conduct an analysis of nearly 10,000 publications between 2013 and 2022, showing how fake news linked to generative AI has escalated significantly in recent years, highlighting the need for studies focused on automated verification and digital ethics.

Due to its nature as a guarantor of informed public opinion, an essential pillar of any real democracy, it is in the field of political communication, together with the media, where these risks and debates are most evident. In the political arena, communication has also evolved to include sophisticated microtargeting strategies and the generation of personalized content using AI, with a clear risk of erosion of trust and democratic representation due to the massive generation of misleading content (Kreps and Kriner, 2024). Recent studies show that ChatGPT and other models can skew debates toward particular positions, especially when they know the audience's demographics, becoming more persuasive than humans themselves; a level of persuasion that poses obvious risks of information manipulation and polarization (Davis, 2025).

The ability to generate highly personalized messages using AI makes it possible to design political discourse that appeals to the specific beliefs of the target audience, increasing its persuasive effect. Generative models can produce hallucinations (coherent but false information) which, without adequate human supervision, can introduce factual errors into AI-generated political discourse. In addition, certain studies identify implicit political biases in the responses of these models, which could influence the content generated for parliaments or institutional cabinets (Motoki *et al.*, 2025).

The emergence of generative artificial intelligence is therefore redefining the production and transmission of political discourse. These technologies make it possible to generate persuasive, personalized, and mass textual

content, which creates new risks of intentional or accidental misinformation, compounded by the ability of generative models to increase the volume and quality of false or misleading content.

However, authors such as Simon *et al.* (2023) frame these concerns about AI as “an old and broad family of moral panics surrounding new technologies” and argue that the impact on the actual consumption of disinformation could be more limited than expected, as demand does not necessarily increase with supply and most users continue to consume media content, filtered by professional routines and content curation.

On the positive side of AI, even using it to combat disinformation, initiatives such as Full Fact (fullfact.org), NewsGuard (newsguardtech.com), and tools promoted by European projects such as REVEAL (revealdata.com), AI4TRUST (cordis.europa.eu/project/id/101070190), and VERA.ai (veraai.eu), which use AI to detect, classify, and track false narratives in real time. This dual capacity to generate but also detect false content underscores the need for contextual approaches and human oversight, using AI as an aid or tool, but with ultimately rational control.

In this regard, opinion polls such as the one conducted among the Andalusian population and referenced by Garriga *et al.* (2024) show that, although 86% of citizens believe that AI facilitates the production of fake news, 54% believe that it can also help combat it, leaving the door open for citizen support for hybrid models of surveillance and automated verification (automated fact checking), always accompanied by human supervision.

In the political sphere, some studies also explore how journalists and political actors use generative models to write speeches, announcements, or social media content. Simon *et al.* (2023) highlight how institutional media and election campaigns could increase the speed and scale of distribution of false messages, although they also benefit from AI in the production of truthful content. For these authors, many concerns about AI are speculative and not supported by solid empirical evidence. It would therefore be more realistic to focus attention on strengthening the information ecosystem by reinforcing journalistic institutions, digital literacy, and adequate regulation of these technologies than to simply combat them head-on.

In this regard, it should be noted that in December 2024, the Consello da Xunta de Galicia, the executive body of the Galician regional government, approved the Draft Law for the Development and Promotion of AI in Galicia, becoming the first European region to promote specific legislation on arti-

ficial intelligence (Xunta de Galicia, 2024). This bill, which became law on April 24, 2025 (DOG, 2025), does not explicitly mention ChatGPT or other LLMs, nor does it directly address the automated generation of political content, but it establishes the implementation of mechanisms for assessing the impact on fundamental rights, human-controlled supervisory offices, mandatory reporting, application of the principle of transparency, and a public registry of AI systems used by the administration, in addition to the creation of an AI Commissioner. All these elements provide a robust institutional framework for demanding transparency in public communications generated by AI, including those emanating from the Galician Parliament and other institutions. All of this reveals an institutional willingness to avoid the risks of automated generation of unverified text, which has direct implications for future parliamentary applications and political communication in general, recognizing the disruptive power of language models such as ChatGPT and seeking to avoid their indiscriminate use, which could lead to unverified discourse or discursive manipulation.

In summary, we could synthesize the impact of generative artificial intelligence on political discourse in the following aspects:

1. Increased production volume and better personalization or individualization of audiences: AI makes it possible to produce messages that are highly tailored to the audience and reproduce them on a large scale, which can amplify the persuasiveness of misleading messages.
2. Unintentional errors and biases: without human supervision, models may include incorrect or ideologically biased information.
3. Counterbalance through AI applied to verification: advanced tools already exist to classify and curb disinformation, although they require greater institutional support.
4. Need for ethical application in political discourse: Political parties, cabinets, and public institutions can use AI as an aid in drafting and creating different materials, but this requires the development and application of ethical and transparency standards.
5. Need for empirical evidence and specific regulation: excessive fear of the impact of AI-based technologies must be balanced with effective public policies and critical studies that consider the risks, but also the benefits, of using artificial intelligence in political discourse and debate.

Use of artificial intelligence in parliamentary politics and communications offices

More than 20 parliaments around the world—including the European Parliament and those of Brazil, Canada, Denmark, Estonia, and Italy—are researching or implementing the use of artificial intelligence for parliamentary assistance purposes (IPU, 2024). These applications include, among others, text generation, automated analysis of speeches or transcripts, and support for citizen consultations.

In the specific case of parliaments, studies such as that by Evkoski and Pollak (2023) demonstrate how language models can be used to analyze and predict political leanings in parliamentary speeches through explainable machine learning. Other recent research analyzes how ChatGPT can exhibit political biases and a misalignment with prevailing social values, often rejecting the generation of certain content and tending to represent perspectives considered mainstream (Motoki *et al.*, 2025).

This is particularly relevant in parliamentary contexts, where extensive language models could contribute to automating and standardizing speeches, questions, and answers, to the detriment of ideological pluralism.

In the specific case of Spain, there are few studies related to disinformation in local, regional, or autonomous contexts, and of those that do exist, a significant number focus on episodes of disinformation linked to specific political contexts such as the independence process in Catalonia (Aparici *et al.*, 2019), specific elections (Rivas-de-Roca *et al.*, 2022), practices and routines in institutional communication offices (Vázquez-Gestal *et al.*, 2024), or general research on disinformation studies in Spain (Rúas-Araújo and Panagua-Rojano, 2023; Morais and Piñeiro, 2025). No research focused on the application of AI tools to parliamentary discourse and work has been found in the scientific output analyzed. In this sense, the present study is pioneering, opening up a line of research in the field of regional parliaments. Only one publication by the Madrid Assembly is worth mentioning, which, among other aspects, reflects on “legal certainty in the use of AI in the parliament” (De Alba Bastarrechea, 2025).

In the institutional sphere, many communications offices have incorporated AI into their daily work routines to, among other tasks, draft press releases, prepare responses to the press, generate news summaries and talking points, and monitor social media in real time. There is global evidence of its regular use in

political campaigns and institutional press offices of all kinds (López Borull and Lopezosa, 2025), with generative AI being used to draft campaign emails, advertisements, and speeches (Foos, 2024). Similarly, in the scientific field, projects developed by journalists and data researchers have combined ChatGPT with human work to analyze political rhetoric (Troboukis *et al.*, 2024).

There are no studies on the use of generative AI in public institutions or institutional communication offices in the autonomous community of Galicia. However, it is worth noting, indirectly, the implementation of educational campaigns such as AulaCheck, promoted by the Xunta de Galicia and FECYT: Spanish Foundation for Science and Technology (Xunta de Galicia, 2024), which would implicitly demonstrate a concern or awareness of combating hoaxes using artificial intelligence-based tools and promoting critical thinking among Galician students, as well as institutional awareness of the risks of AI in public discourse.

To date, there are also no formally indexed publications with direct interviews with Galician MPs on the use of ChatGPT or AI in their work. However, useful and revealing statements of intent can be gleaned from interviews with experts in the media and from the institutional Declaration in favor of ethical and human-centered development in Galicia (Galician Parliament, 2022). Thus, in a televised interview, Teresa Rodríguez de las Heras, an AI expert at the European Commission, emphasizes the importance of oversight and transparency in the parliamentary use of AI to prevent the spread of fake news (RTVE, 2023); In her speech before the Joint Committee on National Security of the Spanish Parliament, she pointed out that generative artificial intelligence can influence legislative deliberation, a risk that could clearly be extrapolated to the Galician Parliament.

In relation to the aforementioned institutional declaration of the Galician Parliament, the joint support, whether explicit or implicit, of all groups demonstrates a shared commitment by the different members of parliament to the need for oversight and quality in the use of automated parliamentary drafting tools, in line with European guidelines on this matter. Although cases of disinformation are not directly addressed, this regulatory provision suggests a context that anticipates communication problems arising from the use of unregulated AI.

Finally, it should be noted that the literature on social media in Spain points out that political groups such as VOX use their social media profiles to spread polarized discourse based on disinformation and manipulation strategies (Teruel and García, 2025; Olmos, 2023). In the case of Galicia, these dynamics could

take specific forms in campaigns linked to immigration or gender, in line with patterns also observed internationally (Díaz *et al.*, 2023). There are numerous viral cases of politicians using highly generative discourse in viral messages on their social media, which then called into question the human authorship of the content. These dynamics could be replicated in the Galician context.

Ethical and moral limits on the use of artificial intelligence

The use of AI in politics undoubtedly raises ethical dilemmas related to transparency, content responsibility, data privacy, ideological bias, reduction of political pluralism, and fairness, among others (Kreps and Kriner, 2024; Baum and Villasenor, 2023). Furthermore, most existing ethical frameworks lack binding mechanisms, which limits their actual effectiveness to the willingness of each individual.

Within the European Union, common regulatory frameworks, such as the Artificial Intelligence Act (Diario Oficial de la Unión Europea, 2024) and the EU Code of Practice on Disinformation (Comisión Europea, 2022), promote obligations of transparency, detection of AI-generated content, labeling, and accountability. However, compliance and effective adherence by Member States remain a challenge and an ambitious goal yet to be effectively achieved (Csernaton, 2024).

Accordingly, the ethical limits on AI, and in particular on its application in the political and institutional sphere, revolve around three key areas:

1. Transparency and accountability: the current lack of clarity and adequate tools to determine unequivocally whether a message was generated by AI undermines communicative accountability (Yip and Balagué, 2023).
2. Privacy and data sovereignty: DeepSeek, for example, raises dilemmas of cross-border transfer, geopolitical security, and possible violation of the GDPR: EU General Data Protection Regulation (Mok, 2025).
3. Ideological neutrality: to the extent that AI opts for more generalist and mainstream content, it shies away from certain more alternative or minority content from a social and electoral point of view, which may restrict parliamentary deliberation and ideological pluralism (Motoki *et al.*, 2025).

In the specific case of Galicia, the aforementioned Institutional Declaration in favor of ethical and human-centered development in Galicia (Parla-

mento de Galicia, 2022) reveals the position of the parliamentary groups (PP, BNG, and PSdeG-PSOE) in favor of values such as respect for fundamental rights and citizen governance. This establishes, on paper, unanimously shared ethical limits to restrict the use of generative AI in political discourse without human supervision or adequate transparency.

Materials and methods

Objectives and hypotheses

The research underlying this article is based on the general objective (GO) of analyzing the use of artificial intelligence in parliamentary work and its possible relationship with disinformation. This general objective is broken down into the following specific objectives:

- SO1: to determine the extent of AI use in this field.
- SO2: to identify the most widely used AI tools in the Galician Parliament.
- SO3: to ascertain the main advantages and disadvantages of its use.
- SO4: The parliamentary tasks in which it is most widely used.
- SO5: Find possible differences between ideological trends.
- SO6: Relate its use to the phenomenon of disinformation.

The initial hypotheses include:

- H1: Generative AI, such as ChatGPT or DeepSeek, has already become a common working tool in parliaments.
- H2: Parliaments, including that of Galicia, are adopting generative AI as a tool for generating texts and speeches.
- H3: Members of Parliament do not generally acknowledge its use.
- H4: This is done in an unplanned and unprofessional manner.
- H5: The use of AI may result in a higher level of misinformation.

Method

A mixed methodology based on qualitative and quantitative techniques was used to carry out this research. First, a literature review was carried out with the help of artificial intelligence, using the paid version of ChatGPT

offered by the University of Vigo to its research staff (ChatGPT Plus 5), in order to obtain a more comprehensive overview of the main references related to the subject of study, which were subsequently reviewed and verified by the authors.

Secondly, in order to verify the results of this newspaper archive review and to obtain a better understanding of the subject of study, together with higher quality results and conclusions, a methodological triangulation was chosen, which included an online questionnaire with 25 questions, sent to the 75 members of the Galician Parliament in July 2025,¹ 12 responses were obtained, representing 16% of the total. This was combined with an analysis of all written initiatives (bills, non-legislative proposals, questions, and interpellations) that the four parliamentary groups (PP: Partido Popular, BNG: Bloque Nacionalista Galego, PSdeG-PSOE: Galician Socialist Party, and DO: Democracia Ourensana, the latter integrated into the Mixed Group) discussed in the two plenary sessions in June 2025 (June 10-11 and 24-25), extracted from the agenda available on the Galician Parliament's website (parlamentodegalicia.gal). This documentation was subjected to a double analysis. On the one hand, the percentage probability that these documents included text generated with AI assistance was calculated using ChatGPT from the University of Vigo and GPTZero software (app.gptzero.me). On the other hand, the level of disinformation present in the same texts was found with the help of ChatGPT. It should be noted that, although these two tools are not scientifically validated for this purpose, the exploratory nature of the study and its focus on AI suggest that it is appropriate to use them to test how they can contribute to this.

The use of GPTZero stems, in any case, from a query made to ChatGPT about suitable programs for calculating AI-generated text and, above all, from consulting specialized sources (Fernández, 2025).

Finally, the results obtained by the different methods were compared, and the conclusions presented in the corresponding section were drawn.

