VILNIUS TECH
Vilnius Gediminas Technical University

CREATIVITY STUDIES

CREATIVITY IN CRISIS COMMUNICATION: A SYSTEMATIC REVIEW

Rasa SMALIUKIENĖ [ID] [✉]

Department of Creative Communication, Faculty of Creative Industries, Vilnius Gediminas Technical University, Trakų str. 1, 01132 Vilnius, Lithuania

Abstract. This systematic review explores the concept of creativity in crisis communication, a widely used but poorly conceptualised phenomenon. It draws on empirical research and case studies to highlight the diversity of creative approaches during major crises such as natural disasters, health crises, or conflicts. The focus is particularly on situations where these crises are protracted, and creativity is required to deal with the "fog of warning" caused by repeated alerts. It is also important to exercise creativity in order to control the meaning of information and combat the spread of misinformation and conspiracy theories. Creativity in crisis communication during major crises is described as the dynamic generation of novel and contextually relevant strategies using unconventional or metaphorical elements to engage audiences, reshape their understanding, and drive behavioural change for effective crisis resolution and recovery. The study provides a framework for understanding creativity in crisis communication by synthesising existing academic knowledge. Using the preferred reporting items for systematic reviews and meta-analyses methodology, 42 articles were analysed and categorised into three areas of communication: meaning making, behaviour framing, and reputation preservation. The framework illustrates the multiple facets of creativity: metaphorical creativity promotes critical reflection; visual representation enhances accessibility; humour and creative solutions engage and motivate diverse audiences; artistic elements, serious games and creative scenarios facilitate behaviour change. This framework underscores the critical role of creativity in crisis contexts, bridging the gap between standard communication and innovative, contextually relevant strategies in crisis communication strategies.

1. Introduction

This systemic review is designed to establish a framework for creativity in crisis communication during major crises such as natural disasters, health crises, or conflict, a phenomenon that is thriving in practical application but for which conceptualisation is still elusive. Attention is paid to situations where crises persist, requiring creative solutions to the problem of the "fog of warning" caused by repeated alerts, or to counter the spread of disinformation and conspiracy theories. In particular, during the COVID-19 pandemic, the discourse around the central role of creativity in crisis communication was extensive. A large body of empirical research and numerous case studies attest to the widespread use of creative communication strategies in practice by governments, non-governmental organizations (NGOs), and various stakeholders during this crisis. There is also no shortage of evidence of creativity in crisis communication that has emerged in other crisis situations. Yet, the framework of creativity within the realm of crisis communication remains elusive.

In times of crisis, creativity emerges as a valuable tool, making its proliferation a response to the search for solutions during crises. Recent crises such as the global pandemic caused by COVID-19, as well as human-made disasters such as one of the world's largest human displacements caused by Russian military invasion to Ukraine, destruction of the Kakhovka Dam, and other events of extraordinary magnitude provide some evidence that crisis communication is much more than only a message to stakeholders before, during and after a crisis (Fearn-Banks, 2017). In the case of large disasters, crisis communication becomes a network of communication messages created by diverse players, such as governmental institutions and their first responders, NGOs, community leaders, media, and a set of single communicators, who try to make sense and meaning out of the situation. These examples illustrate that crisis communication becomes much more than only messaging public relations announcements delivered through the media following standardised guidelines. As these situations are unprecedented and distinctive, the way and content of communication becomes less standardised and more creative, as affected stakeholders try to create meaning during the disaster and transmit this meaning to others.

Several authors have emphasised the role of creativity in crisis communication. This involves using unconventional forms of communication, such as cartoons, murals, comedy, and satire, to explain the event, identify likely consequences, and outcomes (Reynolds, 2010). This is a clear break from the traditional genre of crisis communication, where information is delivered in a highly structured approach. For example, creative use of cartoons created by artists (Filardo-Llamas, 2021) serves as educational resources designed for a wide audience, especially for people with a low level of formal education, or for people with mental health problems or disabilities, as well as for children, for whom the presentation of information is better understood through visualisation (Brown Jarreau et al., 2021). Moreover, in times of major crisis, artists and their work become crisis communicators. By combining music and visual sensation in new ways, they find ways to convey a message with an emotional impact on the audience (Fang et al., 2022). A range of artistic solutions were used during the COVID-19 pandemic to encourage people to keep their distance and wear masks (Jiménez-Gómez et al., 2020), as well as narrative created by the European creative community in response to the invasion of Ukraine (Palomo-Domínguez, 2022) provides evidence about an extending framework of creativity in crisis communication. In light of these practices, the examination of creativity in crisis communication raises the question of whether the use of creativity potentially compromises the consistency, transparency and accuracy of the message conveyed, which are key principles of crisis communication. It also raises questions about the relevance of creativity in both acute (*e.g.* earthquakes, hurricanes, floods, theorist attacks) and protracted crises (*e.g.* global pandemics, economic recessions).

The primary objective of this study is to provide a framework for understanding creativity in crisis communication during major crises. Given the multifaceted nature of creativity in crisis communication and the lack of theoretical conceptualisation, this paper undertakes a systematic review to synthesise existing academic knowledge in this area. The study begins with an exploration of the theoretical underpinnings of creativity in crisis communication, followed by a systematic analysis of empirical research. By examining different functions of crisis communication that have been empirically studied and the methodologies employed, our objective is to elucidate the multifaceted role of creativity in enhancing the effectiveness of communication during major crises.

2. Defining creativity in crisis communication

To understand the manifestation of creativity in crisis communication, it is necessary first to define the concept of creativity itself. Building on a pioneering creativity researcher's perspective, creativity is defined as a social construct characterised by a social outcome marked by specific behavioural traits that has practical utility (Barron, 1988). This view is in parallel with componential theory of creativity (Amabile, 1983), which operationalizes creativity as the generation of a new answer, product, or solution to an open-ended problem (Amabile, 2013). According to this theory and its modifications made by Gormley (2020) and Ivcevic (2009), creativity emerges from (1) an individual's creative potential, (2) the motivation to engage in creative behaviour (3) within specific time and space. In crisis communications, an individual's creative potential often shows through the innovative combination of familiar elements into new forms. This may involve the use of new media or the shaping of messages through creative strategies such as humour or satire. According to component theory, people are most creative when they are motivated by the challenge of the activity (Amabile, 2013). In times of crisis, one of the strongest motivators is the desire to understand and interpret a new situation and to communicate this interpretation to others. Creativity takes place within specific time and space. A crisis or any extreme event generates a distinct temporal and spatial context that triggers unique creative processes tailored specifically to that situation. All elements – the individual's creative potential, motivation, and specific time and space – influence creativity in crisis communication.

Yagnik (2020) used a gardening analogy to describe the value and role of creativity in communication: if you have a patch of fertile soil where you want to grow a garden, you sow good seeds, you water, and you get the right balance of shade and sunlight. However, if we do not till the soil, the results will not be satisfactory because nutrients will not be able to move up and down and thus provide the plant with the nutrients it needs. Tilling, according to Yagnik, is an analogue of creativity in communication. A creative message triggers a creative response, giving rise to new ideas and behaviours and social change, which are critical in times of crisis. As Yagnik argues, creativity is naturally aligned with the values of dialogue, participation, empowerment, social justice, and equality, the qualities of the societies that become crucial during crises.

Following this approach, creativity becomes a catalyst for improving the effectiveness of communication. This practical utilization of creativity has been named as applied creativity by Barron (1988). Creativity is a force with enormous potential to increase the effectiveness of communication. Creativity in communication, similar to tillage in horticulture, increases transmission and reduces the negative effects of communication noise. Accordingly, creativity in crisis communication can help avoid some of the challenges of crisis communication, as overcome the "fog of warnings" (Vance et al., 2019), when information is abundant and repeating, helps fighting disinformation and misinformation (de Paor & Heravi, 2020), overcome distrust (Martín-Llaguno et al., 2022) as well as protect reputation (Moral, 2023). Most importantly, however, creativity makes crisis communication functions more effective.

