



“Risks” and “communication”: Conceptual discussion from the perspective of complex transdisciplinarity

Os “riscos” e a “comunicação”: Discussão conceitual a partir da transdisciplinaridade complexa

Los “riesgos” y la “comunicación”: Discusión conceptual a partir de la transdisciplinariedad compleja

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Abstract

The concept of risk communication has been used in several fields of scientific knowledge, yet there is no consensus regarding its definition. The aim of this article is to discuss this concept based on the notion of transdisciplinarity and the theory of complex thought. Methodologically, the study was developed through a theoretical deepening of the notions of “communication” and “risks”. In the former case, the propositions of the Latin American School of Communication were chosen for discussion, encompassing the term’s elasticity across different approaches. Meanwhile, the discussion on the definition of “risk” was framed within the approach of the vulnerability progression to disasters, which incorporates dynamic pressures such as unequal access to communication devices and disinformation. The article’s innovation lies in considering risks not only as external agents to be communicated but also as embedded within the communication process.

Keywords: Communication; risks; transdisciplinarity; risk communication; complexity.

Resumo

O conceito de comunicação de riscos tem sido utilizado em diversos campos do conhecimento científico, mas não há consenso em relação à sua definição. O objetivo do artigo é realizar uma discussão desse conceito a partir da noção de transdisciplinaridade e da teoria do pensamento complexo. Metodologicamente, o trabalho foi desenvolvido por meio do aprofundamento teórico referente às noções de “comunicação” e “riscos”. No primeiro caso, as proposições da Escola Latino-Americana de Comunicação foram escolhidas para discussão, compreendendo a elasticidade do termo a partir de diferentes abordagens. Já a discussão sobre a definição de “risco” foi circunscrita à abordagem da progressão da vulnerabilidade a desastres, em que se inserem novas pressões dinâmicas como a desigualdade de acesso a dispositivos comunicacionais e a desinformação. A inovação do artigo consiste em considerar os riscos não apenas como agentes externos que devem ser comunicados, mas também enquanto imbricados no próprio processo comunicacional.

Palavras-chave: Comunicação; riscos; transdisciplinaridade; comunicação de riscos; complexidade.



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Resumen

El concepto de comunicación de riesgos ha sido utilizado en diversos campos del conocimiento científico, pero no existe un consenso acerca de su definición. El objetivo de este artículo es realizar una discusión de concepto a partir de la noción de transdisciplinariedad y de la teoría del pensamiento complejo. Metodológicamente, el trabajo se desarrolló mediante la profundización teórica referente a las nociones de "comunicación" y "riesgos". En el primer caso, se eligieron para la discusión las proposiciones de la Escuela Latinoamericana de Comunicación comprendiendo la elasticidad del término a partir de diferentes enfoques. Por otro lado, la discusión sobre la definición de "riesgo" circunscribió al enfoque de la progresión de la vulnerabilidad ante desastres, en el que se insertan nuevas presiones dinámicas como la desigualdad de acceso a dispositivos comunicacionales y la desinformación. La innovación del artículo consiste en considerar los riesgos no solo como agentes externos que deben ser comunicados, sino también como elementos imbricados en el propio proceso comunicacional.

Palabras clave: Comunicación; riesgos; transdisciplinariedad; comunicación del riesgo; complejidad.

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Introduction

There are several understandings of the definition of risk communication due to its varied applications across interdisciplinary contexts (LOOSE; MORAES; MASSIERER, 2021; VICTOR, 2015). Overall, risk communication definitions fall into two main categories. On the one hand, there is a predominant idea of approximating the audience's attitudes towards the expert's expectations in a transmissive approach, in which experts obtain the information to be transmitted to the audience in a hierarchical, vertical relationship (GREGORY; LOCK, 2008). On the other hand, the prevailing proposition is to engage the audience through a dialogue process that values their contributions as a complement to decision-making (FARRÉ I COMA; GONZALO IGLESIA, 2011; COVELO; SANDMAN, 2001).