1 Online questionnaire available at <https://forms.gle/SZMqmqG6evrgLvEW6>

Table 1
Sample obtained for the study

Variable	Percentage																						
Gender	<p>A pie chart showing the distribution of gender. The 'Muller' category is represented by a blue slice and accounts for 65% of the sample. The 'Home' category is represented by a red slice and accounts for 35% of the sample. A legend to the right of the chart identifies the colors: a blue circle for Muller and a red circle for Home.</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Muller</td> <td>65 %</td> </tr> <tr> <td>Home</td> <td>35 %</td> </tr> </tbody> </table>	Category	Percentage	Muller	65 %	Home	35 %																
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Muller	65 %																						
Home	35 %																						
Age	<p>A pie chart showing the distribution of age groups. The '45-64' group is the largest, represented by a green slice at 60%. The '30-44' and '35-44' groups are each represented by orange and yellow slices, both at 15%. The '18-29' group is represented by a blue slice at 10%. A legend to the right of the chart identifies the colors: blue for 18-29, red for 30-44, orange for 35-44, and green for 45-64.</p> <table border="1"> <thead> <tr> <th>Age Group</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>18-29</td> <td>10 %</td> </tr> <tr> <td>30-44</td> <td>15 %</td> </tr> <tr> <td>35-44</td> <td>15 %</td> </tr> <tr> <td>45-64</td> <td>60 %</td> </tr> </tbody> </table>	Age Group	Percentage	18-29	10 %	30-44	15 %	35-44	15 %	45-64	60 %												
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Location Ideological: between 1 (most left-wing) and 10 (most right)	<p>A bar chart showing the distribution of ideological location on a scale from 1 (most left-wing) to 10 (most right). The y-axis represents the percentage, ranging from 0% to 50% in 10% increments. The x-axis represents the ideological point from 1 to 10. The highest percentage is at point 1 (approximately 45%), followed by point 2 (approximately 25%), point 3 (approximately 10%), point 6 (approximately 5%), and point 8 (approximately 15%).</p> <table border="1"> <thead> <tr> <th>Ideological Point</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>45 %</td> </tr> <tr> <td>2</td> <td>25 %</td> </tr> <tr> <td>3</td> <td>10 %</td> </tr> <tr> <td>4</td> <td>0 %</td> </tr> <tr> <td>5</td> <td>0 %</td> </tr> <tr> <td>6</td> <td>5 %</td> </tr> <tr> <td>7</td> <td>0 %</td> </tr> <tr> <td>8</td> <td>15 %</td> </tr> <tr> <td>9</td> <td>0 %</td> </tr> <tr> <td>10</td> <td>0 %</td> </tr> </tbody> </table>	Ideological Point	Percentage	1	45 %	2	25 %	3	10 %	4	0 %	5	0 %	6	5 %	7	0 %	8	15 %	9	0 %	10	0 %
Ideological Point	Percentage																						
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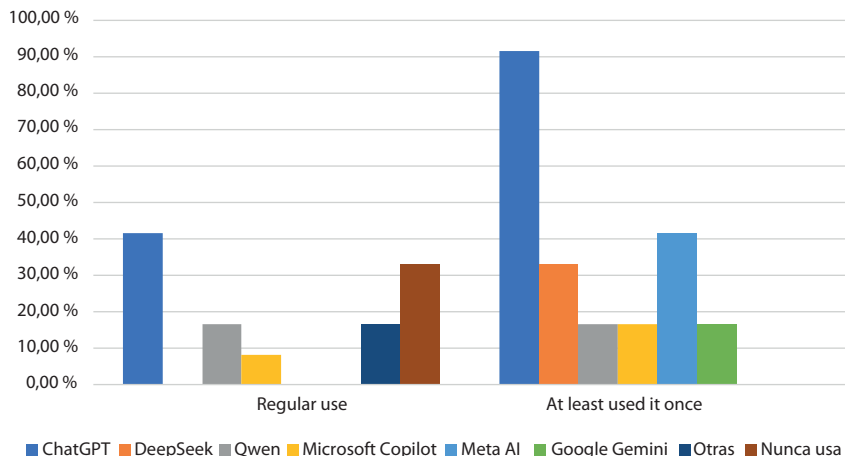
Analysis and results

Online questionnaire administered to members of the Galician Parliament on their use of generative AI

The first thing to note is that there are no significant differences in relation to the use of generative AI based on gender or age group: both men and women, as well as younger and older members of parliament, report cases of both use and rejection of this technology. Nor are there any differences from an ideological point of view, as there are cases of use and non-use on both the left and right of the parliamentary spectrum. However, it should be noted that the questionnaire was answered mainly by members of parliament from the far left and center-left.

ChatGPT is by far the most widely identified generative AI tool (100%), followed by Meta AI, linked to WhatsApp (58%), and DeepSeek (42%), but of the 21 suggested in the questionnaire, up to ten different ones are identified. Regarding the use of AI in their parliamentary work, 33% of members of parliament say they never use it, compared to twice as many, 66%, who admit to using it regularly, mostly (86%) in free versions. ChatGPT is the most commonly used tool (42%), followed by Qwen (17%) and Microsoft Copilot (8%). It is noteworthy that DeepSeek is not used at all (0%). In any case, regardless of regular use, 100% of members of parliament admit to having used generative AI at some point, mainly ChatGPT (92%), Meta AI (42%), and DeepSeek (33%).

Graph 1
Use of AI tools in the Galician Parliament



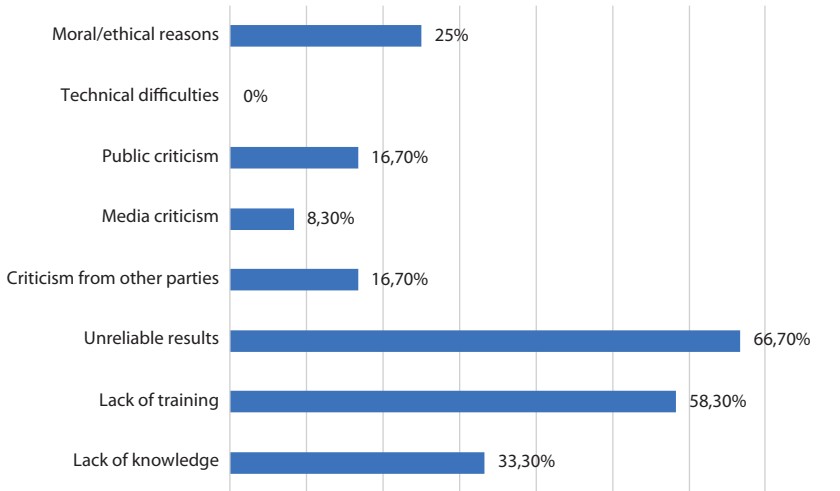
Among the reasons that determine the preference for one tool over another, there is no single reason that prevails over the rest. The most important reasons include being the only one known, offering the most professional results tailored to what is needed, offering the most reliable results, citing the sources from which the information is obtained, and the ease of interacting in a specific language, particularly Galician. The latter point is given special importance and generates broad consensus (9.25 out of 10) in support of the Galician government allocating resources to ensure that all these generative AI tools are usable in Galician.

In terms of frequency of use, the majority (83%) use AI several times a month, while 17% do so several times a year; no one claims to use it daily, or even several times a week. Both ChatGPT and other tools mentioned are used for a wide variety of tasks: from drafting proposals, preparing speeches, and generating content for social media (including memes), to formulating responses on the spot during debates or preparing statements for the media.

As for the reasons why AI is not used regularly or, even when it is used, why there is a reluctance to use it more regularly, most members of the parliament highlight three: fear of the reliability of the results provided by tools such as ChatGPT (67%) and insecurity due to lack of training or knowledge about how to use it (66%); moral or ethical reasons also stand out (25%).

Graph 2

Barriers to the use of generative AI tools in parliamentary work



Regarding the lack of specific training, it is striking that 75% of parliamentarians have never received training in AI.

Out of the 25% who have received training at some point, 17% sought it out on their own, while 8% were provided with it by various institutions; however, none report having received this type of training from either the Galician Parliament or their own political party. It is therefore not surprising that 92% of MPs call for training in the use of artificial intelligence applied to their work: 50% believe that their political party should provide it, and 33% believe that this responsibility should fall to the Galician Parliament.

Similarly, almost all (92%) say that no entity or institution, and in particular the Galician chamber, provides them with access to these tools. On the other hand, 67% would like this to be the case, divided between those who believe that Parliament should guarantee access to paid or professional versions—for example, ChatGPT—(33%) and those who believe that this task should be undertaken by their political party (25%).

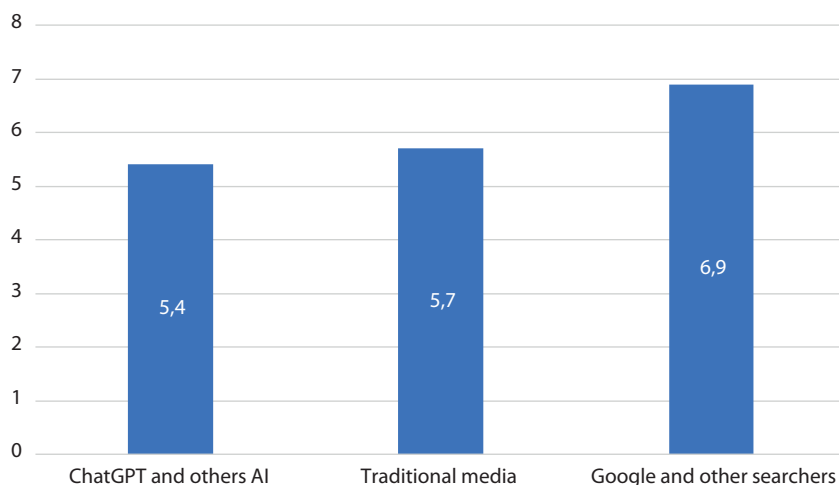
It is also interesting to note the positive or negative perception that members of parliament have of this technology as an opportunity to improve their parliamentary work, rating this aspect with an average score of 6.6 out of 10,

which is relatively positive. On the other hand, when asked about the relationship between AI and disinformation, most believe that the two phenomena are related, giving this relationship a weighting of 7.8 out of 10. This is why most respondents (75%) are in favor of the European Union and Member States allocating resources to develop their own generative AI tools, separate from those promoted by the United States and China.

Even so, parliamentarians give the results of the AI tools they use a reliability rating of 5.4 out of 10, compared to 6.9 for data provided when searching on Google and a low 5.7 for data obtained through traditional media.

Graph 3

Perception of the reliability (out of 10) of data obtained from different sources for parliamentary work



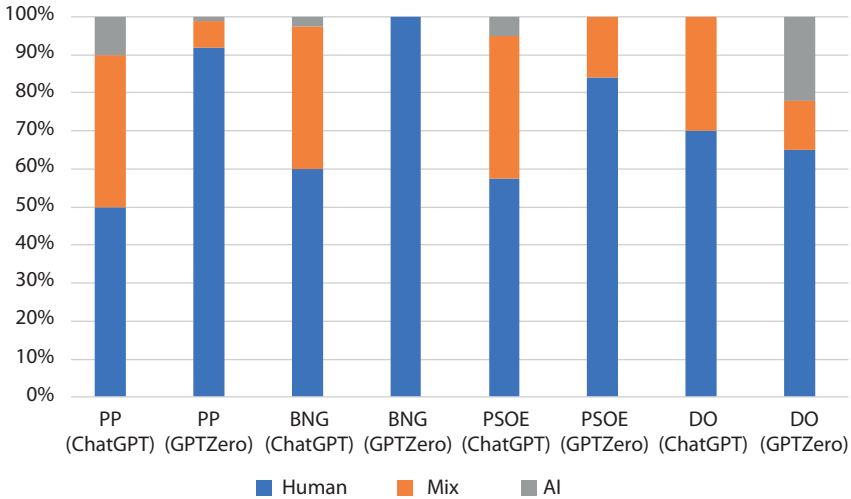
Analysis of the probability of AI-generated text in parliamentary initiatives

As indicated in the methodology section, a sample of various parliamentary initiatives from different political groups was selected. This sample was analyzed using ChatGPT and GPTZero, software recommended by ChatGPT itself and by various specialized publications (Fernández, 2025), in order to

detect the probability that a text—or parts of it—had been generated by artificial intelligence.

Graph 4

Probabilities of AI-generated text in parliamentary group initiatives, according to ChatGPT and GPTZero



As seen, the results offered by both tools for the analysis of the same texts are completely different, which highlights the difficulties of detecting AI-generated text and the poor reliability of the tools currently available. The cases of the PP and the BNG are striking. In the first case, GPTZero attributes a percentage of human creation of 92% and ChatGPT lowers it to 50%, calculating a 40% probability of mixed generation between AI and humans. In the second case, GPTZero provides absolute certainty (100%) of exclusively human generation, while ChatGPT provides only 60%.

The only reliable result that can be drawn from this analysis is the one in which both tools agree, albeit with nuances: the low percentage of probability they attribute to all parties relying solely on AI. This reinforces the idea of the probable use of ChatGPT and other tools as support for the search for raw material or as a basis for the preparation of texts which, based on what is generated by AI, are subsequently complemented, nuanced, and enriched

by a person, giving them coherence and meaning. This interpretation also corresponds to the results obtained in the online form sent to the deputies.

It is interesting to note the aspects that ChatGPT recognizes as analyzing to try to determine the presence of AI in a text, among which the following stand out: human errors and rhetorical formulations, technical and legal complexity, political-partisan style, political and territorial specificity, etc.

It should be noted, however, that GPTZero warns when scanning the analyzed texts that it is still perfecting its learning of Galician, so “the results may be imperfect.” This is not the case with ChatGPT, which is already recognized as being quite trained and competent in this language, although it claims to have some limitations in capturing nuances due to the smaller volume of documentation it has in Galician compared to other languages.

Presence of misinformation in the analyzed texts

To calculate the presence of misinformation in the sample of parliamentary initiatives analyzed, given the nature of this work and current trends in verification (Cuartielles *et al.*, 2023), an analysis was performed using ChatGPT (paid version from the University of Vigo), which works with an estimated scale of five levels of misinformation.

Table 2

ChatGPT estimation scale for calculating the level of disinformation

Level	Description
0	No misinformation. Accurate, complete, and contextualized information.
1	Some slight bias or lack of context, but no falsehoods.
2	Biased or incomplete information with a risk of misinterpretation.
3	Significant misinformation (deception, dubious data, or misrepresentation).
4	High misinformation: clear manipulation, falsehoods, or conspiracies.

