Science Communication and Trust

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Editors

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Contestation of Science, Post-truth Regimes and Emotions: A Review

Alberta Giorgi and Hande Eslen-Ziya

Introduction

The interplay of emotions in the formation and sustainability of social movements is a pivotal aspect, as Eslen-Ziya (2023, p. 352) notes, highlighting the emotional dimensions that influence individuals' decisions to engage with, remain in, or disengage from these movements. It is through such emotionally charged interactions that "affective publics" emerge (Papacharissi, 2016, p. 311), where sentiments are not only shared but deeply felt. Emotions act as the binding force within these publics, creating a purely spiritual collective as described by Tarde (1969). This collective is unique, characterised by a mental cohesion among individuals who, despite physical separation, are united by a shared idea

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or desire. This unity is significantly bolstered by digital media technologies, which not only enhance feelings of belonging but also foster deeper engagement, thereby knitting these publics closer together. As Papacharissi (2014) points out, digital media offer an infrastructure for networking among physically separated individuals, but it is through sharing emotions that these individuals connect with one another. In this sense, digital media facilitate feelings of belonging and engagement with a broad and physically distant audience. According to the hybrid emotional echo-chamber theory (Eslen-Ziya, 2022), participants' beliefs, motivations, and opinions not only help create affective ties, but also bring forth changes in emotions—from anger to solidarity, or from hope to resentment.

The concept of echo chambers highlights how social media users often selectively connect with those who share similar viewpoints and engage with content that aligns with their own ideologies, leading to a scarcity of exposure to the diverse and conflicting perspectives that define the agonistic public sphere (Terren & Borge, 2021, p. 100). The hybrid echo-chamber theory extends this idea to include interactions that take place both online and offline, thereby considering the communication environment in its entirety. Reviving Gabriel Tarde's seminal insights, this theory emphasises the role of emotions in both digital and non-digital environments, exploring their influence on shaping public behaviour. Moreover, it equips scholars with the analytical tools to examine how emotions play a crucial role in the production and consolidation of power dynamics within social movements and public discourse. Once such intense affective ties are formed, emotions enable solidarity and even collective identity, creating hybrid emotional echo chambers. Hence emotions serve as the fuel in activating or sustaining the ties that may be vital for creating collective imaginations and what Dean (2010, p. 22) refers to as "feelings of community".

In this chapter, we explore the role of emotions in epistemic conflicts that unfold online: As demonstrated by scholarly analyses of the debate over COVID-19 vaccinations, for example, the discourses from both proponents and opponents are deeply infused with emotions (Neresini et al., 2024). Broadly speaking, online epistemic conflicts can assume the form of individual posts imbued with emotions. For instance,

in their examination of anti-vaccination discourse on Twitter, Eslen-Ziya and Pehlivanli (2022) delve into how emotions such as fear and pride are expressed and mobilised. Kuhar (2017), for instance, explores how nostalgia for a golden age may activate emotions like longing and hope, that "lead people to react negatively, vehemently, and even violently in such a way as to reduce the impact of scientific research and chill the research itself" (Hsu, 2020, p. 408). Furthermore, epistemic conflicts can contribute to the formation of groups and communities that contest scientific consensus and the authority of scientific experts—in which processes emotions play a vital role. Aupers and de Wildt (2021), for example, investigate the significance of mutual recognition among supporters of "heterodox" science. They highlight how these individuals feel marginalised by mainstream society and how meeting like-minded people turns into a pivotal affective experience that builds strong emotional bonds with virtual strangers. This experience fosters strong emotional bonds within a community that, while virtual, plays a significant and tangible role in their lives.

We argue that, regardless of the specific configuration of online epistemic conflicts, a focus on emotions and their interactional and inter-subjective dimensions is crucial in order to shed light on the implications of these conflicts for the public trust in science. First, we argue that conceptualising contemporary epistemic conflicts as opposing rational and emotional stances leads to a limited understanding of the conflictual dynamics and the issues at stake. Second, we urge researchers to explore the impact of emotions on various parties involved in online epistemic conflicts, and we encourage scholars to examine the specific emotions that are discursively mobilised both in contesting and in supporting expert opinions. Third, we invite scholars to explore how these specific emotions are collectively built and validated in online interactions related to epistemic conflicts, and to analyse the implications of these emotions for collective trust in science.