The idea of risk communication as a resource for information transmission is evident in international bodies such as the World Health Organization (WHO). According to the WHO's definition, risk communication is the real-time exchange of information, recommendations, and opinions between experts or officials and people facing risks and hazards. The aim of risk communication is to inform people in risk situations so they can make conscious, protective, and preventive decisions to mitigate the effects of a hazard (or risk), such as the emergence of a new disease (WHO, 2025).

According to the WHO, expert knowledge must be transmitted to people at risk situations. Although this definition mentions decision-making, it is evident that this process occurs only after acquiring information from experts, rather than within an interactive context among all the actors involved in risk communication.

This article discusses risk communication within the context of disaster risk management (DRM). According to the National Policy for Protection and Civil Defense (PNPDEC), the DRM process involves five different stages: prevention, mitigation, preparedness, response, and recovery. Although the PNPDEC does not explicitly mention risk communication, it includes objectives and sections that highlight the need for communication (BRASIL, 2012). From this perspective, communication is involved in all stages of DRM, especially through information exchange between experts and communities.

Since disaster risk encompasses hazards that are increasingly complex and interconnected (e.g., floods during the Covid-19 pandemic), it is essential to discuss risk communication in this complex context. Therefore, a transdisciplinary dialogue among experts in disaster risk, communication professionals, and communities affected by catastrophes is increasingly necessary. Furthermore, it is worth highlighting that risk perception is influenced by risk communication strategies, a process that became more evident during the pandemic (FONSECA *et al.*, 2022; FAOUR-KLINGBEIL *et al.*, 2021).

Examples of risk communication as an interactive process can be found, for instance, in the definition by Rosa Moreno and Peres (2012), who define it as an interactive process of information exchange and opinion formation among individuals, groups, and institutions, which is dialogic and grounded in reception studies. Loose, Moraes, and Massierer (2021) define risk communication as an interdisciplinary field that entails the process of disseminating information, fostering dialogue, and promoting understanding of natural and human risks. Velasquez-Espinoza and Alcantara-Ayala (2025) characterize risk communication as the exchange of information and dialogue among stakeholders aimed at enhancing comprehension and action before, during, and after a disaster.

Even though there are no divergences within these concepts, there is a notable lack of a convergent approach (PEEK *et al.*, 2020), as distinct theoretical frameworks are utilized: the notion of dialogy is present in Rosa Moreno and Peres (2011) and in Loose, Moraes, and Massierer (2021); however, only the former claims a central role for reception studies. Moreover, although Velasquez-Espinoza and Alcantara-Ayala (2025) mention the importance of dialogue, their definition of risk communication is largely instrumental and is used only briefly to disseminate and analyse empirical results from a 2024 survey conducted with children and youth in Nicaragua.

There are also propositions that place the media at the center, such as that of Gonzalo Iglesia e Farré I Coma, in which the concept of risk communication is intersected by the media. In this perspective, the media are seen both as responsible for fostering dialogue among social actors during the risk communication process and for being capable of setting the subjects and topics to be addressed within the scope of risk communication.

Therefore, in the absence of a convergent definition in the literature, we understand that the definition of risk communication is elastic, with elasticity being characterized here as openness and sensitivity to other concepts and epistemological flows (LACERDA, 2023). This perspective differs from the idea that the concept of risk communication is in dispute, that at some point one of the existing definitions will prevail over the



others, gaining greater validity and recognition. In this sense, we recognize that distinct definitions regarding risk communication may coexist. Hence, a transdisciplinary approach is coherent, as it allows the intersection between various study fields and the possibility of new conceptualizations through the fraying of disciplinary frontiers.

As the conceptual proposition of this article is permeated by transdisciplinarity, the following section addresses it based on the works of Freitas, Morin, and Nicolescu (1994) and Morin’s complex thought (2005). Accordingly, we opted to examine the notions of “communication” and “risks” separately, with the aim of deepening the analysis of the topics that interconnect these two areas and expanding the relationship between the fields that comprise risk communication.