Note. ChatGPT.

ChatGPT’s conclusion is that none of the parliamentary texts analyzed contain serious or deliberate misinformation (levels 3 or 4). All show clear

political bias, as is natural in parliamentary contexts, but remain within the bounds of legitimate and verified discourse.

This result offered by ChatGPT would be consistent with what was pointed out in the previous section, since, to the extent that there is no high percentage of text generation exclusively with AI—an important source of disinformation, as noted in the theoretical framework—it would be expected that the level of disinformation would be low. It is true that humans, without the assistance of artificial intelligence, can also be generators of disinformation, but previous studies on Galician regional politics have already revealed low levels of disinformation in the discourse of the main political parties (Puentes-Rivera and Fontenla-Pedreira, 2024).

Conclusions and discussion

The general hypothesis of this study is that generative AI, such as ChatGPT or DeepSeek, has already become a common tool in parliaments and political communication offices around the world. By extrapolation and based on the results obtained in this study, with the limitations inherent to its exploratory nature and the representativeness of the sample obtained, it is understood that in the Galician Parliament, the political groups of the Popular Party (PP), the Galician Nationalist Bloc (BNG), Partido dos Socialistas de Galicia-PSOE (PSdeG-PSOE), and the Mixed Group (currently composed of the sole representative of Democracia Ourensana) regularly use this technology as a basis for drafting texts (questions, oral interventions, press releases, etc.) and various administrative tasks.

Although there are still no specific studies on Galicia, the global trend observed in international parliaments, the proven persuasiveness of AI in public debates, and the growing adoption of these tools by political parties in campaigns and communication offices constitute a plausible theoretical framework for transferring this hypothesis to the Galician case. Academic evidence on the expansion of ChatGPT use, the presence of political biases, algorithmic persuasion, and the institutional incorporation of generative AI in political communication strongly supports the hypothesis that parliaments—including Galicia's—are integrating this technology as a regular tool in their daily discourse and practice. This hypothesis is further confirmed by the responses provided by members of parliament regarding the use of AI in their daily work.

Likewise, the institutional Declaration in favor of ethical and human-centered development in Galicia (Parlamento de Galicia, 2022) and the unanimous approval of Law 2/2025, of April 2, for the development and promotion of artificial intelligence in Galicia, show that parliamentary groups (PP, BNG, PSdeG-PSOE, and DO) are committed to principles of ethics, reliability, responsibility, and citizen-oriented use of AI. This framework, although regulatory in nature, also suggests an environment that is conscious of automation processes, even in tasks such as speech writing or internal consultation management.

It should also be noted, by way of more specific conclusions, that:

- ChatGPT is clearly the most widely used AI tool in parliamentary work, practically the only one, and it is striking that no one uses DeepSeek on a regular basis, which shows that, despite the media coverage of its launch, it is American technology and not Chinese technology that is the only one present.
- Pioneering regional legislation shows that Galicia is actively positioning itself for the institutional adoption of AI. Although it is necessary to look more closely at the use of ChatGPT by members of parliament, the legal environment already favors its formal and regulated adoption.
- The existence of specific academic work on ChatGPT and political discourse in Galicia, such as this study promoted by the University of Vigo, confirms that the subject is already being studied locally, supporting the hypothesis of a research and preventive use of AI.
- The university also seems to be the appropriate setting to fill a gap and fulfill a desire expressed by virtually all members of the Galician Parliament: to receive specific and professional training in the use of AI and its application to parliamentary activity. This represents both an opportunity and a challenge for the university itself.
- Regardless of the personal wishes of members of parliament, this high-quality training linked to universities and other leading institutions is also key to democratic quality, as it will ensure that parliamentarians use AI professionally in their work, beyond the everyday use that the general public may make of it.
- Citizen education and awareness, promoted by the Regional Government of Galicia and the Spanish Government through programs such

as AulaCheck, reinforce the fact that Galician society and its institutions consider digital literacy to be important in the face of the potential risks of AI being misused.

- The participation of all parliamentary groups (PP, BNG, PSdeG-PSOE, and DO) in the 2022 joint declaration on ethical AI and the fact that none of them voted against the Law for the Development and Promotion of Artificial Intelligence in Galicia suggests consensus, at least discursive and ethical, among the different groups in the Galician legislative assembly on the need for supervision and quality in the use of automated parliamentary drafting tools, creating a favorable context for the future adoption of specific regulations on the use of generative AI in institutional and political communication in Galicia and its applications in the work of groups and members of the Galician Parliament.

All of this points to a state of opinion in which AI generates concern and internal and public reflection, combined with the perception of obvious benefits in its application as an assistance tool in daily work.

Thus, even without previous research published in indexed journals, the formal context reinforces the main hypothesis of a conscious institutional adoption of the use of artificial intelligence in different tasks related to parliamentary political action.

In conclusion, both qualitative and quantitative evidence reinforce the hypothesis that members of the Galician Parliament, from all political groups, are adopting generative AI, such as ChatGPT, in their daily work, as institutional discourse, regional legislation, and the responses of the deputies themselves to the questionnaire sent to them reflect an information ecosystem compatible with its regulated and thoughtful use, within ethical standards compatible with ideological and political pluralism, using these tools simply as an initial basis for the drafting and preparation of different documents, speeches, and other materials, which are always refined and finalized with human intervention. Therefore, no perverse use of AI has been detected, such as the drafting of texts based exclusively on it, but rather a rational and intelligent use, conceived as a technology to support and assist parliamentary work.

For future research, it would be advisable to conduct semi-structured interviews with members of the Galician Parliament, going beyond the online questionnaire and allowing for a more detailed understanding of their mo-

tivations and intentions, also incorporating into the study parliamentary assistants and communication offices, who are often responsible for drafting texts, speeches, etc. which the deputies then use in public.

It would also be possible to carry out an automated content analysis of social media posts from official or private accounts of Galician parliamentarians to identify typical AI patterns, such as extreme consistency, repetitive style, absence of typographical errors, etc., since their activity on social media determines a large part of their influence on public opinion.

Finally, it would also be advisable to extend the research to other regional parliaments and the Spanish Parliament, in order to then carry out a comparative study and obtain a complete picture of the use and applications of generative AI in Spanish parliamentarianism; in addition to using more representative samples that allow us to transcend the exploratory nature of this study and complete the analysis of disinformation and the use of AI with human control in a qualitative manner, rather than relying solely on AI itself, in order to avoid a circle in which AI itself determines the use or non-use of AI.

Research support and funding

Entity: Xunta de Galicia

Country: Spain

City: Pontevedra

Subsidized project: Not included in anonymized version

Project code: Not included in anonymized version

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Declaration of Authorship - CRediT Taxonomy	
Authors	Contributions
Iván Puentes-Rivera	Conceptualization, original draft writing, formal analysis, research, methodology, software.
Ana-Belén Fernández-Souto	Funding acquisition, resources, supervision, writing: review and editing, data curation.
Montse Vázquez-Gestal	Project administration, validation, drafting of the original manuscript.

Declaration on the Use of Artificial Intelligence
<p>The authors DECLARE that in the preparation of the article entitled <i>Disinformation and artificial intelligence in political discourse: use of generative AI in the Parliament of Galicia (Spain)</i>, AI was used in the drafting of the theoretical framework and results. ChatGPT was used to compare the results of this software with those observed by the authors and to improve knowledge of the subject under study, together with the quality of the conclusions. Specifically, the paid version of ChatGPT offered by the University of Vigo to its research staff (ChatGPT Plus 5) was used to obtain a more comprehensive review of the main references related to the subject of study, which were subsequently subjected to a process of review and verification by the authors. The same software was used to compare the level of disinformation present in the parliamentary texts under investigation.</p>

Artificial intelligence and development in emerging economies: an analysis of Mexico's starting point and the public policy imperative

Inteligencia artificial y desarrollo en economías emergentes: un análisis del punto de partida de México y el imperativo de política pública

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Received on: 22/09/2025 **Revised on:** 29/10/2025 **Approved on:** 18/11/2025 **Published on:** 01/03/2026

Suggested citation: Martínez-Del Campo, J. C., Niño-Mendoza, A. and Moreno-Brid, J. C. (2026). Artificial intelligence and development in emerging economies: an analysis of Mexico's starting point and the public policy imperative. *Universitas XXI*, 44, pp. 223-248. <https://doi.org/10.17163/uni.n44.2026.09>.

Abstract

The development of Artificial Intelligence (AI) is a transformative force reshaping the economic and social structures globally. Its impact is directly linked to each nation's socioeconomic starting point and public policy framework. This paper analyzes Mexico's readiness for AI adoption, analyzing its strengths and weaknesses. The findings reveal a paradoxical situation: while Mexico stands out regionally in data availability, this strength is offset by critical structural weaknesses, such as the absence of a comprehensive national strategy and a concerning lack of continuity in digitalization policies. The study concludes that the country is at a crossroads; it is imperative to establish a viable, inclusive, and sustainable public policy framework to ensure Mexico is not left behind in this new technological revolution.

Keywords

Artificial Intelligence (AI), readiness for AI adoption, public policy, national strategy, structural weaknesses.

Resumen

El desarrollo de la inteligencia artificial (IA) es una fuerza transformadora que reconfigura la estructura económica y social a nivel global. Su efecto está directamente ligado al punto de partida socioeconómico y a la política pública de cada nación. Este artículo analiza el punto de partida de México para la adopción de la IA, evaluando sus fortalezas y debilidades. Los hallazgos revelan una situación paradójica. Si bien México destaca a nivel regional en disponibilidad de datos,¹ esta fortaleza contrasta con debilidades estructurales críticas, como la ausencia de una estrategia nacional integral y una preocupante falta de continuidad en sus políticas de digitalización. Se concluye que el país se encuentra en un momento definitorio y que es imperativo forjar un marco de política pública viable, inclusiva y sostenible para no quedar rezagado en esta nueva revolución tecnológica.

Palabras clave

Inteligencia Artificial (IA), punto de partida para la adopción de la IA, política pública, estrategia nacional, debilidades estructurales.

Introduction

Over the last decade, the development of artificial intelligence (AI) has been exponential and transformative, transcending the field of specialized research to pave the way for a global reconfiguration of the economic and

1 Cenia, Índice Latinoamericano de Inteligencia Artificial (ILIA) 2024, 2024, p. 352.

social structure (López-Portillo Romano, 2025, p. 23). According to Carlota Pérez, AI is part of a techno-economic revolution, consisting of interrelated innovations that transform the economy and society in general (Pérez, 2024). Its potential uses permeate across sectors from health and education to finance and governance, positioning it as a revolutionary technology with historical innovations such as the steam engine, electricity, and the internet (Baigorri, 2025, p. 318).

The expected effect of AI on the productive structure of nations is not determined solely by its technical sophistication. On the contrary, it is directly linked to the socioeconomic starting point of each economy and the public policy that is implemented as this technology continues to develop. In this context, less developed countries will face challenges in fully exploiting the benefits of AI. The potential exacerbation of pre-existing inequalities in areas such as technological dependence, deficiencies in digital infrastructure, and the gap in technological capacity development urgently requires a strategic approach to the implementation of policies that promote development and close these gaps.

The main objective of this article is to highlight Mexico's starting point for the adoption of AI. To this end, it evaluates the country's strengths and weaknesses in terms of digital infrastructure and contextualizes them in an international comparison, seeking to lay the foundations for the formulation of concrete public policy proposals that promote the inclusive and sustainable development of AI in the country.

To achieve this goal, it is essential to establish a conceptual framework that explains what we mean by the term "artificial intelligence," its historical trajectory, and the reasons for its recent boom, in order to subsequently understand why such a profound impact is expected. This approach allows us to understand the public policy challenges surrounding the digital infrastructure needed for the optimal use of AI at the national level, mitigating risks and maximizing opportunities.

Methodology

The work has been structured in three phases, under a qualitative design of descriptive and propositional scope. Phase 1: Theoretical-historical contextualization of artificial intelligence, briefly tracing its evolution. A vision

is adopted that considers the emergence of generative AI as a techno-economic revolution. Phase 2: Diagnosis of Mexico's starting point. In this phase, Mexico's initial status is assessed using secondary data from multilateral organizations (IMF, ECLAC) and national sources (INEGI, ENDUTIH 2024). For the regional analysis, the primary source used is the Latin American Artificial Intelligence Index (ILIA) developed by the National Center for Artificial Intelligence (CENIA) with support from ECLAC. Assuming its methodology of "enabling factors" (infrastructure, data, and talent) and recognizing that this analysis inherits the scope and limitations with which that composite measurement was originally made. Phase 3: Comparative analysis and policy proposal. The comparative analysis uses the same sources to contrast Mexico. Data from regional leaders in artificial intelligence, such as Brazil and Chile, as well as their most recent legislative frameworks, are used in the comparison.

Finally, based on Mariana Mazzucato's approaches to innovation and Carlota Pérez's technological cycles, industrial and regulatory policy recommendations are derived. These advocate for an active state capable of implementing flexible regulations that do not slow down the pace of innovation while mitigating its risks. The phases outlined above are based on a structuralist concept of development, for which technological dependence is relevant. It is therefore a question of inclusive, sovereign, and state-led development. In the proposed context, policy emerges as the main mechanism to prevent the implementation of AI in Mexico's productive sectors from exacerbating structural inequalities.

1. The Age of Artificial Intelligence: The Engine of the New Industrial Revolution

Studies of Artificial Intelligence (AI) have their origins in the 1950s, with the work of scientists such as Alan Turing. The development of AI techniques and algorithms has evolved since then, moving from basic algorithms to much more complex models such as neural networks, natural language processing, and deep learning—developments that have revolutionized the industry over the last decade. The milestones achieved have transformed various sectors and redefined our expectations for the future.

On November 30, 2022, OpenAI launched the most disruptive AI product to date: its "ChatGPT" model (based on GPT-3.5), an acronym for

“Pre-trained Generative Transformer” (Peller, 2024). Its launch is one of the great technological milestones of the 21st century and marked the beginning of the era of generative artificial intelligence. This milestone created great fascination and adoption, reaching 100 million users in just two months and surpassing any digital product in history (Smink, 2023). However, as with any disruptive technological advance, there are both great opportunities and significant risks. Among the main ones is concern about its effects on the labor market due to widespread automation, making it necessary to establish regulatory frameworks to mitigate the risks associated with this major development.