Today, with the dominance of social media as a way to connect, communicate, and influence, crisis communication has moved beyond the traditional boundaries of simply

maintaining a positive reputation in times of crisis, or government institutions disseminating information to their populations. With the widespread use of social media, anyone can become a communicator, making crisis communication a tool for fostering dialogue and co-creating content to make a meaningful contribution to crisis management. Furthermore, crisis communication acts as a psychosocial mechanism that indirectly helps people cope with difficult situations (Voss & Lorenz, 2016). By transforming complex narratives about crises into more accessible formats, crisis communication simplifies understanding and facilitates informed action, contributing thus to crisis management. Despite this expanded scope of crisis communication, it remains highly functional, *i.e.*, it is an essential tool for maintaining stability, trust, and informed action in times of shock and uncertainty. Therefore, in the following, crisis communication will be examined through a functional approach to communication.

Following a classical approach (Dance & Larson, 1976), there are three communication functions: mentation (mental progression), regulation and linking. In the context of a crisis, these communication functions have distinctive nuances. Mental progression expressed in human communication as a way of meaning making is critical important during crisis, as people affected by crisis (residents, leaders of private, public, or NGOs, *etc.*) communicating not only to deliver a message, but also to make sense and meaning of the new emerged situation in which they found themselves. Equally important is the function of regulation, when framing the audience behaviour taking place during crises. Regulation is taking place through persuasion, and it means that the sender (usually government institution) persuades community to change their behaviour during a crisis, *i.e.* evacuate, take additional hygiene measures, *etc.* (Sellnow & Seeger, 2021). Finally, linking in crisis communications is about preserving the reputation, of a company, politician, government is also one of crisis communication function highlighted by many scholars and practiced during real crisis (Olsson, 2014).

In brief, we identify three functional areas of crisis communication where further exploration of the forms and expression of creativity takes place: (1) crisis meaning making, (2) behaviour framing, and (3) preserving reputation. As mentioned above, according to the modified componential theory of creativity, creativity emerges when three conditions are met: (1) an individual's creative potential, (2) the motivation to engage in creative behaviour, and (3) within a specific time and space. Using the matrix principle, we show how the functions of crisis communication and the conditions for creativity are interrelated (Figure 1).

Meaning making. When a crisis occurs, the most urgent thing is to understand the event and to grasp the essence of the situation. This understanding involves a complex and interactive communication process that involves multiple groups. By its very nature, this process requires a great deal of creativity, as information is often incomplete or unreliable. Therefore, new meanings must be created to understand and manage the situation effectively. Following Boin et al. (2018), crisis management starts with meaning making, when a formal or emerging actor processes information on a crisis event and creates a picture of the event. This is a good place to make a subtle assessment of the situation and to give the situation a desirable context by interpreting it (Ryff, 2023). Consequently, not only are the official institutions providing their assessment of the situation, but also other groups of interest, individual communicators, or spontaneously created online communities. In crisis communication, it is like a "battle" to see whose narrative will be dominant. Contrary to what might be expected, human communicative
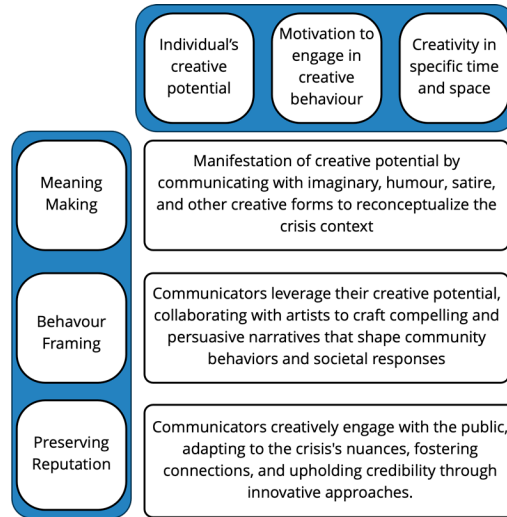
Figure 1. Interconnection between three functions of crisis communication (vertical) and elements of creativity following the modified componential theory of creativity (horizontal) (source: created by author)

activity is characterized by the deliberate creation of informational noise and even misleading or false information (Gallotti et al., 2020). This results in waves of low-quality and unreliable information during major crises, as natural disasters, sudden macrofinancial disruption. These waves can have a dangerous effect on the ability to respond adequately to the situation. This explains why some residents refuse to evacuate when the floods are approaching or ignore demands to comply with measures during the COVID-19 pandemic. The spread of false information or even conspiracy theories, which are in themselves a creative narrative supporting implausible explanations of the causal forces of the crisis, can cause confusion and even discourage people from taking a responsible approach to the crisis. As a counterbalance to this misleading or false information, creativity, and in particular humour in one of its forms, reduces noise in crisis communication and enables the spread of information. This happens because the humour provides an explanatorily safe meaning. From an evolutionary biology perspective, humour helps people to see ambiguous events as safe (Greenberg, 2020), which is critical during an emergency. Another way of constructing meaning in a crisis is to make the intangible causes of the crisis tangible through imagination. This form of meaning-making was used extensively during the COVID-19 pandemic. The visual representation of the virus in the form of a virion became an essential part of shaping perceptions and conceptualising the impact of COVID-19 pandemic (Jiménez-Gómez et al., 2020; Zerlenga & Lauda, 2023). In this way, crisis meaning making is a manifestation of creative potential by communicating with imaginary, humour, satire, and other creative forms to reconceptualise the crisis context.

Behaviour framing. Behaviour framing is a function and a goal of risk communication, which is a large part of crisis communication especially during natural diesters. The content of risk communication messages is about risks caused by situation (pandemic, flood, *etc.*) and benefits of behavioural change (evacuation, facemask wearing) in lowering the potential harm. It is

perceived that defining the behaviour of the population during large-scale emergency events is necessary for the effective work of first responders. For example, effective communication leading to rapid evacuation of the population is a precondition for effectiveness in minimising the damage from hurricanes, toxic spills, and other disasters (Sellnow & Seeger, 2021). Still, repeating warning messages for several times creates the so-called "fog of warnings". Today's technology enables the rapid sharing of information, and this means that in the emergency event, the number of warning messages a person receives is very high and media coverage is intermixing. The absence of warning messages is emerging. The abundance of information and the repetitiveness of the messages create a psychological effect in which the response to repeated stimulation is reduced. As a consequence, the population quickly becomes accustomed to the repetitive warning messages and starts to become unresponsive to them (Vance et al., 2019). In analysing the experiences of participants in the events of 11 September, 2001 in the United States, the study showed that participants were confronted with information overload rather than information shortage (O'Brien, 2003). During the COVID-19 pandemic, ignorance of warning messages was highly manifested not only by isolated social groups but by a large part of society (Martín-Llaguno et al., 2022). Consequently, when crises are relatively prolonged, as was the case during the COVID-19 pandemic, unconventional communication solutions are sought to "break through" the emerging wall of ignorance. During the period of the second and third wave of COVID-19 pandemic, advertisements of health authorities began to present not only instructions on how to protect themselves from infection, but also humorous content so that the population does not get used to information with the same content. As an example, in Sweden, the COVID-19 pandemic information strategy of the campaigns started to use emotional appeals and humour to encourage the citizens to continue the newly formed habits, and, for example, the head of the Danish health service humorously played a strict authoritarian, thus softening the self-mocking strictness of the Danish health services during the crisis (Blach-Ørsten et al., 2023). From the aforementioned, behaviour framing emerges as communicators leverage their creative potential, as well as collaborating with artists to craft compelling and persuasive narratives that shape community behaviours and societal responses.

Preserving reputation. Typically, crises threaten the reputation of decision makers, policy makers, companies, or any other kind of actors. Therefore, one of the main objectives of crisis communication is to protect reputational assets during a crisis. This is a widely researched topic, which is usually analysed from the point of view of organizational crises, and only in the last decade, especially after the emergence of the COVID-19 pandemic, it has been started to analyse what are the effective communication strategies of organizations in the event of long-lasting societal events such as pandemics or any types of conflict between social groups in society. In such enduring events, it is unknown when crisis-related topics will no longer be part of daily conversations online and offline. Enduring crises give brands more time to align their communication with the general communication environment and become more attractive. Creative solutions, such as apt and subtle humour during mass crises, cheer up consumers and create an additional emotional connection with the audience.