In the next section, we locate the attacks against science in the context of contemporary epistemic conflicts, underscoring the relevance of the online dimension, and we elaborate on the connection between trust in science and emotions. Then, we discuss the research and analyses that conceptualise the role of emotions in collective behaviour online. In the

last sections, we discuss the role of emotions in online epistemic conflicts and draw some conclusions.

Epistemic Conflicts

As Mede and Schäfer (2020) highlight, epistemic conflicts can be analytically dissected into, on one hand, contestations of scientific authorities coupled with the promotion of alternative authorities, and on the other hand, challenges to scientific epistemology alongside the endorsement of alternative epistemologies. This framework is applicable to debates surrounding issues such as climate change, gender studies, and Covid-19, among others (see Eslen-Ziya & Giorgi, 2022). Scientific research is, intrinsically, a site of struggle among scientists proposing competing theories and approaches.

The analysis of trust in science is a classical theme in sociological research, which usually refers to works by Robert K. Merton: scholars are to be trusted because they follow a certain ethos, which includes the principles of universalism, communalism, disinterestedness, and organised scepticism. Following these principles may be more difficult for scholars in contemporary science because of the changed rules of academic research, which promote competition and higher prominence of extra-scientific interests. These changes, combined with the increased availability of scientific knowledge online and the increased complexity and specialisation of scientific fields, contribute to the current decay of trust in science (see, e.g., the discussion in Sztompka, 2007). Scholars have introduced the concept of "epistemic trust" to indicate that the trust in knowledge provided by scientists entails both a *default trust* by laypersons in scientists as knowledge providers, and a *vigilant trust* which includes "cognitive mechanisms that allow people to make rather fine-grained ascriptions of trustworthiness before accepting what others say"—which combine expectations of expertise, integrity, and benevolence (Hendriks et al., 2016, p. 153). In other words, epistemic trust is not mere reliance on scientists' professionalism and expertise; it also presupposes that they have "the right attitude towards what they are doing" (Wilholt, 2013, p. 248).

Belli and Broncano (2017) conceptualise epistemic trust as a "meta-emotion", that is, a broad emotional structure in which diverse constellations of emotions may arise in relation to specific situations, such as epistemic conflicts. Building on these insights, we argue that if we are to understand the role of emotions in epistemic conflicts, it is crucial to consider how emotions work intersubjectively. Hence, we refer to the concept of "feeling rules"—the social conventions that guide the appropriate expression of emotions within a culture. These rules illuminate how emotions, far from being merely personal experiences, are relational and situational, framed by the very social conventions and structures of feeling that govern their expression, intensity, and impact (Ahmed, 2004; Demertzis, 2020; Hochschild, 1983). Moreover, the way emotions are articulated through language plays a pivotal role in shaping identity and influencing decision-making processes. This understanding of emotions as experiences mediated by cultural norms and feeling rules underlines the complexity of emotional dynamics within science-related conflicts and points the attention towards the implications of epistemic conflicts for epistemic trust.

Contemporary epistemic conflicts seem to revive the modern self-understanding of science as the only legitimate way of establishing truths (see Houtman et al., 2021). On the one hand, criticisms against scientific authorities are often based on the idea that the knowledge they produce is not neutral and objective, not "pure" (as, according to the ideals of the Enlightenment, science should be), in that contemporary scientists are politicised or bound by corporations' interests. On the other hand, some scientists react to these criticisms by arguing for the "authority" of science, its political neutrality, and its objectivity, as well as by undermining the legitimacy of the criticisms by deriding the critics' supposed ignorance in science—thus reaffirming a form of "scientism". This type of criticisms, as well as this type of reactions, illustrates a "judicial" understanding of science, similar to the judicial approach to politics described by, among others, Rosanvallon (2008): an approach that rejects the inherent ambiguity of political discourse—or, in this case, scientific discourse—in favour of commitment to a supposed non-political, non-partisan "truth", and includes an imperative of transparency and accountability (see Giorgi, 2022). In this sense,

these contestations contribute to the public and political relevance of the narrative and concept of objective truth, and often reframe epistemic conflicts into polarised struggles over truth and falsehood.