Added to the risks already mentioned are the current market structure, the heavy dependence of countries that do not have the infrastructure to create their own AI systems, the growing dependence of developing countries, and the potential loss of sovereignty. However, for decision-making, it is important to define what artificial intelligence is and analyze what the future of this technology’s development could be.

The development of AI is organized into three stages: Narrow Artificial Intelligence (Soft AI), the current stage, focuses on repetitive tasks and data analysis with models such as ChatGPT, Gemini, and Grok. Artificial General Intelligence (AGI) is a future stage where AI could match human cognitive abilities, which according to Sam Altman highlights the need for regulation (Altman, 2023). Finally, Artificial Superintelligence (ASI) is the theoretical stage in which AI would surpass human intelligence through exponential self-learning, making regulation necessary to prevent risks, as Nick Bostrom points out (Smink, 2023).

Currently, the state of the infrastructure used for the development of AI systems has created a new divide; it separates the world between nations that have the computing power to build cutting-edge systems and those that do not. The difference is notable between developed and developing nations, creating new dependencies and limiting the race to a few, which could recreate a center-periphery dynamic.

There is a stark contrast in current infrastructure. While OpenAI, a US company, is building a data center estimated to be worth \$60 billion, in Latin America the challenges relate to basic infrastructure and access to the chips and servers needed to create these systems (OpenAI and SoftBank, 2025). There is a high concentration of infrastructure among the current beneficia-

ries, mainly in the United States, China, and the European Union, regions that are home to more than half of the world's largest data centers (Satariano *et al.*, 2025). This group includes only 32 countries, or 16% of all nations, and within it, US and Chinese corporations jointly operate more than 90% of the data centers used by other entities for AI-related purposes (Satariano *et al.*, 2025).

One of the main reasons for market concentration is the increase in the costs of the infrastructure needed to create these systems. The shortage of high-performance chip suppliers is one of the major problems facing developing countries. The most documented case is that of NVIDIA, the world's leading chip manufacturer. The high demand for these products has meant that, for the most part, the infrastructure and its high associated costs can only be afforded by the large capital available in developed nations. This leaves developing nations facing a difficult economic policy decision: invest large sums of their budget in the development of a constantly changing technology that requires a long-term vision, or prioritize other public policies necessary for their societies. The opportunity cost is high, and these decisions must be made imminently.

Market structure

When making decisions in Latin American nations, it is necessary to look at the current market structure for the development of these technologies. Even within developed nations, not all large technology corporations are in a position to compete with those that currently have the most advanced AI systems. It can be seen that the few corporations offering these models are the largest companies in the world: Microsoft (in partnership with OpenAI), Google, Meta, and Amazon. Meanwhile, other large companies that have not managed to develop their own models use the systems of large corporations and focus solely on developing tools for specialized applications.

In addition to the lack of infrastructure and development in Latin America, a crucial factor in the AI industry and in the development of large language models (LLMs) is their cost, which tends to increase as models become more advanced. This problem is observed when developing models: the more advanced the model, the higher the cost, as it requires more and more resources and greater computing power. For example, the development cost

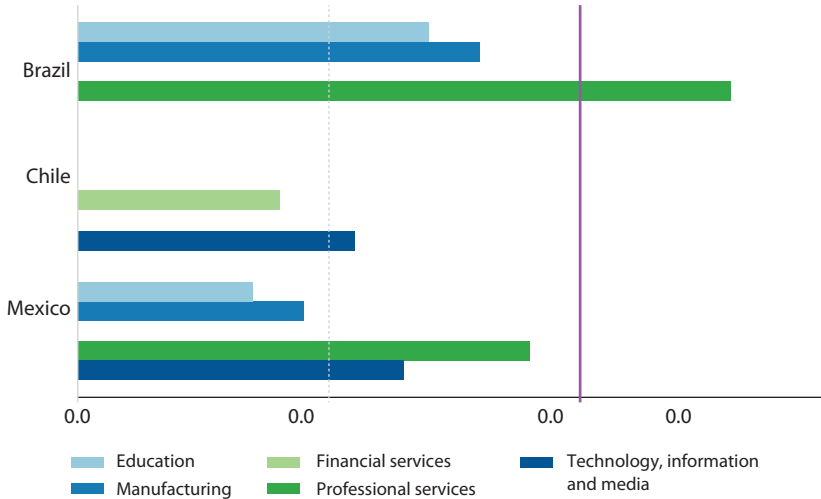
for OpenAI's GPT-3 model was around \$3 million. However, for the development of GPT-4, the figure is estimated to have exceeded \$100 million (Satariano and Mozur, 2025).

Macroeconomic effects of AI

As mentioned, the incorporation of generative AI into the social, political, and economic structure will have significant impacts. AI could facilitate the automation of multiple processes that are currently performed by humans, profoundly affecting the labor market. Similarly, the increase in per capita productivity could accelerate the tasks performed by a country's economically active population, which could be reflected in an increase in GDP. Not all sectors are equally susceptible to this optimization, which may be a warning sign about the strengthening of certain interest groups and the amplification of inequalities if not properly regulated. One of its already visible effects is the acceleration of markets, from production processes to marketing and consumption. Accompanied by the growth of "platform economies" (e.g., Uber, Rappi, Didi), consumption patterns are becoming increasingly fluid, changing the way companies interact with each other and with their consumers. Another highly relevant factor is access to these advanced technologies without the need for proprietary infrastructure.

According to the International Labor Organization, it is estimated that between 26% and 38% of jobs in the Latin American labor market could be affected by generative AI (World Bank Group and ILO, 2024). This would impact productivity in between 8% and 14% of jobs, especially in urban and high-income areas. Due to AI's ability to replace routine or repetitive jobs, between 2% and 5% of jobs are at risk of being completely automated (World Bank Group and ILO, 2024). Figure 1 shows the relative penetration of AI by productive sector in the most advanced countries in the region in terms of adoption. Although the information is still limited, it can already be seen that the sector with the greatest impact is services. This is attributable to the sector's ability to adopt new technologies without incurring very high costs and to its predominance and rapid change in the region.

Figure 1
Relative penetration of AI skills by productive sector in Mexico, Brazil, and Chile (2015-2023)



To make the best use of this technology, it is crucial that public policy considers literacy and retraining for its use. It is necessary to promote learning initiatives and encourage the use of smart tools, considering the differential impacts by educational level, age, and socioeconomic status. The potential of this technology is enormous, and equally so is the risk of increasing pre-existing inequalities, both within the country and in a global context. Of particular concern is technological dependence on the global north, especially on the large digital companies mentioned above, which puts our digital sovereignty at risk.

2. Mexico and AI: Leader or follower?

Mexico is currently facing both an internal political transition and a context of profound regional and global change. These changes represent both a risk and an opportunity to transform production processes in the Mexican economy through process automation with the support of national talent, innovation, and the growth of its own AI developments. It is projected that automation could add \$15.7 trillion to the global economy by 2030, equiva-

lent to 14% of global GDP (Oxford Insights & C. Minds, 2018, p. 25). This growth is expected to be driven by a considerable increase in the efficiency of production processes and labor force productivity. The realization and distribution of these gains will depend on crucial factors such as the speed of adoption by the private sector, the composition of the economy, and the government policies implemented to support strategic sectors, innovation, and development.

Within this framework, less developed countries, including Mexico, stand out, where the aforementioned factors will be subject to particular challenges that must be overcome in order to fully reap the benefits. In this chapter, we focus on pinpointing Mexico's starting point for AI adoption, analyzing its strengths and weaknesses in terms of digital infrastructure and the digital capabilities of its population.

To describe Mexico's starting point, we draw on the Latin American Artificial Intelligence Index (ILIA), which allows comparing the performance of countries in the region in terms of AI adoption (Centro Nacional de Inteligencia Artificial-Cenia), 2024, pp. 352-353). The index is composed of different dimensions and indicators that reflect the structures of AI ecosystems in these countries. Its composition includes the sub-dimensions of infrastructure, data, and human talent. To measure these dimensions, indicators such as connectivity, data computing infrastructure capacity, number of devices per household, data use and impact, digital literacy, number of STEM graduates, and AI education and skills, among others, are used.

In general terms, the aim is to evaluate each country in three main areas. First, the basic technological conditions that enable the advancement of AI in each nation. Second, the use, availability, and governance of data are analyzed, which will enable the development of national language models (the ILIA relies on data collected by the Global Data Barometer, 2021). Finally, the focus is on human talent, addressing key variables for measuring the technological skills of the general population and the economically active population.

Basic technological conditions

Based on the above indicators, Mexico scored 50.96 in the infrastructure sub-dimension, above the Latin American average of 43.12 (Centro Nacional de Inteligencia Artificial-Cenia), 2024, pp. 352-353). Therefore, it was classified as a country with "high infrastructure capacity," compared to other

regional leaders such as Chile, Uruguay, and Brazil. This contrasts with the International Monetary Fund (IMF) AI Readiness Index, where Mexico scored 0.13 in digital infrastructure, indicating, according to that organization, “significant deficiencies in internet access, broadband speed, and mobile coverage” (Solleiro *et al.*, 2025, p. 250).

In terms of infrastructure, two conclusions can be drawn. The first is that, compared to the Latin American region, our country is at the forefront, with the important task of leveraging this position for the sovereign development of AI. However, in the global comparison presented by the IMF, the outlook is not so positive, and we still face considerable challenges, as our score of 0.13 places us in 56th position out of 174 countries (Solleiro *et al.*, 2025, p. 250).

A country with a high level of internet-connected population creates the necessary conditions for technological development and growth in AI. According to the ILIA, connectivity is the “backbone of any digitization ecosystem” and a “potential driver for the diversification of a country’s productive matrix.” According to INEGI, based on data from the 2024 National Survey on the Availability and Use of Information Technologies in Households (ENDUTIH), internet access reaches 83.1% of the population.²

Although this figure is above the regional average, there is still significant room for improvement for a nation that wants to position itself as a leader in the region. This becomes even more relevant when considering the gap between urban and rural access: in 2024, 86.9% of the urban population had access, compared to 68.5% of the rural population.³ Closing this gap and expanding access are essential for the inclusive development of AI, especially with regard to the development of digital skills. This has been a historical challenge, mainly due to insufficient government spending on infrastructure deployment and the complications inherent in Mexico’s geography, which makes it difficult to install the necessary cabling.

Some deficiencies in broadband connectivity are partially offset by access to mobile networks, as 97.5% of the population that uses the internet does so via a mobile device. The challenge in this area is to achieve better connectivity. While leading countries have consolidated 5G infrastructure,

2 National Institute of Statistics and Geography (INEGI), National Survey on the Availability and Use of Information Technologies in Households (ENDUTIH) 2024. Press release 57/25 (May 6, 2025), section “Internet availability and use” (reports that in 2024, 83.1% of people aged 6 and over used the internet).

3 *Ibid.*

in Mexico efforts to reach the majority of the population are still in their infancy: only 31.5% of the population has coverage from this network, and only 15% of new devices on the market are compatible with this technology (Vargas, 2024). The implementation of the latter is critical for a nation's technological advancement, as it improves download speeds, supports a higher density of connected devices, and enables advanced uses such as the Internet of Things (IoT).

In terms of computing—which refers to the existence of conditions for processing large volumes of data and performing complex calculations—Mexico is below the regional average. The country is deficient in one of the basic capabilities for data processing, which is necessary for the development and learning of national generative artificial intelligence models. While no major developments from scratch are expected at the national level, the adaptation of foundational models available on the market also requires the processing of large amounts of data. This dimension includes servers and specialized hardware available in the country, such as graphics processing units (GPUs) and neural processing units (NPUs), which are used to perform high-speed parallel calculations. One of the major shortcomings is that the initial and maintenance costs of this equipment are often very high, especially for small companies wishing to enter this sector.

Similarly, the development of cloud services—defined as a range of data storage and processing services through remote server networks—enables the advancement of real-time AI applications in all sectors. Currently, this is one of the most transformative areas for both the private and public sectors. If its benefits are properly leveraged, it enables the analysis of large volumes of data, process automation, and security improvements.

As mentioned above, the major players in this sector are transnational companies such as Amazon Web Services (AWS), Google Cloud, and Microsoft Azure. In early 2024, AWS announced a \$5 billion investment in Querétaro to create an infrastructure “region” (Amazon Web Services (AWS), 2024). This represents one of the most significant opportunities to take advantage of the development of the digital industry in a sovereign manner and should not be seen as just another foreign investment.

Despite this, Mexico has below-average levels of computing capacity and certified data centers compared to the regional average, which highlights another important area of opportunity for the development of this industry in the country. The scalability of this infrastructure is crucial in order to adapt

to the demand for AI applications (Centro Nacional de Inteligencia Artificial-Cenia), 2024, pp. 352-353).

Data availability, capacity, and governance

Data availability and quality are considered the raw material for the development of Artificial Intelligence. They are vital for research and the creation of programs that promote a national digital industry and, therefore, represent one of the most important points when promoting digital strategies. In the context of AI, data is necessary for training and refining learning models, including large language models (LLMs). Without open, high-quality data, the raw material for these developments is scarce.

In the region, and especially in Mexico, data availability is understood as the existence of clear, secure, and easy-to-process public data for open use. Our country is among the most advanced in the region in this area; according to the ILIA, it has a score of 48.23 in the data sub-dimension and 50.58 in the availability of public data, almost 15 points above the regional average. The Mexican government has actively promoted the publication of open data through various means, most notably the *datos.gob.mx* platform, as well as the creation of innovative civic projects such as Data Laboratory and HackCDMX, which promote the use of government data. However, the online availability of this data loses functionality without adequate dissemination of its existence and methods of access. There are major limitations in the region, not necessarily in the availability of data, but in equitable access to it, which highlights the need to promote policies that encourage more widespread use of information.

Data capacity refers to a country's ability to collect, download, use, and share such information. In the Oxford Insights AI Readiness Index, Mexico ranked fifth out of 35 countries in data availability and ninth in data capacity. These results are attributable to the aforementioned efforts and, in particular, to the previous government's National Digital Strategy (EDN). The EDN was a pioneer in open data, participating in and signing the *Open Contracting Data Standard* and being one of the first countries to implement the agreement (Oxford Insights & C Minds, 2018, pp. 13, 14).