In the third section, we present a brief contextualization of “communication” through the lens of the Latin American School of Communication (FREIRE, 2005; MELO, 1999; OROZCO GÓMEZ, 2001). Following this, the notion of “risk” is put in perspective from the communicational approach. (FARRÉ I COMA; GONZALO IGLESIA, 2011; LEMOS, 2004; MOROZOV, 2018). Finally, concepts from disaster science (WISNER et al., 2025) are used to discuss risk communication in the context of the progression of vulnerability to disasters, particularly regarding inequalities in access to communication devices and the emergence of disinformation as a new risk arising from the communicational process.

The necessity of a transdisciplinary and complex proposition

Risk communication is an area that encompasses multiple fields of study, each of which applies the concept with distinct meanings. Furthermore, communication itself is a multidimensional object (BONIN, 2008), and the notion of risk is equally broad and complex. In this sense, disciplinary fragmentation creates a mismatch, since certain topics do not precisely fit in a specific field, which may lead to a reductionist approach (MONTUORI, 2013).

Historically, particularly in Europe, risk communication was established in a context marked by growing criticism regarding the management of certain risks and the lack of governmental transparency, alongside the increasing influence of organizations and social movements such as environmentalism, as well as the mobilization of local communities that led to social changes during the 1970s (STRYDOM, 2008). Moreover, the rise of technological risks, such as those related to nuclear energy during the 1980s, triggered both institutional and social responses, bringing risk communication into the spotlight as a risk management resource.

In the Latin American context, Rosa Moreno and Peres (2011) note that risk communication strategies have been primarily focused on disasters and/or health. In Brazil, risk communication has been linked to health since the beginning of the XX century, articulated through sanitary control policies and strategies, within the contexts of implementation and development of the sanitariat/campaign-based healthcare models (CASTIEL et al., 2017; RANGEL, 2007). In this regard, an examination of the establishment of risk communication in Brazil reveals the early predominance of a transmissive communication approach, rooted in the sanitariat model of the early twentieth century.

Examining the historical trajectory of risk communication reveals it to be a multifaceted field, shaped by diverse actors, ongoing debates, and rich theoretical reflection. As such, approaching this subject through a transdisciplinary lens may offer valuable pathways for addressing increasingly complex challenges. For this article, transdisciplinarity is understood as:

“The cornerstone of transdisciplinarity lies in the semantic and operative unification of meanings through and beyond disciplines. It presupposes an open, rational attitude towards a new perspective on the relativity of the notions of ‘definition’ and ‘objectivity’. Excessive formalism, the rigidity of definitions, and the absolutization of objectivity, including the exclusion of the subject, lead to the impoverishment (FREITAS; MORIN; NICOLESCU, 1994).

This notion does not advocate the abolition of disciplinary fields, but rather for the intersection of concepts drawn from various areas of scientific knowledge, enabling objects of study to be analyzed from a relational and relative perspective. In doing so, it acknowledges the limitations of propositions that define concepts on the basis of assumed objectivity, recognizing that distinct understandings inevitably emerge

when the objects of analysis are observed from different standpoints. Through this intersection, it becomes possible to expand the boundaries of knowledge and arrive at a more nuanced and complex understanding of the phenomena under study (FREITAS; MORIN; NICOLESCU, 1994; MORIN, 2005).

Complexity entails that objects of study possess multiple interdependent aspects that must be considered. Furthermore, it assumes the existence of relativity, opposing the idea of universal knowledge and/or narratives that produce homogenizing analyses. In defending the paradigm of complex transdisciplinarity, Morin (2005) argues that it is necessary to allow for the distinction, separation, and opposition of scientific domains, while at the same time enabling them to communicate with one another without falling into reductionism.

Beyond advocating for the complex paradigm, Morin (2005) emphasizes transdisciplinarity as an ethical stance in scientific production by recognizing the relative nature of science and acknowledging the existence of subjectivity and positioning in scientific practice.

By drawing on diverse fields of study and theoretical frameworks, this article seeks to formulate a conceptual proposal developed within the intersection of established disciplinary boundaries. It is also worth noting that by employing the paradigm of complex transdisciplinarity (MORIN, 2005), we underscore that this proposal also aims to broaden the debate surrounding risk communication.