In today's landscape of information creation and dissemination, where different participants in an event can assume communication roles during a crisis, the function of crisis communication is not limited to specific groups but are shared among different entities. This phenomenon is particularly evident in the area of meaning making. Various stakeholders,

including NGOs and individual influencers, provide their own contextualisation of the situation, presenting an alternative perspective to the official narrative disseminated by government agencies or companies affected by the crisis. In contrast, the behavioural framework is more aligned with the authority framework. This key function plays a central role in crisis management. It involves the task of informing the public, its individual constituents and additional stakeholders about the unfolding events, the ongoing developments, the mitigation measures in place, and the steps that affected groups should take to mitigate losses and accelerate the return to normalcy. Finally, the function of reputation management in crisis communication is carried out by those who value reputation. These entities may include government bodies, corporate institutions, political figures, or other individual actors. This function becomes paramount as it seeks to maintain and protect the reputation of these entities in the midst of the crisis, recognising its significant role in maintaining trust and credibility. Therefore, creativity in preserving reputation during a crisis is manifested when communicators creatively engage with the public, adapting to the nuances of the crisis, fostering connections, and upholding credibility through innovative communication approaches.

3. Methods and data collection

A systematic review of the literature on creativity in crisis communication was performed following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) methodology (Page et al., 2021). The PRISMA methodology ensures the transparency of the review of the literature by clarifying the intention and procedure of this analysis. The PRISMA flowchart helps to highlight each stage of the data selection process: Figure 2 shows the three-stage process and the number of studies considered in each stage.
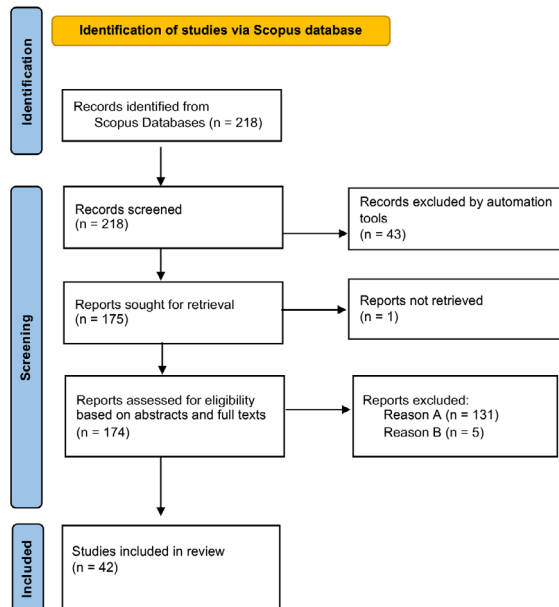

Figure 2. The review process linked to the preferred reporting items for systematic reviews and meta-analyses guidelines (source: created by author, based on Page et al., 2021)

The review includes scientific articles published in English and indexed in the *Scopus* database. The following keywords were used to identify articles that include adjectives used to defining creativity: *creative*, *original*, *innovative*, *novel*, *inventive*, *unique*, and *imaginative* (*imagination*) (Merriam-Webster, 2023). We also included the keywords *humour* and *satire*, as creativity in communication is often associated with these keywords, as we found in our theoretical analysis. Furthermore, to find the maximum number of articles on the topic analysed, *art* and *artwork* were added to the list of keywords as a broad expression of creativity. This allowed us to identify the use of artists' work in crisis communication. For the search on crisis topics, the keyword *crisis* and the synonymous words *emergency*, *war*, and *pandemic* were used. The period of analysis covers all studies up to 2023, and the earliest paper identified on this topic was Ivie (2005). An initial search produced a list of 218 articles. The list was automatically reduced to 175 using exclusion keywords or compound keywords: *emergency* and *teaching*; *student*; *distress*; *medical* and *education*; *teaching*; *cognitive* and *disorders*; *robot*; *telemedicine*. This was followed by manual screening of the articles using titles, abstracts, and keywords; then abstracts and, finally, review of the full version of the articles was performed. The eligibility criteria were that the article was on a communication topic, that the article presented research conducted during a period of crisis (*i.e.*, organizational or community crisis), and that the communication in question used some element of creativity. The reasons for exclusion are grouped into seven categories (Table 1). The risk of bias in the included studies is at the typical level of social sciences and humanities, as many articles lacked evidence of the validity and realism of the research conducted. However, this did not affect the results of this study, as the objective was to identify the very manifestations of creativity and the directions of these manifestations in crisis communication research.

The final list contained 42 articles. Following the theoretical review presented above, all articles were coded in three categories: (1) meaning making in crisis, (2) behaviour framing, and (3) preserving reputation. Data were coded and analysed using *MAXQDA* 2020 software. Visual tools from *MAXQDA* 2020 software, *Microsoft 365* (*Microsoft Excel*), and *SankeyMATIC* were used to visualise the results of the descriptive content analysis of the data.

Table 1. Reason for excluding the articles (source: created by author)

Reason of exclusion	Number of excluded articles
The topic is different from creativity in crisis communication:	
The research topic is outside of the topic of crisis	73
Medical research on disease or disorder, post-traumatic healing	23
Non-creative attributes of communication (e.g. creativity is related to the research process and not to the research object)	14
Communication on historical crises events	9
Digital literacy	3
Internal communication solutions and technologies during crises	3
Communication with patients	2
Private communication during a crisis	2
Not a research paper	5
No full-text availability	1

4. Research results

4.1. The dominant areas and research methods used to study creativity in crisis communication

The documents analysed are summarised in Appendix (Table A1). Creativity in crisis communication is primarily researched in the domains of *meaning making in crisis* (n = 22) and *behaviour framing* (n = 170, while the domain of *preserving reputation* remains relatively underanalysed (Figure 3).

In the area of *meaning making in crisis*, communication encompasses a diverse range of creative approaches and strategies, as demonstrated by various authors' contributions. Contextual creativity was found to extend beyond verbal manifestations of metaphor (Abdel-Raheem, 2023). Furthermore, the works highlight the potential of crisis-motivated humour as a versatile tool for crisis communication (Akinola, 2018). Allen et al. (2024) provide insights into how visuals, particularly infographics, can shift crisis communication from reactive to proactive mode. Research in this field examines the role of web postings in the construction of communities in crisis (Bernal, 2006) and explores the multifaceted nature of metaphorical creativity using cartoons in crisis communication (Filardo-Llamas, 2021). As most of the research is done on communication in the period of COVID-19 pandemic, the influence of the "flatten the curve" infographic on public perception, as well as the role of metaphors in conceptualising the COVID-19 pandemic, is widely examined (Li & Molder, 2021; Pérez-Sobrino et al., 2022; Schneider, 2021). In this context meaning making is inseparable from empathy; therefore, creativity is used for showing it (Steele & Blau, 2023).

In the area of *behaviour framing*, a variety of creative approaches emerged in crisis communication, which was very evident in the analysis of communication during the COVID-19 pandemic. The scholars found that the visual language used during the crisis included recurring elements such as pictograms, mask-wearing characters, and images of first responders (Abdulla, 2020). In particular, the influence of graphic design on disease prevention and public awareness was exemplified by COVID-19 pandemic posters. The role of art in crisis communication proved to be effective in translating public health information, raising social awareness, and deepening public understanding (de Graft Aikins & Akoi-Jackson, 2020). The meme culture developed dynamically, incorporating new human subjects (Dynel, 2021).
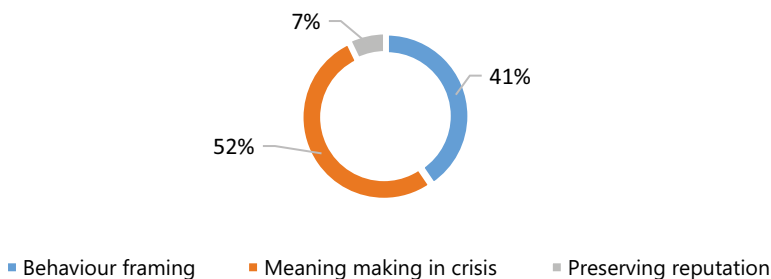

7%

41%

52%

■ Behaviour framing   ■ Meaning making in crisis   ■ Preserving reputation

Figure 3. Distribution of articles analysed by functional domains
(source: created by the author)

Emotionally designed audio-visual works played a key role in shaping the audience experience and encouraging sharing (Fang et al., 2022). Innovative solutions such as the health greeter kiosks effectively conveyed messages about social distancing and mask use (Hudnell & King, 2021). Artistic illustrative communication about COVID-19 pandemic vaccination increased self-efficacy and task efficacy (Zerlenga & Lauda, 2023). In contrast, the lack of creativity in communication contributed to public resistance and decreased attention to warnings and preventive behaviours (Vance et al., 2019). Throughout the COVID-19 pandemic, the use of creative visuals effectively communicated public health measures and adapted to evolving recommendations and understanding (Zerlenga & Lauda, 2023). These innovative approaches highlight the importance of creative imagery and communication methods in shaping behaviour during crises.