Similarly, Mexico is a leader in data infrastructure, driven by large foreign investments such as Microsoft's hyperscale data center in Querétaro, where data for AI developments is stored, processed, and distributed. Howe-

ver, it is important to note that this type of investment does not only represent advantages (García Montes and Savage, 2025, pp. 451-452). The cost to the country of electricity consumption for their operation and water consumption for cooling their infrastructure should be one of the focal points when creating regulatory policies. Mexico has shown great openness to providing the material basis necessary for the development and implementation of these data centers.

Although data availability is a strong point for Mexico in the international arena, the sub-dimension of governance presents significant areas of opportunity. There is uneven development in regulatory frameworks related to data protection. This is particularly noticeable in what the ILIA classifies as “institutional strategy and vision,” as Mexico lacks an entity responsible for the supervision, coordination, evaluation, security, and reliability of AI systems. One of the most tangible examples of this weakness is the implementation of such systems in public security, such as the FanID for accessing soccer matches and facial recognition cameras from providers such as Dahua Technology and Thales Group. In this regard, the INAI has pointed out major gaps in personal data protection, privacy, lack of transparency, and accountability (García Montes and Savage, 2025, pp. 450, 451, 456, 457).

In general, the absence of laws regulating the ethical use of AI, as well as a policy for the strategic promotion of its development, is a cause for concern in Mexico. It is also important to consider specific issues such as cybersecurity and privacy. Although progress has been made in special cases—such as the initiative to criminalize the manipulation of images with AI for sexual purposes—these efforts are not part of a comprehensive, long-term national strategy.

Talent and skills

Mexico is well positioned in terms of early science education, according to its score of 70.52 out of 100 on the PISA test (Centro Nacional de Inteligencia Artificial-Cenia), 2024, pp. 352-353). Similarly, initial efforts have been made to integrate technological skills into basic education. In the case of specialized talent, the situation is even better, with the country scoring 15 points above the regional average, according to the same index. In terms of research, Conahcyt supported 16 projects related to *big data* between 2011 and 2017 (Oxford Insights & C Minds, 2018, p. 351). Likewise, 464 reser-

chers specializing in big data and AI are registered in the National System of Researchers (SNI) (p. 351).

The outlook is less encouraging when it comes to the human talent available in the labor market. According to a Cisco report on AI readiness (2024), only 27% of Mexican companies considered themselves to have personnel trained to adapt to the changing AI environment, revealing a stagnation in their self-perception of their capabilities. The study analyzed 8,000 companies in 30 countries and classified organizations into four levels; in Mexico, only 13% of companies are at the highest level (“leader”). The low sophistication of jobs, which require less specialized talent, is exacerbated by the growing gender gap. In Mexico, female participation in AI literacy is 25.19%, making it the country with the highest rate in the region, followed by Uruguay with 17.5%. However, globally, this figure remains low (Cisco, 2024).

One of the biggest challenges in this area is the brain drain. Since 2019, most countries in the region have lost more AI specialists than they have managed to attract, a situation that repeats in Mexico. Since that year, the only countries in the region that have shown a net attraction of talent are Uruguay and Costa Rica; however, this trend has not been constant, as they have also recorded years with greater outflows.

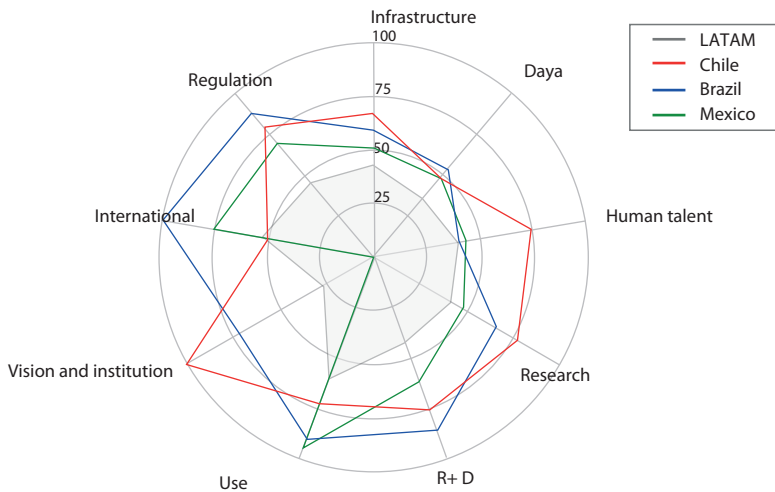
Likewise, the inequality in development compared to the global north is worrying, and is exacerbated by the brain drain. Countries in the region, such as Mexico, have not managed to close the gap in this area, a situation that is even more acute in advanced technical engineering skills related to AI. While in Mexico, specific AI skills still focus on pattern recognition and decision trees, in countries at the forefront of development (China, the US, and the EU), they focus on model training and natural language processing (NLP). Although the gap is not yet insurmountable, the call to focus efforts on this industry is clear.

Regional comparison

After presenting Mexico’s starting point, a brief comparative analysis is presented that contrasts its performance with that of leading countries in the region, such as Brazil and Chile, as well as with the overall average for Latin America. The objective is to integrate the details presented on Mexico with certain lessons offered by the regional analysis.

Mexico's position suggests a notable momentum in knowledge generation and AI adoption, despite the limitations inherent in its infrastructure and support policies. However, Mexico stands out as the only country with strong performance in AI research, development, and adoption that simultaneously faces significant challenges in its governance framework, a factor that limits its overall progress (Oxford Insights & C Minds, 2018, p. 351). Figure 2 shows the notable national deficiency in the regulatory and governance framework compared to the other countries mentioned.

Figure 2
Comparison of AI sub-dimensions in LATAM



Note: Replicated from the Artificial Intelligence Report for Latin America, 2025.

This comparison shows that Mexico's structural weakness is the absence of an official and comprehensive national strategy on AI and a worrying lack of continuity in digitization policies (Oropeza García and Negrete 2025, pp. 254-255; National Center for Artificial Intelligence (Cenia), Latin American Artificial Intelligence Index (ILIA), 2024, pp. 946, 961, 966). This six-yearly intermittency in federal public administration stands as a substantial obstacle to the sustained growth of AI in the country. In contrast, Brazil and Chile have well-defined national AI strategies that are currently being upda-

ted, providing them with a solid foundation for the development and regulation of these technologies.

Another significant challenge is intellectual property. In Mexico, this represents a particular obstacle, as current legislation does not allow the unauthorized use of protected works for training AI systems, nor the collection of data through web scraping (Oropeza García and Negrete 2025, pp. 400, 410, 491-492). Additionally, works generated by AI cannot be legally recognized or protected, limiting the incentive for innovation in this field.

Mexico

In Mexico, no specific legal mechanisms have been established to regulate the use of AI. The laws in force within the current legal framework are insufficient to address the changes brought about by its adoption, and the protection of rights is only indirect. These include the Law on the Protection of Personal Data Held by Private Parties, the Federal Law to Prevent and Eliminate Discrimination, and international human rights instruments. The 2021-2024 national digital strategy established a foundation in infrastructure and data, but it is not an AI transformation plan *per se*. Currently, 20 of the 32 states in the republic do not have a state digital policy; less than 40% of the country has one (UNESCO, Mexico, 2024, p. 14, citing CEIAP, 2022).

There are also limitations in the legal framework. For example, the General Law on Transparency and Access to Public Information can be a means of requesting information on the use of AI systems by public entities, but there are regulatory limits to algorithmic transparency established in the USMCA (Unesco, Mexico, 2024, p. 21). This lack of legislation and the existing limitations highlight the urgent need to update and implement a specific legal and regulatory framework for AI.

UNESCO proposes mapping the ecosystem to visualize the relevant actors in the AI cycle and identify the interactions between them (UNESCO, Mexico, 2024, pp. 10, 51, 53). It also suggests integrating a legal framework that is agile and flexible, adapting to existing provisions and creating new ones when necessary. This framework should update and adapt current regulations, define criteria for ethical use, and establish legal responsibilities. To this end, there are legal frameworks already in place in the region and around the world. Below, we will analyze the work carried out by our Latin Ameri-

can peers, Brazil and Chile, and the first large-scale regulatory framework: the European Union's AI Act.

Brazil

In the Latin American context, Brazil is positioned as the leader in AI development in the region and has made significant progress in its regulation. Bill 2338 of 2023 is an initiative whose main objective is to regulate the use of this technology. This bill has been in the Chamber of Deputies since March 17, 2025, and outlines the regulatory directions, as well as the main concerns regarding AI (Brazil. Federal Senate (2023) Bill No. 2338).

Among its proposals, the law requires an identifying label for audiovisual materials produced by AI (deepfakes). It prohibits the development, distribution, and application of certain AI systems, imposing legal obligations on developers. A framework for copyright and intellectual property is established, as well as the regulation of regulatory *sandboxes*. The protection of vulnerable groups, such as people with disabilities, children, and adolescents, is also contemplated.

It also encourages research and training, both for workers and through incentives for professional training in AI. Finally, as relevant points, it establishes a framework for active transparency and freedom of expression, along with a periodic review of the law every three years.

Chile

Chile is one of the leaders in AI in the region and has made significant progress in its regulation. The National Artificial Intelligence Policy, published on January 28, 2025, has as its central objective the promotion of the ethical and responsible development and use of this technology.⁴ The policy seeks to establish a people-centered framework that promotes robustness, security, privacy, transparency, diversity, and social well-being, as well as a system of accountability and responsibility.

4 Ministry of Science, Technology, Knowledge, and Innovation (Chile), Decree No. 12, Official Gazette (Chile), January 28, 2025, "Approval of the update to the 'National Artificial Intelligence Policy'".

In the economic sphere, the aim is to diversify the economic matrix, increase productivity, and strengthen the ecosystem of research, innovation, and entrepreneurship. To this end, the participation of various actors and international cooperation are promoted; it is noteworthy that Chile leads the “Santiago Declaration for Ethical AI in Latin America and the Caribbean.”⁵

In terms of talent, the policy promotes the teaching of skills in the school system and AI as a cross-cutting discipline. It seeks to provide job training, foster experts, periodically scout for talent, and educate on its ethical use.

Likewise, an agenda of data of public interest is created with clear governance by the State and the coexistence of a public-private ecosystem. To support this, the aim is to establish a solid technological infrastructure, with national connectivity systems and *high-performance* computing (HPC). The plan outlines a path for development and adoption through research, development, and innovation, using productivity indicators and promoting collaboration between academia and the productive sector. In terms of adoption, it proposes modernizing the government, increasing productivity with a focus on economic growth.

A comprehensive regulatory framework is also established with ethical requirements for public procurement, as well as minimum standards for transparency and data protection, encouraging citizen participation. International coordination is proposed, seeking regional cooperation and cooperation with more developed nations to align standards. The policy addresses the environment, seeking to use AI for monitoring and promoting its use with renewable energies. It promotes gender equality, women’s participation in AI, inclusion, and non-discrimination. In addition, it recognizes the impacts on work and seeks to establish retraining and training mechanisms, as well as a review of labor legislation.

Finally, it proposes updating the intellectual property system for issues of creation and ownership, and ensuring transparency in generative AI. The goal is to create a secure digital ecosystem that prevents misinformation and digital violence.

European Union

The European Union’s Artificial Intelligence Act (*AI Act*), enacted on June 13, 2024, represents a milestone in the regulation of AI worldwide. Its

5 Ministerial and High Authorities Summit of Latin America and the Caribbean, “Santiago Declaration ‘To promote ethical artificial intelligence in Latin America and the Caribbean,’” Santiago, Chile, October 23-24, 2023; the Declaration elects the Republic of Chile to head the regional AI Working Group.

objective is to improve the functioning of the internal market through a uniform legal framework, promoting human-centered and reliable AI, and ensuring a high level of protection of health, safety, and fundamental rights (EU Regulation 2024/1689).

The law defines AI as a machine-based system designed to operate with varying levels of autonomy and applies to providers both within and outside the European Union. The *AI Act* takes a risk-based approach. It establishes prohibitions for unacceptable uses, such as real-time remote biometric identification systems and crime prediction through profiling. It also considers AI used in critical infrastructure, education, employment, essential services, justice, and migration to be high risk.

For these high-risk systems, obligations such as risk management, data quality, technical documentation, human oversight, and cybersecurity are established. The law also promotes the assignment of responsible parties, monitoring, access to information by workers, and human rights impact assessments.

Another important point is the regulation of general-purpose AI models. These must comply with technical documentation, respect copyright laws, submit a summary of the content used for training to the authorities, and have a legal representative. In addition, systemic risks must be assessed, cybersecurity must be ensured, and incidents must be reported.

The law supports innovation through regulatory *sandboxes*, facilitating testing in real conditions and providing support to SMEs and startups. It also establishes a governance system, with the creation of an AI Office, an AI Council, and national authorities. Penalties of up to €35 million or 7% of the firm's global turnover are set. Finally, rights are created for affected individuals, such as the right to complain, to receive an explanation, and protection from retaliation. The Artificial Intelligence Act came into force on August 2, 2024, and will be phased in between 2025 and 2030.

3. Building the future: global lessons for a national strategy

The United Nations Educational, Scientific and Cultural Organization (UNESCO), in collaboration with the National Alliance for Artificial Intelligence (ANIA), assessed Mexico's preparedness in AI (UNESCO, Mexico, 2024). Together, they point out the public policy challenges facing the country. In recent years, momentum has been lost: there is no national AI plan or strategy in place. This is reflected in global and Latin American studies, where Mexico lacks vision and strategy.

On the other hand, social differences are not addressed either. Technological inequality is alarming, with large gaps in internet access between urban and rural areas. AI reproduces and amplifies these social challenges, highlighting existing inequalities. There is a lack of representativeness in the data and biased algorithms that affect vulnerable groups. This is because AI is trained with internet data, which is rarely representative of rural areas or areas without access to electricity.

There is great inequality in linguistic diversity. Current AI models are offered in few languages and are more efficient in English. Mexico has 68 recognized indigenous languages; these are not adequately represented in the models (UNESCO, Mexico, 2024). This represents a challenge for the country's cultural and linguistic preservation. Inequality persists in low average levels of education. Likewise, scientific production in AI is low in Mexico compared to international standards.