At the same time, other contestations challenge scientific epistemology, often by advocating instead for folk wisdom (Wodak, 2015) or for an individual form of inductivism (what has been called "I-pistemology", Van Zoonen, 2012). The latter is based on giving prominence to individual experience as a source of authority for validating scientific assertions, which also means these evaluations are inherently subjective and incontestable, subtracted to the scientific principle of falsifiability (see Harambam & Aupers, 2014). As Griera et al. (2022) point out, this reliance on personal experience, along with concerns over Western medicine (Houtman & Aupers, 2007) and the promotion of alternative medical treatments (such as reiki and homoeopathy) that broaden the understanding of science, is particularly resonant with increasingly popular strands of contemporary spirituality that affirm an experiential approach to truth (Rutjens & van der Lee, 2020).

Hence, the configurations that contemporary epistemic conflicts assume resonate with broader cultural shifts characterising contemporary public and political spheres. Even though epistemic conflicts around science are not a new phenomenon, we argue that contemporary ones are unique in two ways, namely the key roles played by digital platforms and far-right political actors. First, as Aupers and de Wildt (2021), among others, observe, the rise of the internet has enabled the participation of vast audiences in epistemic controversies that used to be reserved for scientific and academic circles, political elites, or social movement activists. Digital platforms have reduced the barriers to participation and enlarged the active audience taking part in epistemic debates. Epistemic debates online are imbued with emotions, as "social networks are a means of communication that privileges the transmission and dissemination of emotional content" (Serrano-Puche, 2021, p. 232). Moreover, digital environments also offer a platform to what has been called the "uncivil society" (for a discussion, see Krzyżanowski & Ledin, 2017): this uncivil society contributes to redefining the borders and norms of civil language, effectively normalising the expression of intense, negative emotions.

The second element that distinguishes contemporary contestations of science is related to the active role that political actors often have in them. Science has a long and steady relationship with politics, for example through the involvement of scientific experts in policymaking (e.g. Antonyuk et al., 2023; Cullen et al., 2019), the mobilisation of alternative scientific authorities, or the production of original research by social movements contesting policy decisions (e.g. Chesta, 2021). Looking from another angle, research in politics and sociology has long explored how politics affect scientific production (e.g. Ahrens et al., 2021; Eslen-Ziya, 2020; Pető, 2017) and has showed that social location influences the perceived credibility of epistemic figures and the legitimacy of science claims (e.g. Ayoub, 2022; Paternotte, 2018). As Pető (2022) has discussed in relation to what she has called the "polypore" state, science politics have become a primary site of action for illiberal governments that establish knowledge institutions alternative to those producing knowledge they disagree with. Research has explored the cases of Hungary, Poland (Grzebalska & Pető, 2018), and Turkey (Çarkoğlu, 2023). Not only governments are taking action: far-right political think-tanks, also, are spreading all over Europe, often openly contesting the knowledge produced within academia on topics such as migration and gender (e.g. Saresma & Palonen, 2022), and political attacks against scholars dealing with topics such as migration, gender studies, and religion have been increasing (Eslen-Ziya et al., 2023). Far-right political actors and illiberal governments combine scientific arguments with emotions in what has been called "the politics of fear" (Rico et al., 2017; Wodak, 2015).

Contemporary epistemic conflicts are thus characterised by the key roles played by digital environments—in which the style of communication privileges the circulation of emotional contents—and political institutional far-right actors largely adopting the language of emotions in their political discourse. Hence, it is important to understand how emotions work in digital environments, particularly those involved in epistemic conflicts.

Online Spaces: Publics, Crowds, Swarms

Scholars analysing digital environments have revived classical sociological notions, such as "public", "panic", and "crowd", to describe online collective behaviour and conceptualise "the simultaneity of the individual and the collective in digital media", as Lee (2017) puts it.