The area of *reputation management* is the least researched in the literature, with only three articles found in this area. The focus here is on maintaining and "surviving" in the context of protracted crises. It is observed that during the prolonged crisis, companies strategically emphasised specific, customer-relating, that is, nature-based, contexts in their social communication efforts by maintaining a positive brand image (Minor et al., 2023). Creativity is analysed as a way to increase the effectiveness of digital communication, especially in building relationships with the younger generation during crises (Pukelytė, 2023). Research highlights the importance of visual risk communication as an innovative approach that not only fosters an emotional connection with the community, but also reinforces formal leadership during crises (Shoaib, 2023).

A closer analysis of the articles reveals that content analysis is the predominant research method chosen (Figure 4). In fact, our analysis highlights the predominant use of content analysis, with 21 cases far exceeding the frequency of any other method. Five of the studies take an experimental approach, four use case studies, and three use surveys. In addition, a smaller number of articles, ranging from one to two, used methods such as ethnography, discourse analysis, pattern analysis, mixed methods research, and interviews. It should be noted that in some cases the available data was insufficient to establish the validity of the method, and the authors had to rely on their own methods (see Appendix Table A1). However, this limitation of some articles did not affect the integrity of our analysis.
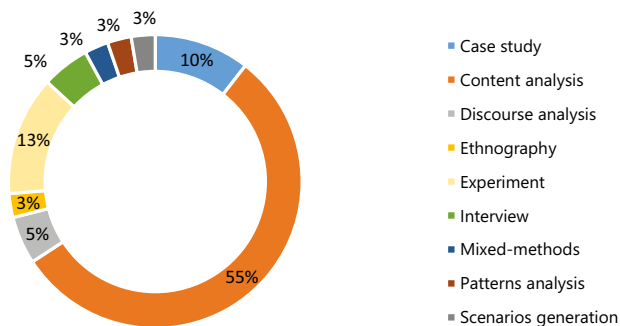

Figure 4. Distribution of research methods in the publications analysed (source: created by author)

4.2. The notion of creativity in crisis communication

To identify the dominant concepts of creativity in crisis communication, the keywords of the selected journal articles were analysed. In the keyword analysis, words related to creativity were used with different frequencies (Figure 5). The most frequent alternative word to *creativity* found in the text is *humour* (n = 440 in the 16 texts analysed). On the contrary, the keyword *satire* was used much less frequently (n = 12 and only in the 4 texts analysed). Creativity in crisis communication is also associated with being original (n = 122), novel (n = 101), innovative (n = 39), and unique (n = 31). The relevance of art in crisis communication was identified in 54% of the articles analysed, with the keyword *art* found in n = 148 and *artwork* in n = 17.

The notion of creativity in papers on crisis communication is manifested through four types of description: (1) creativity as a force, (2) creativity as contextual factor, (3) creativity as a source, and (4) explanation using example. Creativity as a force defines evolution, driving innovative ideas and change in crisis management, *e.g.* creativity is described as "a force that has the ability to broaden the horizons of something" (Yagnik, 2020) and "builds the capacity to navigate uncertain futures" (Pereira et al., 2021). This category corresponds to the individual's creative potential, which includes a cognitive style and personality traits, a concept derived from the compositional theory of creativity. Creativity as a contextual factor provides a definition of creativity in time and space, *e.g.* "the creativity, passion, and thought that go into wanting to help, educate, and participate" (Spajić et al., 2022). Creativity as a source looks for the sources and tools for expressing creativity, *e.g.* creativity is "making completely original connections between concepts or images" (Pérez-Sobrino et al., 2022), essentially another way denoting an individual's creative potential. Finally, explaining creativity through examples involves a very different aspect of creativity and is itself creative in the way it uses metaphors, *e.g.* "a striking element of creativity is provided by the fact that the sail on the boat looks like a giant face mask". Most of the descriptions provided in the analysed document fall into the functional category of *creating meaning of crises* (n = 11) and only one (n = 1) falls into the category *preserving reputation* (Figure 6).

The term *creativity* itself dominates the analysed articles, as a keyword in various contexts and word combinations. The two most frequent word combinations (content types): *creativity enhancement* (n = 32) and *metaphorical creativity* (n = 27). Following our functional approach defined earlier, the concept of creativity enhancement is intertwined with all three key areas
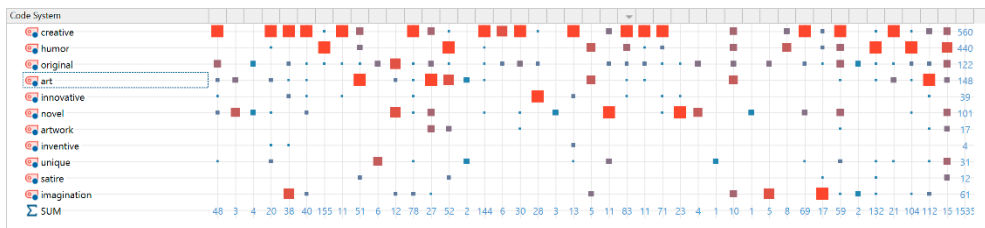

Figure 5. Matrix of keyword frequencies in articles. Generated with *MAXQDA* 2020 (source: created by the author)
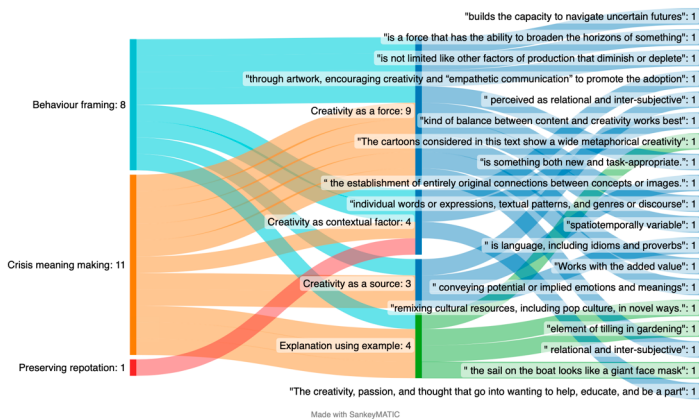
Figure 6. Sankey diagram of the relationship between functional areas, type of description, and description of creativity in crisis communication. Generated using *SankeyMATIC* (source: created by the author)

of crisis communication: *crisis meaning making*, *behaviour framing*, and *reputation preservation*. While the analysis issues are related to creativity enhancement, the authors focus on the benefits of creativity and barriers to creativity. *Metaphorical creativity* is the dominant form of creativity used in the context of crisis communication; this form of creativity is mainly used for meaning making.

Based on the analysis of the keyword *creativity* and its semantic equivalents in the analysed texts, a number of noticeable trends. First, in the realm of crisis communication analysis, it is stressed that there exists significant potential for creativity in this field, with a strong emphasis on the need to nurture and enhance creativity. For example, scholars have recognised the enduring and widespread appeal of crisis-motivated humour, making it a valuable tool for crisis communication (Akinola, 2018). However, authors who focus on enhancing creativity tend to emphasise the lack of creativity in crisis communication. It is essential to acknowledge the challenges associated with improving creativity in crisis communication. These challenges are evident in the observation that "there is a general neglect of creativity in the field" (Yagnik, 2020) and a noble "lack of knowledge about or interest in creativity" (Shortt et al., 2022) within this context. Furthermore, there is a lack of knowledge "about multimodal creativity" (Abdel-Raheem, 2023), whereas "a comprehensive approach to creativity needs to integrate conceptual, discursive, and cultural factors" (Pérez-Sobrino et al., 2022). These challenges arise because crisis communication "tends to lack creativity and may fail to reach large audiences" (Shortt et al., 2022).

Second, the empirical research presented in the texts analysed devotes a large part of its analysis to *metaphorical creativity*. The narrative created using metaphor must inherently resonate with the contextual relevance of the ongoing crisis situation. Here, metaphorical creativity is "context-induced metaphors" (Abdel-Raheem, 2023) expressed through humour (Akinola, 2018) and satire (Pollitt et al., 2023; Schneider, 2021), both verbally and through images. Metaphoric creativity "provide novel but meaningful ways to reason and talk about

an unprecedented crisis" (Pérez-Sobrino et al., 2022). Metaphorical creativity also has a very practical application, as metaphors can "enhance or constrain knowledge creation and deliberation" (Amidon et al., 2021), which is particularly important when communicating with the general public.