In particular, government spending on science and research does not allocate specific funds for AI projects. In 2023, a similar project was presented: the creation of the Mexican Agency for AI Development. This sought to emulate the role of the European Commission's decentralized entity, responsible for planning and executing public AI policies. The project was ambitious, seeking to cover everything from education and employment to infrastructure in the analysis and creation of proposals on AI. However, it was rejected in 2024 (Alcalá, 2025). Since then, there have been no further proposals for a Comprehensive AI Strategy in Mexico.

As for regulating the use of AI, more proposals have been submitted to the Senate. During the 2021-2025 period, around seven initiatives related to this topic were presented (Alcalá, 2025). However, there is still no clear path for discussion, let alone for advanced stages of legislation. Rolando Zapata, president of the Senate Commission for Analysis, Monitoring, and Evaluation of the Application and Development of Artificial Intelligence, confirmed that discussions will begin in September of this year. The time to regulate is now, because, as Zapata points out, the public and private sectors and academia are waiting for a regulatory framework because "things are already happening" (Calderón, 2025).

We must address AI regulation promptly and effectively, learning from international examples. According to Margrethe Vestager, AI has a dual nature that complicates its preventive regulation. Under this approach, AI is inherently neutral, and its impact depends on how it is used. Vestager mentions that many

uses of AI are harmless and that space should be given to innovation. However, in high-risk uses, incisive public policy intervention is necessary. The inability to conduct laboratory tests to analyze the effects of a regulatory policy requires caution. We must work with the dual objective of not undermining creativity and innovation, while not allowing uses that put human integrity at risk. It is crucial to conduct risk assessments and ensure technical robustness for high-risk uses, in addition to prohibiting those that violate fundamental values. Beyond traditional public policies that regulate use, it is necessary to be creative in directing AI development toward the common good. Authors such as Mariana Mazzucato suggest new, more flexible tools and proactive government to bridge the gap between risk and innovation.

The lack of long-term vision and institutionality in Mexico represents a great opportunity to implement AI correctly from the outset. Based on the perspective of Mazzucato and Gerone, the Mexican government must take on an active and strategic role. This role would involve orienting AI regulation toward short- and medium-term missions. The approach should prioritize pre-existing inequalities, such as digital inclusion and language barriers. The biggest challenge is to ensure that the development of this technology benefits society as a whole, not just large technology companies.

A clear example of a strategic approach is China. Its AI development has been going on for years, being one of the main destinations for government resources (Juárez, 2025). Strategically, China has invested in infrastructure, education, and data availability. Unlike the United States, where large companies lead the way, the Chinese government finances much of the data infrastructure. The situation is similar for AI startups, with heavy subsidies and special zones for professionals.

In Mexico, the starting point is different, but there are important lessons to be learned about active state participation. The budget for fiscal year 2025 for the humanities, sciences, technologies, and innovation program amounts to \$159,275,204,098 MXN.⁶ Even if it were allocated entirely to AI development, it would represent only 15% of the estimated \$60 billion cost of OpenAI's data center under construction. It is clear that Mexico cannot develop the necessary infrastructure on its own. However, we must promote the active participation of both local and federal government agencies. These

⁶ Chamber of Deputies of the Honorable Congress of the Union, "Federal Expenditure Budget for Fiscal Year 2025," Official Gazette of the Federation, December 24, 2024.

agencies must prioritize ensuring that concessions to large technology companies guarantee openness, inclusion, and neutrality.

According to Pérez (2024), the techno-economic revolution driven by AI is part of broader cycles of innovation. However, our current moment has the potential to foster new technologies, sustainable and equitable economic growth, and the transition to greener industries. Based on the above, it is necessary to create a national strategy that addresses the adoption of AI from three main angles:

1. Regulation of inclusive use: encourage creativity and innovation wherever possible. This involves considering existing inequalities and including educational programs for digital skills development.
2. Incentives for development and industrial policy: promoting Mexican companies that adopt existing AI models for national uses. An industrial policy is needed that encourages the creation of data infrastructure in the country, always prioritizing national interests. We can learn from countries such as those in Europe, China, and Chile.
3. Clear limits for development: establish physical and social limits for the development of this technology. This will avoid climate risks associated with its environmental impact and protect human interests, preventing the widening of inequality gaps, as has occurred with female employment in AI.

Final thoughts

Artificial intelligence is undoubtedly emerging as the driving force behind the next industrial revolution (Yalovetzky and Simg Atilano, 2025). It is clear that some countries foresaw this reality much earlier than others, strategically positioning themselves for what is to come. The effects that this technology will have on the foundations of our social and economic bases are becoming less speculative; they are becoming tangible and omnipresent realities. Society, with its characteristic agility, has been quick to adopt this technology, effortlessly breaking down barriers that were once considered insurmountable in order to integrate it into its daily life.

Adding to this dynamic, large technology corporations, predominantly American, are immersed in a frantic race to develop increasingly capable models. Their ambition is clear: they anticipate that these advanced AI sys-

tems could effectively replace human capacity within the next 10 years (López Blanco, 2025). However, amid this dizzying pace of innovation and social adoption, one critical aspect is lagging significantly behind: regulation. Despite the rapid progress in all other areas of AI development, most governments around the world still seem to lack the momentum to take decisive action in the face of this monumental change.

The case of Mexico is no different, but it presents a unique and pressing opportunity. Historically, our nation has often found itself lagging behind during periods of similar technological transformations. Today, however, the gap is not so great as to be insurmountable. We have a critical window of opportunity to act quickly and decisively, facing this unprecedented opportunity with our sights set on not falling behind again.

Crucially, we have compelling precedents within our own region. Nations such as Chile and Brazil have demonstrated the remarkable effectiveness that Latin American countries can achieve in regulating this powerful technology (Soto *et al.*, 2025). Their experiences serve as an excellent starting point, offering invaluable lessons that we can adapt and expand to incorporate our own national characteristics and priorities. Mexico already has a solid foundation in various areas, and there is palpable interest within society in accessing and using this technology. The time for hesitant vision or institutional inertia is over. We must now forge a robust policy framework that not only supports the vital efforts of the private sector but also actively ensures that equitable benefits are derived from the significant investment made in this area in our country. It is not just a matter of keeping pace; it is about leveraging AI to build a more prosperous and just future for all Mexicans.

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Declaration of Authorship - CRediT Taxonomy	
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Statement on the Use of Artificial Intelligence
<p>The authors DECLARE that, in the preparation of the article entitled <i>Artificial Intelligence and Development in Emerging Economies: An Analysis of Mexico's Starting Point and the Public Policy Imperative</i>, Artificial Intelligence tools were used in a manner that complemented, rather than replaced, the intellectual work of the authors.</p> <p>The tool used was: Notebook LM</p> <p>The tasks for which it was used were: Extracting data from selected sources, identifying errors, and correcting style.</p>

Spanish youth facing disinformation and artificial intelligence: ideology, perception, and political participation

Jóvenes españoles ante la desinformación y la inteligencia artificial: ideología, percepción y participación política

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Received on: 28/08/2025 **Revised on:** 23/10/2025 **Approved on:** 15/12/2025 **Published on:** 01/03/2026

Suggested citation: Rúas-Araújo, J. and Seijas-Vidal, U. (2026). Spanish youth facing disinformation and artificial intelligence: ideology, perception, and political participation. *Universitas XXI*, 44, pp. 249-270. <https://doi.org/10.17163/uni.n44.2026.10>

Abstract

In a context of growing political disaffection and institutional distrust among Spanish youth, there is an observable increase in sympathy toward authoritarian positions, ideological radicalization, and rejection of parties perceived as adversaries. This situation is escalating with the proliferation of the internet and social media, as well as with the rise of disinformation and the use of artificial intelligence within the online environment. This research analyzes Generation Z's perception of their own ideology, electoral participation and use of the internet and social media to stay informed about politics, as well as their views on disinformation and trust in artificial intelligence. The analysis is based on bivariate tables drawn from a nationwide telephone survey conducted among Spanish residents aged 18 and older. Results indicate that most young people place themselves ideologically on the right (36.5%), left (27.7%), or center (21.2%). However, voting preferences within the right-leaning group are split evenly between the Partido Popular and Vox (50% each). Over 70% of young respondents rely on the internet and social networks to stay informed about politics. Furthermore, perceptions of disinformation sources appear to be ideologically driven: over 70% on the left blame the far right, while 75% on the right reject that claim. Finally, around 60% believe AI will worsen institutional and media communication—except far-right supporters.

Keywords

Youth, disinformation, ideology, radicalisation, polarisation, artificial intelligence, internet, social media.

Resumen

En un contexto de creciente desafección política y desconfianza institucional entre la juventud española, se observa una mayor simpatía hacia posturas autoritarias, la radicalización ideológica y el rechazo a los partidos “adversarios”. Esta situación escala con la proliferación de internet y redes sociales, así como con el aumento de la desinformación y la inteligencia artificial. Esta investigación analiza la percepción de la generación Z sobre su ideología, participación electoral, uso de internet y redes sociales para informarse sobre política, la desinformación y confianza en la IA. Para ello, se analizan tablas bivariadas sobre datos de una encuesta telefónica realizada a personas españolas mayores de 18 años. Los resultados evidencian que los jóvenes se auto ubican mayoritariamente a la derecha (36,5%), izquierda (27,7%) o centro (21,2%). Sin embargo, a la hora de votar, partidos como Vox y PP obtienen el mismo apoyo (50%) entre quienes se identifican con la derecha. Asimismo, más del 70% de jóvenes se informan a través de las redes sociales e internet y tienden a identificar el origen de la desinformación política en función de su ideología: más del 70% de los ubicados a la izquierda y extrema izquierda responsabilizan a la extrema derecha, mientras que el 75% de los de derecha y extrema derecha lo niegan. En torno al 60% consideran que la IA empeorará la comunicación institucional y mediática, salvo los simpatizantes de la extrema derecha.

Palabras clave

Juventud, desinformación, ideología, radicalización, polarización, inteligencia artificial, internet, redes sociales.

Introduction

Young people and political radicalization

One of the main challenges facing the future of democracy in Spain is the growing disaffection of young people with politics, along with the emergence of anti-establishment attitudes and increased support for authoritarian options.

This is evidenced by data from the CIS (Spanish National Statistics Institute) on the 2019 general election, where the turnout rate among 18- to 24-year-olds was only 17%, and the proportion of young people (18-35 years old) who voted in the last general election held in July 2023 reached 20% (CIS, 2023).

In fact, the latest barometer published by the CIS, corresponding to July 2025, shows that the far-right party VOX is not only attracting young people, new voters, abstainers, and former PP voters in terms of voting intention, but is also expanding its support among those who identify as lower class or poor, as well as among people who are unemployed or engaged in manual labor, a trend that had not been detected until now (CIS, 2025).

In line with this, the 2024 report by the Spanish Youth Council¹ points out, through its Emancipation Observatory, that this lack of credibility can be explained by the absence of solutions to structural problems such as access to housing. This perception translates into low institutional ratings: young people give the Congress of Deputies an average score of 4 out of 10 and rate the performance of political parties at 3.7. Likewise, this entity points out in its report and survey “Rompe el cristal” (Break the Glass), corresponding to 2023,² that six out of ten young people do not feel represented by the Spanish political system, added to which is a declining interest in active political participation, especially with regard to membership of trade unions and political parties (Rojo Puertas, 2024).

Other surveys, such as the barometer produced by the polling company 40dB for the newspaper *El País* in September 2024, indicate that 26% of young men prefer authoritarianism to democracy in certain circumstances; that nearly 70% believe that the democratic system in Spain is deteriorating; and that only half say they feel represented by any political party.³

1 <https://bit.ly/4nXtEFg>

2 <https://bit.ly/40AqkpC>

3 <https://bit.ly/3Ut7yge>

A similar trend is indicated in a recent report by the Institut de Ciències Polítiques i Socials (ICPS) of Catalonia,⁴ which points out that those under 24 are the least likely to defend democracy as a political system, as only 62% believe it is preferable to another form of government and 16% even say that a dictatorship could be preferable to a democracy, with only 29% responding that living in a democracy is “extremely important.”

The same trend has already been observed in previous studies, such as the one conducted in 2020 by the Centre for the Future of Democracy at the University of Cambridge, entitled “Youth and Satisfaction with Democracy,”⁵ with opinions from nearly five million people surveyed in more than 160 countries, which showed greater dissatisfaction with democracy among millennials—those born between 1981 and 1996—compared to previous generations, as well as growing optimism toward democracies governed by populist leaders.

The values and attitudes of young people set the direction that the political system may take and may also favor the spread of anti-politics, understood as “the position opposed to the institutions and practices that organize coexistence within the framework of plurality and conflict” (Hernández-Carballido, 2023).

Ideological radicalization and extremism—understood as “the belief that the success or survival of one’s own group can never be separated from the need for hostile action against another external group” (Berger, 2018)—is a phenomenon of growing relevance, due to its impact on social stability, national security, and the erosion of democratic values (Conway, 2020).

Extremist activity has progressively migrated to the digital realm, transforming online platforms and communities into key pillars for recruitment, group formation, propaganda dissemination, and mobilization (González-Baquero, Amores, and Arcila-Calderón, 2023).

Added to this is the use of disinformation by far-right populist parties, both globally (Törnberg and Chueri, 2025) and in the Spanish context (Palau-Sampio and Carratalá, 2022; Camargo-Fernández, 2021).

Social media has thus become a primary source of information for these parties. However, it should be noted that the functioning of these platforms is mediated by algorithms which, although designed to “improve the user experience,” also generate echo chambers and filter bubbles (Rodilosso, 2024),

4 <https://bit.ly/3TXV5RD>

5 <https://bit.ly/46xMtsB>

effects that diminish pluralism and the diversity of critical voices, thus contributing to the promotion of groupthink. Added to this are the phenomena known as selective exposure and motivated reasoning theory, which show how individuals tend to expose themselves and believe information that reinforces their prior beliefs, while avoiding or rejecting information that contradicts them (Valera-Ordaz, 2023; Kahan, 2013). As a result, polarized environments are created that can lead to ideological homophily dynamics, in which users are exposed exclusively to content aligned with their ideology, which can favor processes of political radicalization (Barberá, 2020).