Communication: the contributions of the Latin American School

Much like risk communication, communication itself is an elastic concept. Drawing on the understanding proposed by Braga (2011), in which communication is conceived as a dialogic process in constant re-elaboration, adapting to the needs of the objects in question through matrices activated by society for interaction, it follows that any conceptual framework addressing communication must take into account contemporary social dynamics.

Within this understanding, the communicational process encompasses a series of topics to be considered, including technological, economic, social, cultural, and political transformations, which necessitate a transdisciplinary approach based on diverse theoretical and methodological perspectives capable of generating interlocutions.

In discussing the paradigms of Latin American communication theory, Melo (1999) identifies theoretical hybridity and methodological overlapping as the defining characteristics of scientific production within the field, shaping a research tradition capable of reflecting the cultural physiognomy of Latin America

The hybrid approach mentioned by Melo (1999) was established during the 1980s, a period in which many scholars across the region (e.g., Pasquali, Beltrán, Verón, Fernández, Mattelart, Kaplún, Bordenave, and Freire) argued that communication theories needed to consider Latin American realities, highly divergent from the contexts observed in the core countries of capitalism.

In this sense, the idea of directly transferring foreign theoretical models proved to be insufficient to reflect on the reality of communication in Latin America, which led to the establishment of the so-called “Latin American School of Communication,” influenced primarily by an interaction between European traditions, Meso- and South American heritages (pre- and post-Columbian), African customs, and innovations from modern North American models (MELO, 2001).

By taking into account the specificities of the region, the “Latin American School of Communication” distances itself from the concept defined by Polanco (1985) as the internal brain drain, a phenomenon in which scientists from Latin America, without necessarily emigrating from their home countries, orient their work according to the research agendas, reward systems, and publication practices of developed countries.

This debate remains relevant, particularly when observing the asymmetry in global knowledge production. When addressing the relations of domination in knowledge production, Albuquerque and Oliveira (2023) point out that control over the informational flows of scientific communication remains under the dominance of core (capitalist) countries, large technological oligopolies, and the scientific publishing market.

In this sense, it is necessary to take into account the changes that have occurred in recent decades to propose a discussion that is coherent with the current context. While the foundational period of the “Latin American School of Communication” was marked by debates over the central role of media outlets, such as television, as generators of discussion within the family unit (OROZCO GÓMEZ, 2001), what is observed today is a process of increasing individualization and isolation, driven in part by social media platforms that



operate through algorithmic segmentation of content and advertisements, which are socially produced and privilege certain perspectives to the detriment of others (GROHMANN, 2020; MOROZOV, 2018).

Furthermore, the observed temporal acceleration in information dissemination raises critical issues. This dynamic has fundamentally transformed various contemporary social practices (PRAZERES; RATIER, 2020). While during the 1980s journalistic and media publications were daily, weekly, or monthly, real-time transmission is now an established reality, as social media users post videos, photos, and texts in real time about quotidian events or national and international political topics.

Several critical issues become more pronounced within this high-speed context. A primary example is the large-scale spread of disinformation, given the considerably shorter time available for fact-checking, as well as the absence and/or precarization of professional mediation (PRAZERES; RATIER, 2020). For the purposes of this article, disinformation is defined as the intentional creation or dissemination of misleading content designed to cause harm, foster discord, or secure political and financial advantages. This type of deceptive practice may range from the decontextualization of facts to the fabrication of alternative narratives (HAMELEERS, 2023).

After analyzing 52 articles on risk communication published over two decades across 18 Latin American academic journals, Palma et al. (2022) found that, in general, studies on the role of the media predominate, as do the responsibilities attributed to them at a social level, particularly during moments of rupture in events, such as disasters. In this type of research, a cause-and-effect perspective tends to be adopted, though not always explicitly stated: if the media disseminates certain content, there is a higher level of preparedness.

The understanding of communication proposed here differs from the perspective in which the communicational process corresponds to a direct relationship of information transmission. For the purposes of this article, the communicational process is understood within Freire's (2005) proposal of horizontal communication, in which the different actors involved engage interactively, without a vertical relationship, but rather in a dialogic process where each agent contributes equally to the realization of the communicational process.