According to the component theory of creativity, creativity is highly dependent on time and space. Creativity in crisis communication is only evident in two types of circumstances: firstly, during the manifestation stage of protracted crises such as global pandemics or economic recessions, and secondly, in the post-crisis phase when the crisis has caused significant physical or psychological damage to the community, such as earthquakes, hurricanes, floods, or terrorist attacks. The latter type of case is less analysed than the former.

5. Conclusions

The landscape of research on creativity in crisis communication during major crises has grown in recent years, particularly as a result of the COVID-19 pandemic. This crisis has served as a catalyst for the expression of creativity in communication. Creativity was a tool to delivering emotionally powerful messages to audiences to combat misinformation, counter conspiracy theories and reduce the pervasive "fog of warning" created by social media.

Our review reveals an asymmetric expansion in different research domains. In line with the traditional delineation of communication functions, the majority of research on creativity in crisis communication has focused on meaning making and behaviour shaping. In contrast, little academic attention has been paid to exploring creativity in preserving reputation during crisis.

One of the key challenges in studying creativity in crisis communication is related to the nuanced definition of creativity. Based on research results, we have identified that creativity in crisis communication is evident only at (a) manifestation stage of protracted crises such as global pandemics or economic recessions, and secondly, or (b) in the post-crisis phase when the crisis has caused significant physical or psychological damage to the community, such as earthquakes, hurricanes, floods, or terrorist attacks. Under these condition crisis communication is defined in several different ways: (1) creativity as a force, (2) creativity as contextual factor, (3) creativity as a source, and, finally, (4) creativity is explained using examples. Creativity in crisis communication is defined as the dynamic ability to generate novel and contextually relevant ideas, strategies, and expressions (creativity as a force) through different media and approaches (creativity as a source) within the specific context of a crisis or emergency situation (creativity as a contextual factor). Creativity is about using novel methods, often including unconventional or metaphorical elements, to deal with the uncertainties and complexities inherent in crises (creativity as a source). It incorporates a relational and intersubjective perspective, recognising that effective crisis communication often requires empathy, experimentation, and a keen awareness of cultural, emotional, and functional dimensions (creativity as a contextual factor). It also aims to reach a wide audience and leave a lasting impact by remixing cultural resources, adapting to the evolving crisis landscape, and adhering to the core principles of clarity, relevance, and adaptability (creativity as a force). Following this extended description, we provide a condensed definition of creativity in crisis

communication during major and prolonged crises: creativity in crisis communication during major crises is the dynamic generation of novel and contextually relevant strategies using unconventional or metaphorical elements to engage audiences, reshape their understanding, and drive behavioural change for effective crisis resolution and recovery.

This definition of creativity in crisis communication captures its multifaceted nature. First, it emphasises target-appropriate creativity, highlighting the importance of relevance in crisis contexts. It recognises that creative elements must be coherently aligned to fulfil functional roles, avoiding disjointed or redundant expressions. Second, it recognises creativity in crisis communication as a unique phenomenon that gives crisis communication exceptional potential by enhancing the ability to effectively navigate uncertain futures.

Creativity in crisis communication is expanded into three areas of communication: (1) crisis meaning making, (2) behaviour framing, and (3) preserving reputation. Following our systematic review results, the framework of creativity in major crisis communication consists of these elements:

1. Meaning-making in crisis:

1.1. Metaphorical creativity: using metaphors and making novel connections between concepts to stimulate critical reflection within the audience;

1.2. Visual representation: using creative visual techniques such as visual risk communication to improve access to information;

2. Behavioural framing:

2.1. Humorous engagement: incorporating humour as a powerful tool to engage, motivate, and connect with diverse audiences;

2.2. Creative solutions: using meme culture, visual brand communication, situational awareness, *etc.* blur the boundaries between formal and informal communication;

3. Preserving reputation:

3.1. Emotional governance: using creative visuals and artistic illustration to improve emotional governance during a crisis, fostering a strong connection between formal leadership and the community;

3.2. Empathetic crisis communication: implementing empathy communication strategies to promote positive images to various stakeholders, thus preserving reputation and trust.

This framework extends the component theory of creativity discussed above. First, the systematic review highlights the importance of metaphorical creativity in making sense of crises. This is in line with Barron's (1988) concept of the use of metaphors and the links between metaphors and new concepts to stimulate critical reflection. It shows a clear convergence between the identified aspects of creativity and the strategies observed in crisis communication, explaining how creativity is used to promote reflection and understanding in crises.

In the area of behavioural framing, humour, creative solutions such as meme culture and visual brand communication become powerful tools for engagement and motivation. These creative tactics, combined with situational awareness, are effective in reaching vulnerable groups in times of crisis. The emphasis on visual risk communication is combined with the use of innovative visual techniques. This reinforces the idea that creativity, adapted to a specific time and space, has a significant impact on crisis communication. However, the use of humour and creative solutions in crisis communication can have unintended negative effects. Humour

can be perceived as disrespectful and unethical. Following some authors (Dashti et al., 2024) study on the negative implications of using humorous text, images, and video messages, they can cause fear and hatred in society. The authors suggest that using creativity in crisis communication may require self-censorship and a strong moral commitment.

In the area of preserving reputation, creative visuals and artistic illustrations play a vital role in emotional governance during outbreaks, strengthening the connection between formal leadership and the community. This supports the understanding that creativity in crisis communication involves not only conveying information, but also fostering emotional connections and trust, which is in line with the emphasis on emotional management and empathetic crisis communication strategies discussed earlier.

5.1. Limitation and future research

The heterogeneity of the studies analysed was the main limitation of this systematic literature review, as the philosophical and methodological approaches used in the studies included were different. This made it difficult to generalise the results and draw firm conclusions. To overcome this limitation, we included transparent reporting of the data (see Appendix, Table A1).

The analysis highlights the use of artistic aspects of creativity, such as writing, humour, music and the visual arts. However, our research revealed a major gap: there is a lack of in-depth research on the essential reconciliation of these creative aspects with the basic requirements of accuracy and clarity in crisis communication. There is a need for in-depth research on how to maintain factual accuracy while using creative approaches that resonate deeply with audiences.

References

Abdel-Raheem, A. (2023). Where COVID metaphors come from: Reconsidering context and modality in metaphor. *Social Semiotics*, *33*(5), 971–1010. https://doi.org/10.1080/10350330.2021.1971493

Abdulla, D. (2020). Keep your distance, wear a mask and stay safe: The visual language of COVID-19 print-based signage. *Visual Resources: An International Journal on Images and Their Uses*, *36*(3), 218–246. https://doi.org/10.1080/01973762.2021.1957646

Akinola, A. J. (2018). Pragmatics of crisis-motivated humour in computer mediated platforms in Nigeria. *Journal of Language and Education*, *4*(3), 6–17. https://doi.org/10.17323/2411-7390-2018-4-3-6-17

Allen, W. L., Bandola-Gill, J., & Grek, S. (2024). Next slide please: The politics of visualization during COVID-19 press briefings. *Journal of European Public Policy*, *31*(3), 729–755. https://doi.org/10.1080/13501763.2022.2160784

Amabile, T. M. (2013). Componential theory of creativity. In E. H. Kessler (Ed.), *Encyclopedia of management theory* (pp. 134–139). SAGE Publications, Inc.

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, *45*(2), 357–376. https://doi.org/10.1037/0022-3514.45.2.357

Amidon, T. R., Nielsen, A. C., Pflugfelder, E. H., Richards, D. P., & Stephens, S. H. (2021). Visual risk literacy in "Flatten the Curve" COVID-19 visualizations. *Journal of Business and Technical Communication*, *35*(1), 101–109. https://doi.org/10.1177/1050651920963439

Andén-Papadopoulos, K. (2008). The Abu Ghraib torture photographs: News frames, visual culture, and the power of images. *Journalism*, *9*(1), 5–30. https://doi.org/10.1177/1464884907084337

Atsharyan, A., Paytyan, T., Melikyan, A., & Baghdasaryan, A. (2022). Gender equality in the posters designed for COVID 19 prevention. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, *14*(4). https://doi.org/10.21659/rupkatha.v14n4.27

Barron, F. (1988). Putting creativity to work. In R. J. Sternberg (Ed.), *The nature of creativity: Contemporary psychological perspectives* (pp. 76–98). Cambridge University Press.