Thus, users are more likely to share and like negative tweets about politicians of the opposite political persuasion than positive ones about the party they support (Yu *et al.*, 2024).

This polarization is not only ideological but also emotional, promoting “political hooliganism” (Torcal, 2023) and seeking the annihilation of the adversary, now perceived as the enemy (Schmitt, 2009), which helps explain the online growth of far-right parties and movements (Chagas *et al.*, 2022).

In fact, according to the National Strategic Plan for the Prevention and Fight against Violent Radicalization (PENCRAV),⁶ developed by the Spanish Ministry of the Interior, radicalization constitutes a growing threat at both the national and European levels. In the specific case of Spain, there has been an increase in the recruitment of individuals through digital environments, with a particularly worrying impact on vulnerable communities, such as minors and young people at risk.

Political trust, disinformation, and AI

Artificial intelligence has therefore gone from being a technological domain reserved for experts to becoming the focus of debate and expanding its application in the public sphere. The media acts as an active agent in this revolution, as the way in which it represents this technology influences public perception (Brennen *et al.*, 2022).

The crisis of misinformation stems from a deep crisis of mistrust. Citizens feel disconnected from institutions, a fact that is reflected in most studies addressing public opinion. According to the Edelman Trust Barometer

6 <https://bit.ly/3UtzvVd>

(2024),⁷ 63% of the population surveyed in 28 countries (n=32,000) does not trust political leaders, 61% does not trust business leaders, and 64% feels the same way about journalists and reporters. In all cases, mistrust has grown by between one and three points compared to the same survey conducted the previous year. This is also reflected in the specific data for Spain, which ranks among the countries with the highest levels of mistrust among the 28 surveyed. Eighty-one percent do not trust political leaders, 79% do not trust journalists, and 73% do not trust business leaders. Furthermore, 61% of those surveyed expressed fear of misinformation.

Recently, the World Economic Forum in Davos pointed out in its annual Global Risk Report (2024),⁸ that disinformation, along with social polarization and cybersecurity, will be the main global risks worldwide. Thus, disinformation was ranked as the top global risk for the next two years, mainly due to the numerous elections taking place around the world. The report also delves into how AI, without adequate regulation and responsible use, could significantly exacerbate the risks associated with disinformation and polarization (Sedano *et al.*, 2025).

Likewise, organizations such as the United Nations draw attention to the potential benefits and risks involved in the use of AI in electoral processes, such as disinformation and cyberattacks (Spain, 2024).

Various dangers have been identified in the use of AI, such as *deepfakes* (manipulated videos, images, or audio), privacy violations, algorithmic bias, socioeconomic inequality, market volatility, and weapon automation (Thomas, 2024). These dangers raise ethical questions in which the traceability of content—and, therefore, the attribution of responsibility for its consequences—becomes unclear, if not directly opaque (de-Lima-Santos and Ceron, 2021; Coeckelbergh, 2021).

In this regard, the recommendation guide on the ethics of artificial intelligence published by UNESCO (2022)⁹ also addresses the issue of transparency and explanation of AI systems, emphasizing the need to fully inform citizens about whether a decision has been based on algorithms or made using them, and even offering users the possibility of requesting explanations and information about their implementation protocols.

7 <https://bit.ly/4fchTH8>

8 <https://bit.ly/4freHrr>

9 <https://bit.ly/4mdV5ZY>

The transparency and intelligibility of AI are therefore presented as crucial elements for safeguarding human rights, as well as individual and collective self-determination (Mantelero, 2022).

The main cyberattacks are based on disinformation, system vulnerabilities, misuse of the internet and removable devices, or the use of weak passwords. Although in all cases they require the use of complex computer viruses that allow systems to be infected and/or taken over, they all exploit the human factor to achieve their goal (Toledo, 2022).

According to the report presented by Hiscox (2022), the average aggregate cost of cyberattacks suffered by each Spanish company in 2021 amounted to €105,655. Furthermore, 43% of Spanish companies ceased to be operational after suffering a *ransomware* attack—through the use of malicious software—while 28% lost customers as a direct result of a cyberattack.

In recent years, AI has established itself as a disruptive technology in the industry, whose democratization has been driven by the proliferation of pre-trained models accessible on a global scale. According to Gartner (2023), it is estimated that by 2026 approximately 80% of companies will have incorporated these types of models into their processes.

It is estimated that by 2027, these algorithmic advances could take on 10% of the tasks currently assigned to humans, and that this figure will grow exponentially, reaching 50% by 2047 (Grace *et al.*, 2024).

In this regard, the Spain Digital Agenda 2025 proposes several strategic measures related to AI, including: transitioning to a data economy, ensuring security and privacy, and taking advantage of the opportunities offered by AI and Big Data, as well as guaranteeing rights in the new digital environment, particularly labor rights, consumer rights, citizen rights, and business rights (Ministerio de Asuntos Económicos y Transformación Digital, 2025).

As Rouyet (2023) points out, the introduction of new disruptive technologies throughout history, such as the railroad, the telegraph, or the telephone, has always aroused great fear of the destruction of the world, predicting all kinds of calamities, but looking back at the reactions over time, it has also served to “make us smile at how exaggerated they were and amaze us at how, indeed, jobs were destroyed and created” and, equally, “the existing communication landscape was reconfigured” (Calvo *et al.*, 2025).

On the other hand, the use of AI also affects what is known as algorithmic political communication (Campos-Domínguez and García-Orosa, 2018), characterized by micro-segmentation, personalized diagnostics, automated

content generation (Barredo *et al.*, 2021), and the blurring of the lines between what is and what is not fiction (López *et al.*, 2022).

This also has a major impact on the ways in which people obtain information and participate in politics (Claramunt, 2019), with citizens beginning to generate certain forms of resistance and collective self-verification mechanisms through their digital communities (Barredo *et al.*, 2021).

Finally, there is the question of the involvement of AI in improving the quality of governance, which has been considered through two basic dimensions: the impact on the different stages of the public policy formulation cycle and, secondly, the focus on improving the quality of governments and the services they provide, as well as the efficiency of the administrative apparatus (Abu Zaid and Al-Shura, 2022).

In short, AI has two sides to it: while it offers significant potential for identifying and countering disinformation, it also has the capacity to facilitate its creation and spread (Garriga *et al.*, 2024).

For all these reasons, it is essential to further develop regulatory advances, such as the Digital Services Regulation (DSR) and the AI Regulation (AIR), which were created with the aim of making the EU a global leader in the development of safe, trustworthy, and ethical AI, focused on human beings and fundamental rights and democratic values (Castilla-Guerra, 2025; Rebollo-Delgado, 2023).

Materials and method

This study analyzes Generation Z's perceptions in relation to their ideology, electoral behavior, use of the internet and social media to obtain information about politics, as well as their views on disinformation and their trust in artificial intelligence.

This generational group, comprising people born between 1997 and 2012 (Rachmad, 2025), is currently the youngest segment eligible to vote in Spain, making it a subject of interest for this research. As previously stated, young people have a number of specific characteristics and dynamics—such as political disaffection, polarization, and radicalization—that can influence their relationship with the political, communicative, and digital environment and their perception of disinformation and the degree of trust they place in the use of new technologies such as artificial intelligence. For this reason, the

study is limited to young Spaniards between the ages of 18 and 28, belonging to Generation Z.

The objectives of the research are:

- OG: to analyze Generation Z's perspective on their ideology, voting patterns, use of the internet and social media to receive political information, as well as their perception of disinformation and trust in AI.
- SO1: to understand Generation Z's ideology and voting patterns in the 2023 general election.
- SO2: to examine the extent to which Generation Z uses the internet and social media to follow political information.
- SO3: to analyze how Generation Z perceives political disinformation, especially whether they consider the far right to be primarily responsible for spreading fake news.
- SO4: to assess Generation Z's level of agreement with the idea that artificial intelligence can worsen the quality of information received by citizens through public administrations and the media.

The data used in this study comes from a telephone survey conducted using the CATI (*Computer Assisted Telephone Interviewing*) method. The authors Alelú-Hernández *et al.* (2010) highlight numerous advantages of this type of survey, such as the possibility of accessing certain population profiles that may be difficult to reach using other methods, as well as its ability to generate a greater willingness to respond on the part of respondents. Nevertheless, its disadvantages must also be taken into account, such as the biases derived from the type of sampling used, which excludes people without a telephone, or the non-response rate not considered in the sampling when randomly dialing telephone numbers.

The fieldwork was carried out between February 1 and 15, 2025, including the Spanish population over the age of 18 as the study universe. The final sample obtained consists of a total of 1,000 individuals, so that in the most unfavorable scenario ($p = q$) and with a confidence level of 95.5%, the margin of error is $\pm 3.1\%$. The sample includes all regions of Spain and was stratified proportionally to the actual population by gender and age quotas, as shown in Table 1.

Table 1
Sample distribution

Gender	Age groups				Total
	18-29	30-49	50-64	65	
Male	77	175	129	104	485
Female	73	173	133	136	515
Total	150	348	265	237	1000

However, given that this research focuses on Generation Z, only individuals aged between 18 and 28 will be taken into account, making a total of 143 people. Although it cannot be said that this subsample fully represents Generation Z at the national level, the number of cases available allows for an initial exploratory analysis, which may lay the groundwork for future research designed specifically for this population.

The processes carried out to meet the proposed objectives are purely quantitative and were performed using IBM SPSS software version 30.0.0. The results were extracted using univariate or bivariate tables to determine the percentage distributions within the group of interest. In the case of the latter, the variable chosen as dependent is ideological self-location, which, despite being coded numerically on a scale of 0 to 10, was recoded as ordinal, since the categorization of continuous variables simplifies the analysis and interpretation of the results (Naggara *et al.*, 2011).

Thus, it became a variable with five distinct categories: extreme left (0-1), left (2-4), center (5), right (6-8), and extreme right (9-10). The independent variables correspond to questions P13 (Type of participation in the 2023 general election) and P14 (Voting intention in the 2023 general election) with the following national parties as the main options: PP [right], PSOE [left], Vox [far right], SUMAR [left]. In addition, the parliamentary spectrum is made up of several nationalist and/or pro-independence parties, located on the right and left, among which the following options were included: Esquerra Republicana de Catalunya [ERC], Junts per Catalunya [JxCat-JUNTS], Euskal Herria Bildu [EH Bildu], Euzko Alderdi Jeltzalea-Partido Nacionalista Vasco [EAJ-PNV], Bloque Nacionalista Galego [BNG], Coalición Canaria [CCa], Unión del Pueblo Navarro [UPN]).

In addition, the following categories were considered: P9 (Degree of monitoring of political information via the internet), P10C (Degree of monitoring of political information via social media), P44 (Degree of agreement with the statement “Fake news about politics comes from the far right”) and P43 (Degree of agreement with the statement “Artificial intelligence will worsen the information that citizens receive from administrations and the media”).

The latter two have also been recoded to simplify the interpretation of the results, grouping them into the following categories: Strongly disagree (0-1), disagree (2-4), neither agree nor disagree (5), agree (6-8), and strongly agree (9-10).

Results

Regarding the ideological self-placement of young people between the ages of 18 and 28, a greater positioning towards the right can be observed (36.50%), followed by the left (27.74%) and the center (21.17%). In this case, the ideological extremes are relegated to the background, with only 8.76% of the sample analyzed opting for the far left and 5.84% for the far right. Thus, in general terms, it can be said that there is a slight tendency towards the right among the young people analyzed, 42.34% compared to 36.5% respectively (sum of percentages of the right plus the far right and vice versa). However, the difference is not sufficient to speak of a clear imposition of one ideology over another.

Table 2

Ideological self-placement of the subsample of people aged 18 to 28 (Generation Z)

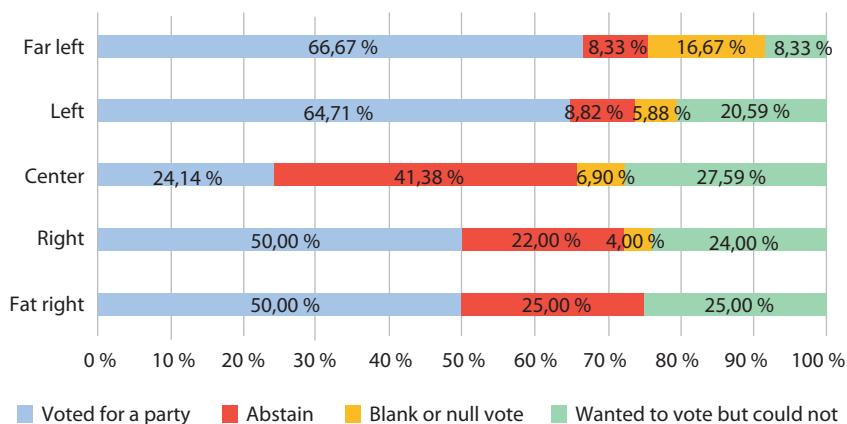
Ideological self-placement	Percentage
Far left	8.76%
Left	27.74
Center	21.17

In terms of participation in the 2023 general election, the data shows that people on the left (including the far left) are more likely to vote for a specific party, with 64.71% and 66.67% respectively. These percentages are lower

in the case of the right and its respective ideological extreme, with both positions at 50%. This is because some of their supporters have chosen to abstain (22% and 25%, respectively) or have been unable to exercise their right to vote despite their desire to do so (24% and 25%). It should be noted that the latter situation also occurred in 20.59% of people who declared themselves to be on the left and 27.59% of those in the center. For its part, the far left shows a higher percentage of blank or invalid votes (16.67%), being the only one with such a high score in this category. Particularly striking is the case of centrists, whose voting percentage is the lowest among the different ideologies (24.71%) and whose abstention percentage is the highest compared to the others (41.38%).