Risk definitions: dialogic and active process

As discussed in the section "The necessity of a transdisciplinary and complex proposition", risk communication emerged across the world during a period marked by the growing prominence of technological, environmental, and health-related risks. Although the media were predominantly analog in the 1980s, advances in access to information were considerable, especially regarding events unfolding in other countries. Thus, the notion that several socio-environmental threats were occurring in different places became increasingly widespread, which led to a heightened perception of risk (FARRÉ I COMA; GONZALO IGLESIA, 2011).

Risk perception¹, defined here as one's capacity to interpret a potentially harmful situation to their own health and life, or that of others, based on prior experiences and future projections (ROSA MORENO; PERES, 2011), is essential to building a dialogic understanding of risk communication. By understanding the communicational process as a horizontal, interactive concept that includes devices and media, it becomes clear that the comprehension of risk by social actors must be considered. In this sense, the delimitation between what does and does not constitute risk is variable, as it is influenced by social contexts, among other factors.

Definitions of risk vary across the literature. Lacerda (2023) notes that there are objective definitions of risk, which are quantitative in nature and concern the probability of a phenomenon occurring, along with its potential hazards and adverse consequences; and constructivist notions, which correspond to derivations of risk perception that do not necessarily involve statistical outcomes for personal decision-making, but instead reflect subjective constructions of meaning.

In tracing the historical evolution of risk definitions, Lacerda (2023) offers several illustrative examples. He points to the concept of risk as it appeared in nautical language as early as the XIV century, where it was closely tied to nature and carried a fatalistic character. He also notes that in international documents such as those produced by the UNDRR (United Nations Office for Disaster Risk Reduction), risk is understood in terms of the probability of consequences (LACERDA, 2023). As an example of a constructivist approach to risk, originally drawn from the health field, Lacerda highlights a case from the United States: while the

¹ By considering the understanding of Peres and Moreno (2011), we acknowledge that there are various interpretations of the term, which also has an elastic character.

predominant health risks of the 1980s were cardiovascular disease, lung cancer caused by smoking, and automobile accidents, Americans at the time perceived and attributed the greatest risk of cancer to industrial pollution. This example illustrates the author's broader point that, even when probabilistic risk calculations exist, risk perception can give rise to a markedly different social understanding (LACERDA, 2023).

In a context of complexity, the constructivist notion of risk conceptualized by Lacerda (2023) is adequate to this discussion, as is the definition of risk proposed by Wisner *et al.* (2025), in which risk is understood as the relationship among hazards, vulnerabilities, protective capacities, and large-scale public policies for risk mitigation. The hazard is conceived not merely as an external agent capable of causing harm, but also as a product of social structures (GILBERT, 1995). Vulnerability, in turn, refers to a situation or condition of heightened susceptibility to suffering damage and loss in disasters, while capacities are associated with the resources and skills that individuals draw upon to protect themselves in the face of hazards. Finally, large-scale public policies for risk mitigation encompass actions aimed at reducing hazards and vulnerabilities while strengthening people's capacities to minimize the adverse impacts of a hazard.

According to Wisner *et al.* (2025), the social production of disaster risk results from a process in which root causes and dynamic pressures interact to shape existing hazards, unsafe conditions, social protection capacities, and large-scale public policies for risk mitigation. Root causes refer to enduring structural phenomena such as inequality, poverty, cultural and ideological factors, such as denialism and racism. These root causes are further intensified by dynamic pressures, such as wars and economic crises, within what the authors describe as the progression of vulnerability framework (WISNER *et al.*, 2025).

Thus, the materialization of dynamic pressures manifests in unsafe conditions, such as people living in precarious housing in areas lacking basic sanitation and susceptible to landslides. Such conditions have already been brought to light by landslide-related disasters, as seen in the Região Serrana of Rio de Janeiro in 2011. Yet new forms of inequality and dynamic pressures are being added to an already complex scenario.

Finally, inequality, as a root cause in the progression of vulnerability framework (WISNER *et al.*, 2025), continues to expand, now encompassing new forms such as unequal access to communicational devices. Dynamic pressures have similarly diversified: it is no longer solely a matter of communicating natural hazards. Social threats have been engendered within the social structure, arising from the communicational process itself. The following section discusses these aspects.