This type of analysis also focuses on emotions. Classical sociologists proposed an opposition between "crowds", conceived of as intrinsically irrational, emotional, and unpredictable, with the "public", framed instead as rational and reflective (Caliandro, 2018). While the public is kept together by "a social imaginary (or a *discourse*) created and re-elaborated by the members themselves that is spread and put into circulation within the same public" (ibid., p. 564), crowd gatherings are characterised by their affective dimension—what in classical sociological analysis was defined as "affective discharge", based on the emotional energy circulating in unmediated bodily encounters. Broadly speaking, the distinction between crowds and public is often based on two elements. The first one is the role of the body: crowds are characterised by the co-presence of the bodies, while publics can exist even without this physical co-presence. If we focus on contemporary digitally mediated interactions, then, the notion of public would fit better. The second element is the relevance of emotions circulation in the crowds. However, as many scholars have pointed out, separating a "rational" and reflective behaviour from the role of emotions is analytically untenable.

Stage (2013) introduced the concept of "online crowds," emphasising how the unique characteristics of online communication—its speed, immediacy, intimacy, and multimodality—centralise bodily connections and reactions in these mediated exchanges. This approach challenges traditional boundaries, blurring the lines between mediated and unmediated crowds, private and public spheres, geographical distance and perceptual proximity, as well as between individual bodies and the collective life of bodies online. Stage observed phenomena such as collective flaming, rage, hyping, bullying, and mourning in virtual environments, highlighting how these behaviours, so prevalent in contemporary online communication, question the once clear distinction between the controlled reflection of an individual engaging with media texts and the

uncontrolled actions of crowd participants. In today's digital age, users of online media are not just passive observers but active participants in crowd practices. This perspective aligns with Borch and Schiermer (2021), who further explore how online crowds merge aspects of publics and crowds, showcasing a type of online behaviour where the mediated public engages in shared affective processes and congregates on specific online platforms. The sharing of affective processes occurs via "the expression of bodily reactions within the text of an online content" and "formatting of the online content (e.g. if the discourse is distorted, ruptured, or redundant)" (Caliandro, 2018, p. 562). The concept of online crowds (or digital crowds) would therefore indicate those online gatherings in which communication practices are mostly characterised by emotional activities and "affective discharge" rather than discussion, debate, or deliberation (Borch & Knudsen, 2013).

Similarly, Papacharissi (2016) introduced the concept of "affective publics" to indicate social formations within digital spaces that are bound together through expressions of emotion and feelings of engagement. These affective publics are not merely ephemeral gatherings but are sustained through a relational understanding of affect and emotion, emphasising how these feelings connect individuals within the networked publics, intertwining online and offline experiences into the fabric of everyday political and social activities. In this light, both texts and hashtags become tools that shape our everyday life, not unlike offline interactions, by fostering a sense of belonging and solidarity, albeit in a potentially transient manner. Papacharissi argues that the ambient, self-sustaining reflexivity driven by digital expressions creates a persistent bond among networked publics, a bond that outlives the initial events or discussions that brought these individuals together, through accumulating layers of digital expressions that leave affective traces.

This insight underscores the importance of understanding these casual, often overlooked, online utterances as they offer a window into the dynamics of contemporary social and political engagement. Other concepts, such as "multitudes" and "swarm", have been introduced in social sciences to describe temporary and volatile online collective gatherings that are spontaneous and unorganised and work by means of contagion (Lee, 2017). The common denominator in these notions is the

attempt to conceptualise how separate individuals converge and express common behaviour in digital spaces, as well as the role of emotional energy in the creation of the crowds and crowd-based mobilisations in digital environments (e.g. Bennett et al., 2014). The concepts of affective publics and online crowds, and the role of emotions in these digital connections, are particularly relevant to the analysis of epistemic conflicts online, as such conflicts often take the shape of online volatile gatherings full of (and fuelled by) emotions.

(Post)-Truth Regimes and Emotions

As Harsin (2018) pointed out, digital platforms enabled the proliferation of a variety of regimes of truth (or regimes of post-truth, as he suggests calling them—Harsin, 2015). A regime of truth, in Foucault's perspective, indicates the type of discourse that a society accepts as true, and includes "games of truth", that is, the rules and mechanisms separating truth from falsehood, the legitimate ways of producing (or discovering) and telling the truth, and the status of the truthtellers. In contemporary societies, multiple regimes of truth can co-exist in the same field of knowledge and compete for hegemony in multiple arenas, including digital debates—hence, there is also a proliferation of different truth games performed by active audiences in segmented communities (see Giorgi, 2022, p. 234).