Baumber, A. P., Hunte, le B., O'Neill, B., & Pilon-Summons, C. (2022). Resilient utopias. *Ecology and Society*, *27*(2). https://doi.org/10.5751/ES-13166-270226

Bernal, V. (2006). Diaspora, cyberspace and political imagination: The Eritrean diaspora online. *Global Networks: A Journal of Transnational Affairs*, *6*(2), 161–179. https://doi.org/10.1111/j.1471-0374.2006.00139.x

Blach-Ørsten, M., Ihlen, Ø., Johansson, B., & Lindholm, J. (2023). Conclusions: In search of a Nordic model of crisis communication. In B. Johansson, Ø. Ihlen, J. Lindholm, & M. Blach-Ørsten (Eds.), *Communicating a pandemic: Crisis management and COVID-19 in the Nordic countries* (pp. 349–361). Nordicom/University of Gothenburg.

Boin, A., Hart, P., & Kuipers, S. (2018). The crisis approach. In H. Rodríguez, W. Donner, & J. E. Trainor (Eds.), *Handbooks of sociology and social research*. *Handbook of disaster research* (pp. 23–38). J. DeLamater (Series Ed.). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-63254-4_2

Brown Jarreau, P., Yi-Fan Su, L., Chun-Lin Chiang, E., Bennett, Sh. M., Shiyue Zhang, J., Ferguson, M., & Algarra, D. (2021). COVID issue: Visual narratives about COVID-19 improve message accessibility, self-efficacy, and health precautions. *Frontiers in Communication*, *6*. https://doi.org/10.3389/fcomm.2021.712658

Dance, F. E. X., & Larson, C. E. (1976). *The functions of human communication: A theoretical approach*. Holt, Rinehart and Winston.

Dashti, A. A., Murad, H. A., Al-Kandari, A., & Dashti, A. (2024). "It is just a *Tweet* … Do not take it seriously!" Humour posts on *Twitter* during Coronavirus: The case of Kuwait. *Journal of Arab and Muslim Media Research*, *17*(1), 3–27. https://doi.org/10.1386/jammr_00067_1

Dynel, M. (2021). COVID-19 memes going viral: On the multiple multimodal voices behind face masks. *Discourse and Society*, *32*(2), 175–195. https://doi.org/10.1177/0957926520970385

Fang, W.-T., Sun, J.-H., & Liang, Q.-D. (2022). Reflections on the battle against COVID-19: The effects of emotional design factors on the communication of audio-visual art. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1032808

Fearn-Banks, K. (2017). *Crisis communications: A casebook approach*. Routledge. https://doi.org/10.4324/9781315684857

Filardo-Llamas, L. (2021). Tsunamis, waves, quixotes, and KO-vid: Metaphors about the pandemic as seen in cartoons. *Mètode Science Studies Journal*, *11*, 14–20. https://doi.org/10.7203/metode.11.18273

Fisher, J. (2023). Reshaping the battlefield: The international committee of the red cross, video games, and public relations. *Games and Culture*, *18*(8), 1023–1042. https://doi.org/10.1177/15554120221149576

Gallotti, R., Valle, F., Castaldo, N., Sacco, P., & Domenico, de M. (2020). Assessing the risks of "Infodemics" in response to COVID-19 epidemics. *Nature Human Behaviour*, *4*, 1285–1293. https://doi.org/10.1038/s41562-020-00994-6

Gormley, K. (2020). Neoliberalism and the discursive construction of "Creativity". *Critical Studies in Education*, *61*(3), 313–328. https://doi.org/10.1080/17508487.2018.1459762

Graft Aikins, de A., & Akoi-Jackson, B. (2020). "Colonial Virus": COVID-19, creative arts and public health communication in Ghana. *Ghana Medical Journal*, *54*(4), 86–96. https://doi.org/10.4314/gmj.v54i4s.13

Greenberg, E. (2020). Humour as a threat-coding mechanism. *The European Journal of Humour Research*, *8*(1), 14–28. https://doi.org/10.7592/EJHR2020.8.1.greenberg

Hämpke, J., Röseler, S., & Thielsch, M. T. (2022). Is being funny a useful policy? How local governments' humorous crisis response strategies and crisis responsibilities influence trust, emotions, and behavioral intentions. *International Journal of Disaster Risk Science*, *13*, 676–690. https://doi.org/10.1007/s13753-022-00436-z

Hudnell, M., & King, S. (2021). Health greeter kiosk: Tech-enabled signage to encourage face mask use and social distancing. In *Proceedings of SIGGRAPH '21: ACM SIGGRAPH 2021 Emerging Technologies* (Virtual Event). ACM Digital Library. https://doi.org/10.1145/3450550.3465339

Ivcevic, Z. (2009). Creativity map: Toward the next generation of theories of creativity. *Psychology of Aesthetics, Creativity, and the Arts*, *3*(1), 17–21. https://doi.org/10.1037/a0014918

Ivie, R. L. (2005). Web-watching for peace-building in the new communication order. *Javnost – The Public: Journal of the European Institute for Communication and Culture*, *12*(3), 61–77. https://doi.org/10.1080/13183222.2005.11008895

Jiménez-Gómez, I., López-Díez, J., & Bonales-Daimiel, G. (2020). The imaginary of an invisible enemy: The SARS-CoV-2 virion on the Spanish TV news. *Tripodos*, *2*(47), 127–143. https://doi.org/10.51698/tripodos.2020.47p127-144

Li, N., & Molder, A. L. (2021). Can scientists use simple infographics to convince? Effects of the "Flatten the Curve" charts on perceptions of and behavioral intentions toward social distancing measures during the COVID-19 pandemic. *Public Understanding of Science*, *30*(7), 898–912. https://doi.org/10.1177/09636625211038719

Martín-Llaguno, M., Ballestar, M. T., Sainz, J., & Cuerdo-Mir, M. (2022). From ignorance to distrust: The public "Discovery" of COVID-19 around International Women's day in Spain. *International Journal of Communication*, *16*, 409–436.

Merriam-Webster. (2023). *Creativity*. https://www.merriam-webster.com/dictionary/creativity

Minor, K., Mušanović, J., Dorčić, J., & Bratec, M. (2023). Visual social media communication of Italian luxury hotels and the pandemic: An AI-assisted content analysis. In B. Ferrer-Rosell, D. Massimo, & K. Berezina (Eds.), *Springer Proceedings in Business and Economics. Proceedings of the ENTER 2023 eTourism Conference* (pp. 148–153). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-031-25752-0_16

Moral, P. (2023). Restoring reputation through digital diplomacy: The European Union's strategic narratives on *Twitter* during the COVID-19 Pandemic. *Communication and Society*, *36*(2), 241–269. https://doi.org/10.15581/003.36.2.241-269

O'Brien, P. W. (2003). Risk communication and public warning response to the September 11th attack on the World Trade Center. In V. Fairfax & R. F. Wagner (Eds.), *Beyond September 11th: An account of post-disaster research* (pp. 355–372). University of Colorado.