Figure 1

Type of participation in the 2023 general election according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)

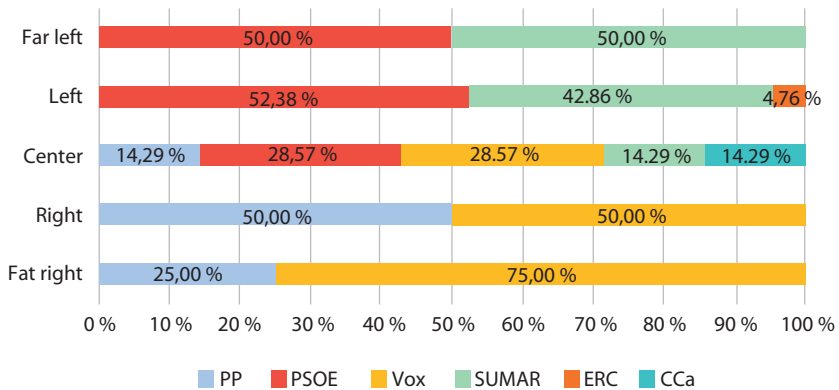


Among voters, most who identify as far left opted for the PSOE and Sumar (50.00% of votes cast in the 2023 general election). On the left, the votes were distributed similarly, with 52.38% for the PSOE, 42.86% for SUMAR, and, as a new development, 4.76% for ERC. Meanwhile, those who identify as centrist divided their votes among different parties, with the majority going to parties such as the PSOE and Vox (28.57% of votes), followed by the PP, SUMAR, and CCa (14.29% of votes).

In contrast, young people on the political right concentrated their votes on PP (50.00%) and Vox (50.00%), as did those on the far right, although with variations in the percentages, with Vox (75.00%) being a majority force over PP (25.00%). In this sense, it can be seen how, in electoral practice, extremist parties such as Vox are gaining ground as one of the preferred options among young people. These results differ to a certain extent from the declared ideological self-placement (Table 2), where the extremes had little presence.

Figure 2

Voting recall for the 2023 general election according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)



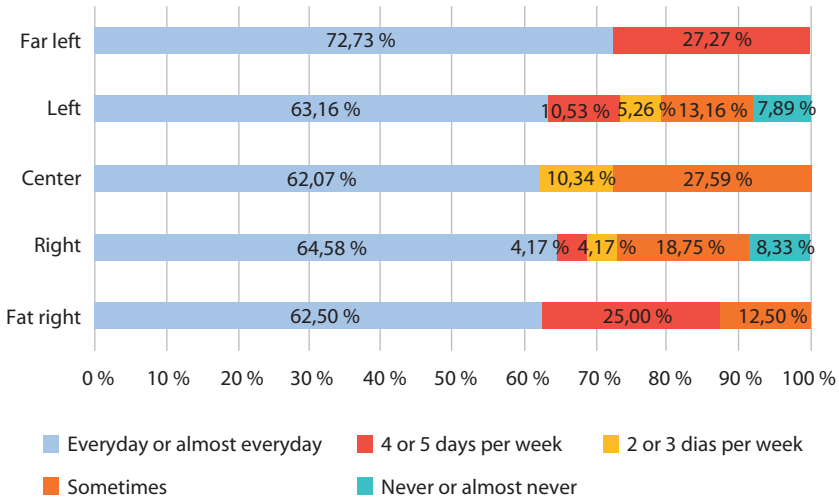
In relation to following political information online, the results in Figure 3 show that most young people, regardless of their self-reported ideological positioning, frequently use this platform to keep up to date with political news. More than 60% in each group say they do so every day or almost every day, with those on the far left having the highest percentage (72.73%).

However, it should be noted that, as shown in the figure, young people at the extremes (both left and right) tend to follow this content more frequently on the internet, with 100% of those on the far left informing themselves at least four days a week, and 87.5% of those on the far right (sum of the percentages for “Every day or almost every day” and “Four or five days a week”). For their part, the left and right divide their percentages among the various categories, also including options such as “Never or almost never” (7.89% and 8.33% respectively) and “Occasionally” (13.16% and 18.75% respecti-

vely). The latter is also the majority option among the remaining individuals in the center (27.59%) along with “2 or 3 days a week” (10.34%).

Figure 3

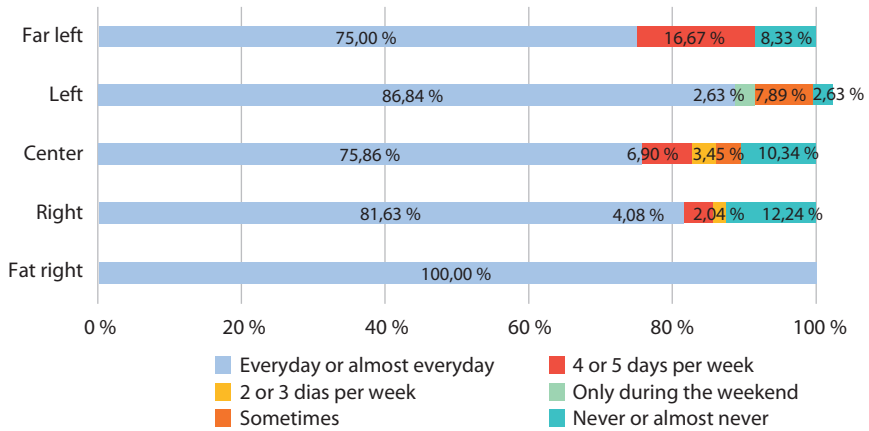
Degree of following political information via the internet according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)



These results are even more pronounced when it comes to following political information through social media. In this regard, the percentages of daily following are above 70% in all groups, with the case of far-right supporters standing out in particular, where 100% of the young people surveyed say they consume political content on social media every day or almost every day. Unlike what we saw in the previous figure, the percentages in the other categories are much lower (not exceeding 10%), with the exception of the far left, which registers 16.67% in “4 or 5 days a week,” and the right and center, with 12.24% and 10.34%, respectively, in “Never or almost never.”

Figure 4

Degree of following political information through social media according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)

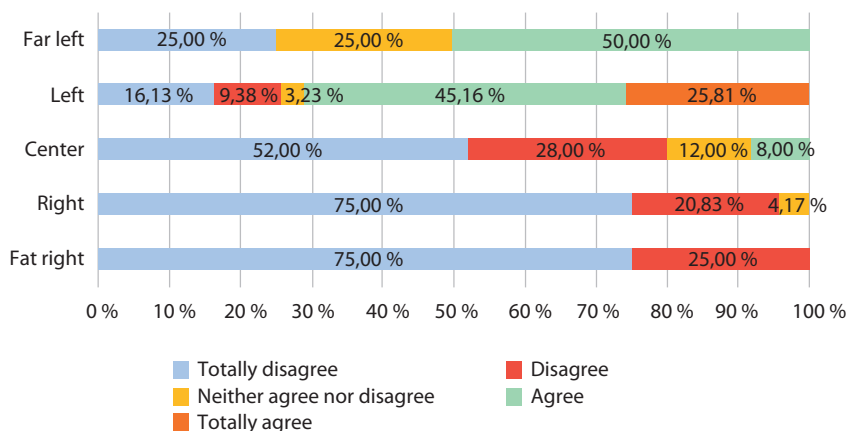


Regarding the perception of the origin of disinformation by the far right, the data differ depending on the declared ideology. Most young people who identify as right-wing, centrist, or far-right strongly disagree with the statement “fake news about politics comes from the far right” (75.00% in both related groups and 52% in the center). The remaining people disagree (20.83%, 28.00%, and 25.00%, respectively) or do not have a clear opinion (4.17% on the right and 12.00% in the center in the “neither agree nor disagree” option). However, in none of the cases do those on the ideological right agree or strongly agree with the statement analyzed, and only 8% of those in the center agree with it.

On the contrary, among those on the left and the far left, the predominant positions agree (45.16% and 50.00% respectively) and strongly agree (25.81% in the case of the left). Even so, it should be noted that there are individuals who also disagree (9.68% on the left) or strongly disagree (16.13% and 25.00% respectively) with this statement.

Figure 5

Degree of agreement with the statement “Fake news about politics comes from the far right” according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)

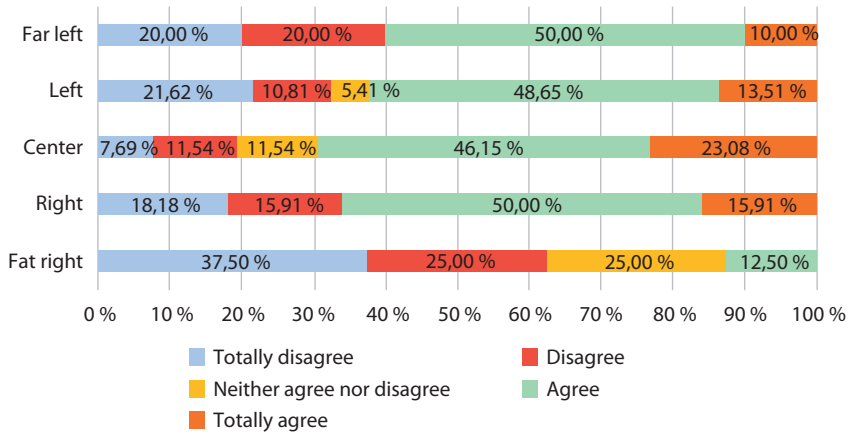


Finally, regarding the use of artificial intelligence in communication by public administrations and the media, young people on the far left, left, center, and right agree that it will worsen the quality of information received by citizens, with levels of agreement around 60% (sum of percentages in the “Agree” and “Strongly agree” categories). The rest of the people who sympathize with these ideologies express, to a lesser extent, their disagreement (20.00%, 21.62%, 7.69%, and 18.18%, respectively) or total disagreement (20.00%, 10.81%, 11.54%, and 15.91%, respectively) with the statement.

Only one group differs from the others: those who identify themselves as far right, who strongly disagree (37.5%) or disagree (25.00%). It is also worth noting that 25% of these young people do not express either agreement or disagreement, selecting the option “neither agree nor disagree.” Although there are individuals who agree with the statement analyzed, they only represent 12.50% of the total number of supporters of far-right ideology.

Figure 6

Degree of agreement with the statement “Artificial intelligence will worsen the information that citizens receive from public administrations and the media” according to ideological self-placement in the subsample of people aged 18 to 28 (Generation Z)



Conclusions and discussion

Firstly, it should be noted that the young people of Generation Z analyzed are positioned, with a slight majority, on the right (36.50%), closely followed by those on the left (27.74%) and in the center (21.17%). Although the ideological extremes represent minority percentages, when it comes to voting, Vox concentrates as much of the vote as the Popular Party among the group of people who identify with the right and not with their respective extreme. In addition, there is greater electoral involvement among young people who are ideologically on the left or far left, with a higher voting rate in the last elections than their ideological opponents (64.71% and 66.67% respectively, compared to 50.00%). Thus, among those on the right or far right, there is a higher percentage of abstention or inability to vote, despite the desire to do so (SO1), which is a symptom of their disaffection.

Although differences in political positions can be seen, what the young people in the sample do share is their recurrent monitoring of political in-

formation via the internet and social media. More than 60% of individuals access political information via the internet on a daily basis, regardless of their ideological location. These results increase in the case of social media, rising to over 70%. In this regard, it is worth noting the case of young people on the far right, all of whom (100%) say they consume political information on social media every day or almost every day (SO2), which shows their interest in current political affairs. However, this contrasts with their degree of disaffection when it comes to voting, which is in line with the positions of those who claim that they do not feel represented by the current political parties or who present themselves as anti-system, as indicated by some of the studies mentioned above.

Regarding disinformation, the data show that this phenomenon is perceived selectively: on the one hand, young people who identify as left-wing or far-left blame the far-right for spreading false information, and on the other hand, those who identify as right-wing, centrist, or far-right categorically deny the involvement of the far-right in the origin of political disinformation (SO3). This points to the possibility that the perception of disinformation may be strongly conditioned by ideology, an issue to be explored in future studies.

In any case, these results highlight the need to continue insisting on media literacy training against disinformation in schools, encouraging critical thinking in the use of social media by young people and the verification of information, especially in the face of polarizing and extremist narratives and the use of hate speech.

Finally, with regard to the use of artificial intelligence in institutional and media communication, most young people are distrustful and believe that its implementation could worsen the quality of information received by the public. Only far-right supporters generally disagree with this statement (SO4).

This last statement leaves the door open for future lines of research on the perception of the use of artificial intelligence in areas such as the development of automated discourse, census data segmentation, or the creation of manipulated or disinformation content—such as memes or deepfakes—as well as on how this perception may vary depending on voters' declared ideological self-placement or on whom they attribute responsibility for its use, whether the government and/or the opposition.

Research support and funding

This research is part of the FAKELocal research project: Map of Disinformation in the Autonomous Communities and Local Entities of Spain and its Digital Ecosystem (Ref. PID2021-124293OB-I00), funded by the Ministry of Science and Innovation, the State Research Agency (AEI) of the Government of Spain, and the European Union (EU) ERDF.

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Declaration of Authorship - CRediT Taxonomy	
Authors	Contributions
José Rúas-Araújo	Conceptualization, original draft writing, writing-revision and editing, supervision and validation.
Uxía Seijas-Vidal	Formal analysis, methodology, original draft writing, revision and editing, visualization.

Declaration on the use of Artificial Intelligence
The authors DECLARE that, in the preparation of the article <i>Young Spaniards and disinformation and artificial intelligence: ideology, perception, and political participation</i> , no artificial intelligence tools were used at any stage of the research process.

Call for Papers – Dossier
Eco-communication: Environmental Communication
in the Digital Era

Issue No. 44 (March–August 2026)

Thematic Coordinators

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Submission deadline: July 10, 2025

The development of Artificial Intelligence has impacted the functioning of our societies and also poses a major challenge for politics. With a focus on the political sphere, this volume welcomes scientific contributions and analyses addressing issues related to this emerging field of research.

One dilemma concerns the extent to which generative AI enters politics to construct new narratives, or whether it merely facilitates access to those already circulating. Another issue relates to the scope of AI in processes of harmful political polarization, and consequently, in the worst-case scenario, even in processes of autocratization.

A third question concerns the potential usefulness of AI in the management of political organizations, as well as in the mobilization of social and electoral participation. Can political parties, trade unions, NGOs, and lobbies obtain competitive advantages through AI?

Another issue involves the impact of AI use on sustained communication between political institutions at any level of government and citizens. Finally, we cannot overlook the implications of the use of generative AI in the public sphere within the field of political ethics and the debate it generates.

These and many other questions related to the changes, effects, and consequences of AI in the political sphere will be the subject of analysis in this special issue.