In online games of truth related to contemporary epistemic conflicts over science-related questions, the appeal to emotions has a significant role in argument-making, so much so that they have often been framed as struggles between "science" and "anti-science", rational arguments and irrationality (Prasad, 2022). Yet, as many scholars have pointed out, this binary frame has scant heuristic value, as it pathologises the criticisms against scientific claims, traces an untenable separation between science and emotions, conflates the concepts of science and rationality, and conflates criticisms against policy measures and misinformation (Giorgi & Eslen-Ziya, 2022; Harambam, 2020; Ylä-Anttila, 2018). Epistemic conflicts are not (or not always) fuelled by misinformation, nor do they consist of a rational and an emotional side.

This binary understanding of science-related conflicts echoes the distinction between "affect" and "emotions" that is often applied by scholars analysing collective behaviour on digital platforms, but that has recently been criticised by Boler and Davis (2018). Emotions are culturally mediated experiences (Ahmed, 2004; Hochschild, 1983). As Demertzis (2020, p. 5) summarises, any emotion is: (a) elicited and experienced relationally and situationally, (b) expressed according to social conventions (feeling rules) and structures of feeling which make for its valence, arousal, and potency, (c) discursively narrated within and through language games partaking thus in identity and will formation processes.

Contrastingly, affect is conceptualised as an untamed force, an "irrational" energy that eludes the grammars and rules of emotions, and evades the individual's control and comprehension. Challenging this dichotomy, Boler and Davis (2018, p. 81) propose a reconceptualisation of affects as "emotions on the move," which are collectively or intersubjectively manifested, experienced, and mobilised. This reconceptualisation transcends the individual's private sphere, entering shared or public spaces, and potentially catalysing movements. This approach advocates for a synthesis that combines the focus on affect as a mechanism of connection with an analysis of the interactional dynamics through which "feeling rules"—that is, societal norms around emotions—are crafted and solidified.

The application of an approach sensitive to affect and emotions in the analysis of epistemic conflicts unfolding online, we argue, would allow research to better understand the cultures of knowledge spreading (and competing) in the public sphere and their political implications in terms of epistemic trust.

First, emotions are cultural practices (Ahmed, 2004): Culture shapes what we feel, how we should (or should not) express emotions, and what emotions are appropriate or required in different circumstances—Hochschild speaks of "feeling rules" (1983). Studying emotions as cultural practices can help us to unpack which emotions are deemed appropriate in different conflicts related to science. Harsin (2018), for example, proposes the concept of "emo-truth" (or "aggro-truth"—Harsin, 2021) for those truth games—particularly diffused in epistemic

conflicts—in which the authenticity of what is conveyed is based on emotional intensity: In these cases, truthtellers are considered as those having the courage to tackle controversial topics in an aggressive style of communication, veined by outrage, disgust, and humiliation (Giorgi, 2022). Focusing on the spread of fake news, Young (2021) analyses the role of "cruel optimism", showing how disinformation campaigns are, in fact, practices of affective warfare based on nostalgia, humour, hate, or hope. To underscore the role of this emotional sharing in spreading misinformation, he speaks of "affective geographies of misinformation".

Second, scholars explore how emotions are corrected, adjusted, and redefined during epistemic conflicts through groups' interactional dynamics (Eslen-Ziya et al., 2019). In this sense, online gatherings are contexts in which feeling rules are constructed and established through the participants' interactions, effectively disciplining what are the appropriate emotions and how they can be expressed. In this direction, a promising approach would be the analysis of how digital platforms enable or hinder certain expressions of emotions, as well as how they shape the interactional dynamics in the case of epistemic conflicts occurring online.