Olsson, E.-K. (2014). Crisis communication in public organisations: Dimensions of crisis communication revisited. *Journal of Contingencies and Crisis Management*, *22*(2), 113–125. https://doi.org/10.1111/1468-5973.12047

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., & Moher, D. (2021). Updating guidance for reporting systematic reviews: Development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology*, *134*, 103–112. https://doi.org/10.1016/j.jclinepi.2021.02.003

Palomo-Domínguez, I. (2022). *Creatives for Ukraine*, un proyecto de activismo transmedia en el sector creativo Europeo. *Visual Review: International Visual Culture Review*, *9*, 2–22. https://doi.org/10.37467/revvisual.v9.3544

Paor, de S., & Heravi, B. (2020). Information literacy and fake news: How the field of librarianship can help combat the epidemic of fake news. *The Journal of Academic Librarianship*, *46*(5). https://doi.org/10.1016/j.acalib.2020.102218

Pereira, L. M., Morrow, D. R., Aquila, V., Beckage, B., Beckbesinger, S., Beukes, L., Buck, H. J., Carlson, C. J., Geden, O., Jones, A. P., Keller, D. P., Mach, K. J., Mashigo, M., Moreno-Cruz, J. B., Visioni, D., Nicholson, S., & Trisos, Ch. H. (2021). From *fAIrplay* to climate wars: Making climate change scenarios more dynamic, creative, and integrative. *Ecology and Society*, *26*(4). https://doi.org/10.5751/ES-12856-260430

Perovich, L. J., Alper, M., & Cleveland, C. (2022). "Self-Quaranteens" process COVID-19: Understanding information visualization language in memes. *Proceedings of the ACM on Human-Computer Interaction*, *6*(CSCW1). https://doi.org/10.1145/3512894

Pérez-Sobrino, P., Semino, E., Ibarretxe-Antuñano, I., Koller, V., & Olza, I. (2022). Acting like a hedgehog in times of pandemic: Metaphorical creativity in the #reframecovid collection. *Metaphor and Symbol*, *37*(2), 127–139. https://doi.org/10.1080/10926488.2021.1949599

Pollitt, J., Gray, E., Blaise, M., Ullman, J., & Fishwick, E. (2023). Performing feminist research: Creative tactics for communicating COVID-19, gender, and higher education research. *Gender and Education*, *35*(5), 487–504. https://doi.org/10.1080/09540253.2023.2213727

Pukelytė, I. (2023). Theatre and creative communication during COVID-19 pandemic: The case of National Kaunas Drama Theatre, Lithuania. *Creativity Studies*, *16*(1), 26–38. https://doi.org/10.3846/cs.2023.15611

Repnikova, M. (2017). Information management during crisis events: A case study of Beijing floods of 2012. *Journal of Contemporary China*, *26*(107), 711–725. https://doi.org/10.1080/10670564.2017.1305503

Reynolds, B. J. (2010). Principles to enable leaders to navigate the harsh realities of crisis and risk communication. *Journal of Business Continuity and Emergency Planning*, *4*(3), 262–273. https://doi.org/10.69554/UYZL2968

Ryff, C. D. (2023). Meaning-making in the face of intersecting catastrophes: COVID-19 and the plague of inequality. *Journal of Constructivist Psychology*, *36*(2), 185–203. https://doi.org/10.1080/10720537.2022.2068707

Saraiva, I., & Ferreira, C. (2021). The impact of visual communication in COVID-19's prevention and risk mitigation. In N. Martins & D. Brandão (Eds.), *Springer series in design and innovation. Advances in Design and Digital Communication: Proceedings of the 4th International Conference on Design and Digital Communication*, *Digicom 2020* (Vol. 12, pp. 433–442). Springer. https://doi.org/10.1007/978-3-030-61671-7_41

Schneider, F. (2021). COVID-19 nationalism and the visual construction of sovereignty during China's Coronavirus crisis. *China Information*, *35*(3), 301–324. https://doi.org/10.1177/0920203X211034692

Sellnow, T. L., & Seeger, M. W. (2021). *Foundations of communication theory. Theorizing crisis communication*. Wiley-Blackwell.

Shoaib, H. M. (2023). The influence of visual risk communication on community during the COVID-19 Pandemic: An investigation of *Twitter* platform. In A. Hamdan, H. M. Shoaib, B. Alareeni, & R. Hamdan (Eds.), *Studies in systems, decision and control. The implementation of smart technologies for business success and sustainability during COVID-19 crises in developing countries* (Vol. 216, pp. 349–364). Springer. https://doi.org/10.1007/978-3-031-10212-7_30

Shortt, M. Th., Berg, S. H., Wiig, S., Lungu, D. A., Smeets, I., Thune, H., & Røislien, J. (2022). Exploring health experts' and creative communicators' focus in pandemic video communication: A qualitative study. *Frontiers in Communication*, *7*. https://doi.org/10.3389/fcomm.2022.886768

Shortt, M. Th., Smeets, I., Wiig, S., Berg, S. H., Lungu, D. A., Thune, H., & Røislien, J. (2021). Shortcomings in public health authorities' videos on COVID-19: Limited reach and a creative gap. *Frontiers in Communication*, *6*. https://doi.org/10.3389/fcomm.2021.764220

Sleigh, J., Amann, J., Schneider, M., & Vayena, E. (2021). Qualitative analysis of visual risk communication on *Twitter* during the COVID-19 pandemic. *BMC Public Health*, *21*. https://doi.org/10.1186/s12889-021-10851-4

Spajić, J., Mitrović, K., Novaković, N., & Lalić, D. (2022). *Visual brand communication during the COVID-19 pandemic*. https://doi.org/10.24867/GRID-2022-p23

Steele, J. L., & Blau, N. (2023). An analysis of police department crisis communication via social media. *Police Quarterly*, *26*(4), 520–544. https://doi.org/10.1177/10986111221150505

Ugwuoke, J. C., Olajide Talabi, F., Adelabu, O., Sanusi, B. O., Celestine Gever, V., & Onuora, Ch. (2021). Expanding the boundaries of vaccine discourse: Impact of visual illustrations communication intervention on intention towards COVID-19 vaccination among victims of insecurity in Nigeria. *Human Vaccines and Immunotherapeutics*, *17*(10), 3450–3456. https://doi.org/10.1080/21645515.2021.1886558

Vance, A., Eargle, D., Jenkins, J. L., Kirwan, C. B., & Brinton Anderson, B. (2019). The fog of warnings: How non-essential notifications blur with security warnings. In *Proceedings of the Fifteenth Symposium on Usable Privacy and Security* (pp. 407–420). The Advanced Computing Systems Association *USENIX*.

Voss, M., & Lorenz, D. F. (2016). Sociological foundations of crisis communication. In A. Schwarz, M. W. Seeger, & C. Auer (Eds.), *Handbooks in communication and media. The handbook of international crisis communication research* (pp. 45–55). Wiley-Blackwell. https://doi.org/10.1002/9781118516812.ch5

Wiles, S., Morris, T., & Priestley, R. (2023). Going viral: A science communication collaboration in the era of COVID-19 and social media. *Frontiers in Communication*, *8*. https://doi.org/10.3389/fcomm.2023.1087120

Yagnik, A. (2020). Communication for development and social change through creativity. In J. Servaes (Ed.), *Springer reference. Handbook of communication for development and social change* (pp. 269–285). Springer. https://doi.org/10.1007/978-981-15-2014-3_102

Zerlenga, O., & Lauda, L. (2023). Drawing COVID-19. The viral image. In D. Villa & F. Zuccoli (Eds.), *Lecture Notes in Networks and Systems. Proceedings of the 3rd International and Interdisciplinary Conference on Image and Imagination* (Vol. 631, pp. 761–770). Springer. https://doi.org/10.1007/978-3-031-25906-7_84

Zhou, Sh., Yu, W., Tang, X., & Li, X. (2023). Government crisis communication innovation and its psychological intervention coupling: Based on an analysis of China's Provincial COVID-19 outbreak updates. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1008948

Appendix

Table A1. Sources analysed: methods used, sample size, and minimal findings
(source: created by author)

Author	Method used	Sample	Main findings in the field of creativity in crisis communication
Abdel-Raheem, 2023	Content analysis	2279 political cartoons	Context-induced creativity goes beyond verbal metaphors, or verbal manifestations of metaphor, and includes factors that commonly produce creative multimodal metaphors.
Abdulla, 2020	Content analysis	130 photographs of print-based signage	The visual language surrounding COVID-19 pandemic often included recurring elements such as pictograms, mask-wearing figures, images of key workers, illustrations of the virus, hearts, hands, and arrows. While these elements were intended to enhance accessibility, they sometimes appeared irrelevant or superfluous, giving the impression of being more of a stylistic choice rather than a functional one.
Akinola, 2018	Ethnography	30 anonymous humorous compositions	Crisis-motivated humour has an unlimited audience and can often be preserved and reused, making it an appropriate tool for crisis communication.
Allen et al., 2024	Content analysis	79 sets of slides used during press briefings	Visuals, as infographics marks the shift from reactive to proactive communication of authorities. The visuals in crisis communication explains new logics needed for policy solutions.
Amidon et al., 2021	Discourse analysis	No date	Risk visualizations provides an organiser of discourse using three rhetorical tensions: epideictic–deliberative, global–local, conceptual metaphors– data representations.
Andén-Papadopoulos, 2008	Content analysis	No date	Visual communication – war photographs by Abu Ghraib – which contradict a mainstream media discourse had a considerable impact on popular imagination and historical consciousness by becoming a symbol of political protest.