Risks within the mediatized communicational process

By understanding the idea of risk not only as an external agent but as something embedded within communication itself, we likewise consider the risks inherent in the mediatized communicational process. Conceiving risk as a social expression of vulnerability and hazards as resulting from social processes (GILBERT, 1995), two issues warrant particular attention within the context of social asymmetries and the consolidation of the digital environment: the exponential spread of disinformation, driven by the operational dynamics of social media platforms, as well as unequal access to communicational devices. For this reason, we consider these two aspects central to understanding risks, since they have the capacity to undermine the articulation and dialogic relationship of the communicational process.

The digital environment, in which the traditional transmission poles were dismantled (LEMOS, 2004) and users also become content creators and information providers, emerged as an opportunity to foster greater diversity of perspectives and discourses. However, it was also within this sphere that disinformation has found greater room to proliferate. Beyond the breakdown of transmission poles, social media platforms operate with little transparency regarding the operation of their algorithms, while simultaneously collecting vast amounts of user data within an economic logic of ultra-segmentation, both with regard to advertising and the distribution of content, privileging certain perspectives over others (GROHMANN, 2020; MOROZOV, 2018).

Regarding inequalities in access to communicational devices, data from 2023 released by the Brazilian Internet Steering Committee (CGI.br) revealed that among internet users between the ages of 9 and 17, 38% of those in socioeconomic classes D and E² accessed the internet exclusively via mobile phone, a rate similar to that observed in class C (37%). Furthermore, the report concluded that multimodal device use was predominant among users in classes A and B, for whom combined access via mobile phones, television, and computers exceeded 30% (CGI.br, 2024).

² CGI.br follows the social class definition used by IBGE (Brazilian Institute of Geography and Statistics).



Disparities in access to communicational devices constitute a risk in communication, among other reasons, because they limit the development of media literacy skills, understood here not only as the technical knowledge of how a medium functions and is used, but also as the ability to situate the individual within the media environment in which they are immersed. In this sense, what is assessed is the capacity to critically analyze the content circulating on social media, as well as the understanding of how those platforms operate (MARTINO; MENEZES, 2012).

It follows, therefore, that any notion of risk within communication as a dialogic process must account for risk perception among social actors, as well as actively propose a risk framework that recognizes not only external agents, but also factors inherent to the mediatized communicational process itself as sources of uncertainty and risk (GILBERT, 1995).

Conclusion

This article presented a conceptual discussion of risk communication within the context of complex transdisciplinarity. By addressing the definitions of communication and risk separately, it was possible to open space for a deeper dialogic engagement with the subject, as the notion of risk could be analyzed both as an external agent and as a notion embedded within the communicational process itself, understood here within the concepts of the "Latin American School of Communication".

The article's proposal emerged from the understanding that there is no convergent approach to the definition of risk communication in the literature, and for this reason, conducting a conceptual discussion would therefore be valuable in broadening reflection on the subject within a scenario of complex transdisciplinarity, that values both scientific and non-scientific forms of knowledge in contexts permeated by hazards and vulnerabilities that are ever more difficult to comprehend. In this sense, the aim is not to foreclose debate, but rather to stimulate further dialogue, particularly at the frontier with other fields of knowledge, such as disaster science.

By proposing an epistemological debate within the field of risk communication, drawing on epistemological frameworks from communication studies, risk perception, and disaster science, we also seek to expand the area's theoretical foundations, building pathways toward complex transdisciplinarity, while simultaneously recognizing the validity of the specific contributions that the communication field brings to the broader disaster science debate.

Therefore, the article's innovation lies in proposing new forms of inequality and dynamic pressures within the progression of vulnerability framework, such as unequal access to communicational devices and the dynamic pressure generated by disinformation in the context of disasters.

Hence, it is our responsibility to problematize the traditional view of risk communication centered on hazards as exclusively external to the communicational process. Given the complexity of the world we live in, it is also essential to address threats arising from the communicational process itself, such as disinformation in disaster contexts.

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