Third, scholars studying emotions point out how the feeling rules are connected to the actors' position in the fabric of society. Lorde (1997), for example, argues that feeling and expressing anger is a profoundly gendered and racialised practice. Along similar lines, Campbell (1994) shows that the anger expressed by minoritised groups is reframed as bitterness, and, as such, delegitimised, by dominant groups, while Scheff (2003) discusses the role of social class, gender, and colour in feeling and expressing shame. In this direction, an approach sensitive to the articulation of affect and emotion, and the online interactional dynamics, would allow the researchers to explore which subjects can express which emotions, on the one side, and how subjectivities are constructed through the expression of certain emotions, on the other. For example, Harsin (2020) argues that "aggro-truth" and "emo-truth" are usually performed by white, toxic masculinities—hence, it is profoundly gendered and racialised. Leidig (2023) shows how female far-right influencers mobilise other types of emotions instead, connected to self-respect, confidence, and positive passions. These studies suggest that

feeling rules related to epistemic conflicts are gendered. It would be interesting to further this line of analysis by exploring whether and how they are racialised, for example.

These pioneering studies explore which emotions come into play in epistemic conflicts, such as anger, outrage, disgust, humiliation, nostalgia, hate, hope, passion, self-respect, and cruel optimism, mobilised by diverse gendered and racialised subjects. They show the relevance of unpacking how these emotions are mobilised, which feeling rules apply, how they are enforced and how these rules shape different subjects populating the various communities.

Conclusions

This chapter sheds light on the intricate role of emotions within contemporary epistemic conflicts, particularly in the context of online platforms and the influential presence of far-right actors. Contemporary epistemic conflicts are characterised by the increased accessibility to science-related discussion through the web, and by the active role of politics: We have argued that focusing on how emotions circulate and how the feeling rules towards science are established in online epistemic conflicts would be particularly fruitful in order to analyse the transformations of epistemic trust and its social and political implications.

It is evident that emotions are not mere by-products of ignorance or knowledge, as it is often suggested that they are, but rather significant drivers that shape the dynamics of these conflicts. Additionally, emotions play a central role in shaping collective identities and influencing individual subjectivities. The formation of affective ties and the creation of hybrid emotional echo chambers demonstrate how emotions can lead to the development of shared identities across diverse boundaries.

In revisiting Gabriel Tarde's analysis of collective behaviour and combining it with feminist and sociological approaches to emotions, this chapter has contributed to classical sociological theory by updating and adapting Tarde's framework to the digital age. The hybrid emotional echo-chamber theory proposed by Eslen-Ziya (2022) offers a contemporary lens through which to understand the interplay of emotions,

collective behaviour, and power dynamics in epistemic conflicts. The discussion of the role of emotions in epistemic conflicts, misinformation, and truth games shows the importance of paying attention to which emotions are mobilised and how they differently appeal to (and shape) different subjects. Boler and Davis (2018) argue for transcending the simplistic binary between affect and emotions by considering affects as "emotions on the move." This concept is pivotal for us as it underscores how emotions can transform into collective experiences and mobilise public actions, thereby influencing social movements. Acknowledging emotions in this dynamic and shared context allows us to comprehend that distrust in science stems not only from misinformation but is also deeply rooted in the societal fabric, where feeling rules play a crucial role in shaping collective attitudes towards scientific discourse and epistemic trust.

In summary, this chapter has highlighted the centrality of emotions in shaping contemporary epistemic conflicts, emphasising their profound impact on subjectivity and collective identities. By delving into these complexities, researchers gain a deeper understanding of the intricate dynamics at play within post-truth regimes. The exploration of these emotional underpinnings is essential for advancing our comprehension of the socio-political landscape, emphasising the need for ongoing research in this area. Such endeavours will not only enrich sociological theories but also offer practical insights useful for addressing the challenges posed by misinformation and the polarisation of scientific debates in the digital era. The application of an approach sensitive to affect and emotions in analysing epistemic conflicts online can illuminate the cultures of knowledge spreading and their political implications, revealing how digital platforms shape the interactional dynamics and feeling rules in these conflicts. This nuanced understanding of emotions as cultural practices, and their role in constructing subjectivities and collective identities within the public sphere, marks a critical advancement in navigating the complex landscape of knowledge dissemination and reception in the digital age.

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