Continue of Table A1

Author	Method used	Sample	Main findings in the field of creativity in crisis communication
Atsharyan et al., 2022	Content analysis	No date	"Covid-19 pandemic posters are the real proof of graphic design's impact on the prevention of the disease and the increase in people awareness".
Baumber et al., 2022	Case study; interview	10 interviews	Resilience in community that is based on utopia includes the characteristics of self-organization, creativity, and communication.
Bernal, 2006	Case study	No date	Web postings construct community of those living in the diaspora during crisis.
de Graft Aikins and Akoi-Jackson, 2020	Content analysis	No date	Using art in crisis communication has proven to be effective in translating public health information on COVID-19 pandemic in ways that foster emotional connection, raise social awareness, and enhance public understanding.
Dynel, 2021	Content analysis	174 humorous multimodal items about COVID-19 pandemic masks captured as *Portable Network Graphics* files	During the COVID-19 pandemic, the production of memes showcased the polyvocality of memes, where memes began incorporating novel images of human subjects, reflecting the dynamic and ever-evolving nature of meme culture during this time.
Fang et al., 2022	Survey	90 men and 284 women for musical works; 73 men and 253 women for television works	In crisis communication, the emotional design of audio-visual works plays a pivotal role in shaping the audience's emotional experience and fostering a greater inclination to share.
Filardo-Llamas, 2021	Content analysis	No date	The COVID-19 pandemic cartoons exhibit a great variety of metaphorical creativity and show the use of metaphors as a means of assessing reality. Metaphors in crisis communication contribute to critical reflection in society.
Fisher, 2023	Case study	3 interviews	Using serious games for strategic communication about the need for of attention to civilian suffering and international humanitarian law.
Hämpke et al., 2022	Online experiment	517 participants	The study suggests that humour should not be used in crisis communication on social media, even for simple crises.
Hudnell and King, 2021	Experiment	No date	Creative solution – health greeter kiosk – can effectively remain public about social distancing and face mask use.
Ivie, 2005	Discourse analysis	1 document	The creative use of media is important for a less violent world, and the use of humanising metaphors enables the transformation of a culture of war into a culture of peace.

Author	Method used	Sample	Main findings in the field of creativity in crisis communication
Brown Jarreau et al., 2021	Survey; experiment	1775 health applications users	Participants generally evaluated "flashcard" (sequential art) courses was to understand and improved self-efficacy and behavioural intentions toward COVID-19 pandemic disease prevention.
Jiménez-Gómez et al., 2020	Content analysis	No date	The creative visualization of the virion in COVID-19 pandemic communication aimed to communicate the invisible enemy by using a macroscopic perspective, accentuating its corporeality with rough surfaces and elongated spikes. This fear-based visual strategy was employed to enhance risk health communication, creating awareness and understanding of the potential dangers posed by the virus.
Li and Molder, 2021	Online survey	500 United States adults	The creative infographic "flatten the curve" statistically significantly influenced the perception of COVID-19 pandemic controllability among the audience.
Minor et al., 2023	Artificial intelligence-based image content analysis	2439 collected photos of three consecutive year samples	During the COVID-19 pandemic, hotel brands in social communication placed increased emphasis on nature-based content in their visuals.
Moral, 2023	Content analysis: narratives analysis and social networks analysis	12 935 *tweets* during COVID-19 pandemic	The authenticity of tweets is changing over time during crisis. "As the pandemic evolved, strategic crisis narratives became more consistent, and the diplomatic network less hierarchical and centralized".
Pérez-Sobrino et al., 2022	Patterns analysis	550 examples – monomodal and multimodal in 30 languages	Novel ways of conceptualizing the COVID-19 pandemic in communication is though using the metaphors.
Pereira et al., 2021	Scenarios generation using Mānoa mash-up method	19 workshop participants	The creative scenario generation approach using the modified Mānoa mash-up method offers a way to develop integrative, creative, and dynamic scenarios including the scenarios in climate policy communication.
Perovich et al., 2022	Case study	355 unique memes	The boundaries between informal and formal visualization are blurring and both may provide space for the interpretation of information by not only providing information but also by adding emotional context to data.
Pollitt et al., 2023	Mixed-methods research	No date	Research provides successful evidence of using creative tactics (*Do it yourself* aesthetics, humour, and situated bodies) in communicating about vulnerable groups during crisis.

Continue of Table A1

Author	Method used	Sample	Main findings in the field of creativity in crisis communication
Pukelytė, 2023	Content analysis: the analysis of the digital platforms	17 online programs delivered by the theatre	Creativity in digital theatre communication is an effective tool in deepening relationship with auditorium of new generation during health crisis.
Repnikova, 2017	Interview: semi-structured interviews	35 in-depth semi-structured interviews with media professionals, media scholars, crisis management experts and local media regulating officials	Local crisis communication involves creative, on the spot adjustments by both authorities and the media, working together to shape public opinion compared to the official party-state crisis communication.
Saraiva and Ferreira, 2021	Content analysis	264 materials	Integrating health communication with visuals is essential, particularly in public health emergencies, as combining text and pictures in materials has been identified as the most effective approach for improving understanding and comprehension of risks.
Schneider, 2021	Content analysis: analysis of visual libraries of nationalism and national crisis	No date	Artworks as the visual resources is uses for emotional governance of the COVID-19 pandemic outbreak.
Shoaib, 2023	Content analysis of *tweets*	No date	Visual risk communication represents a novel approach that establishes an emotional connection with the community and fortifies formal leadership during crises.
Shortt et al., 2021	Semi-structured individual interviews	12 individuals from 6 different professional domains: health, public health, film/science communication, video journalism, advertising, and social media/ *YouTube*.	Health domain participants prioritize content but lack experience in translating it into form and creativity, while creative communicators focus on form but rely on health professionals to provide and validate content.
Shortt et al., 2022	Qualitative content analysis	55 videos by the health authorities compared to the 27 most viewed videos on COVID-19 pandemic on *YouTube*	Health authorities' COVID-19 pandemic video communication underexplore creative approaches such as narrative storytelling, humour, advanced graphic techniques, and the utilization of professional communicators.
Sleigh et al., 2021	Qualitative content analysis	*Twitter*'s 500 most retweeted COVID-19 pandemic messages	The tweets that incorporated creative elements such as colours, animations, and a combination of text and uniform resource locators within the image were the most retweeted when communicating one to two preventive measures during COVID-19 pandemic.

End of Table A1

Author	Method used	Sample	Main findings in the field of creativity in crisis communication
Spajić et al., 2022	Content analysis	No date	During the COVID-19 pandemic, creative solutions in visual brand communication were extensively utilized to express gratitude, motivation, and support for customers, ultimately enhancing the brand's reputation.
Steele and Blau, 2023	Content analysis	448 *tweets* and 194 *Facebook* posts	Crisis communication messages incorporate empathy in surprising ways. For instance, police departments on social media disseminate distinctive content that promotes a positive image of both the police and street protestors.
Ugwuoke et al., 2021	Quasi-experiment	470 respondents (n = 235 control) and (n = 235 treatment)	People who exposed to artistic illustration communication on COVID-19 pandemic vaccination reported greater self-efficacy and greater task efficacy than those who are not.
Vance et al., 2019	Online experiment	600 participants via *Amazon Mechanical Turk*	The lack of creativity in communication contributes to public resistance to the effects of generalization, resulting in a decreased attention to warnings and lower adherence to warning behaviours.
Yagnik, 2020	Theoretical analysis	No date	Creativity is categorically and systematically neglected despite its repeatedly withstanding the tests in time of crises.
Zerlenga and Lauda, 2023	Content analysis: analysis of social campaigns	No date	Creative images perform a correct learning function while quickly communicating the new rules during COVID-19 pandemic.
Zhou et al., 2023	Content analysis: daily updated news on health commission website during COVID-19 pandemic	News updates at 31 provincial health committees' websites	Health authorities used 12 different innovative communication methods for outbreak intervention.
Wiles et al., 2023	Creative experiment	70 graphics	During the COVID-19 pandemic, the use of creative visuals to communicate essential public health measures and scientific concepts has gained popularity. As understanding of the threat posed by COVID-19 pandemic and the recommended public health measures has evolved over time, creative communication visuals have had to adapt accordingly.