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(doi: 10.1423/112398)

Rassegna Italiana di Sociologia (ISSN 0486-0349)

Fascicolo 4, ottobre-dicembre 2023

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## «What is truth?»

# Knowledge, expertise and political decision-making in the age of epistemic instability

by GIUSEPPE TIPALDO, STEFANO CRABU, VALENTINA MOISO

### 1. *Introduction*

Presently, in academic circles, among policymakers and in public debates, scientific communities and diverse epistemic authorities (such as public health agencies, teaching organisations and research institutions) are perceived to be facing challenges due to the proliferation and social validation of what is often referred to as fake news, alternative facts and conspiracy theories (McIntyre 2018). This phenomenon has become particularly prominent in the context of the recent Covid-19 pandemic, where evidence-based public health policies have been questioned by individuals and organised groups who underestimated the severity of the pandemic. However, the emergence of conflictual relationships or sceptical attitudes towards scientific knowledge and advice, as well as towards their representatives, is not solely attributed to the pandemic's contingency (Pellizzoni 2021; Bory *et al.* 2022a). Indeed, the propensity to challenge established knowledge seems to be a historically profound phenomenon inherent in democratic regimes (Nichols 2017).

Thus, contentious relationships represent a common trait in quite a few scientific disciplines and domains. From a historiographical perspective, conflicts typically arise in establishing the social, political and technical conditions under which, and on what evidential basis, a body of knowledge(s) shall be considered «true», «suitable» and «reliable» for informing public decision-making (Woodward, Richards 1977; Nowotny, Rose 2011; Marcus 2020). Indeed, the process of engaging a critical scrutiny towards technoscientific expertise and, more importantly, the public decision-making processes informed by such expertise

have their roots in both broader epistemological and social dynamics. These dynamics involve the (re)definition of the interplay between expert knowledge, political representation, participatory democratic processes and the governance of societies (see Hilgartner *et al.* 2015).

As highlighted in a seminal contribution by Sheila Jasanoff (2004, 3), scientific knowledge is not a «transcendent mirror of reality». On the contrary, knowledge-making practices are deeply embedded in cultural and societal contexts (e.g. norms, imaginaries, expectations, social practices and processes of institutionalisation). From this perspective, scientific and technological developments, often referred to as technoscience, are closely intertwined in the co-production of social orders and structures, which, in turn, co-produce these developments. The intricate relationship between public decision-makers, citizens and technoscientific expertise has long been a subject of reflection for social theorists and social scientists at large (see Giddens 1990; Bauman 1991; Beck 1992; Callon 2000; Nowotny 2003; Jasanoff 2005). However, specifically in recent decades, there has been an increasingly debated reconfiguration of the nexus between academics, experts, public decision-makers and society in the public sphere. This has elicited a vivid discussion over the power asymmetry between scientific communities and concerned groups of people reclaiming their agency and jurisdiction over topics traditionally confined to the sphere of technoscientific expertise. Examples include the siting of undesirable mega-projects (e.g. gas storage or waste management facilities, road and rail infrastructure, etc.), climate change, physical therapies, health, nutrition, energy production, education, social protection, supply policies and international diplomacy (Eyal 2019).

Here, it is worth highlighting that the creation of a discursive space involving experts, scientists and societal stakeholders is marked by a certain degree of ambivalence. This process is not merely a unidirectional tension or opposition between science and society. In certain fields of expertise, such as political economics or international finance, which are highly relevant to everyday life, this conflict may be less evident in its epistemic and substantive dimensions compared to areas closer to technoscience. At the same time, other domains, such as gender studies or ethnic and racial studies, may be hyper-mediated in the public sphere. This hyper-mediatization enacts a contentious politics that aims to dele-

gitimise academics engaged in such research streams, portraying them as actors who may destabilise (alleged) «traditional» values of Western societies through disruptive policy advice.

In contemporary societies, there appears to be a paradox: the more urgent the need for expert advice, the more sceptical the stakeholders, the general public and decision-makers become about the authority of science (see Bijker *et al.* 2009). At the heart of this conundrum lies the assertion that diverse kinds of expertise, extending beyond technoscientific ones, are mobilised in the public arena to address today's societal concerns about a wide spectrum of topics. Jaron Harambam (2020), in his study of contemporary conspiracy culture, has recently proposed the concept of epistemic instability to analytically capture «a historical context where the truth can no longer be guaranteed by one epistemic authority, institution, or tradition, while its consequential relativism and ambivalence cannot fully be embraced either» (Harambam 2020, 27).

This special issue takes on the challenges of the current controversial scenario outlined above. It aims to empirically investigate how people, public decision-makers and institutionally recognised experts deal with epistemic instability in relation to some of the most salient topics currently fuelling public debate. The inherent controversy that casts doubt on the legitimacy of science and scientific communities is what ultimately renders the subject of this special issue sociologically relevant, as well as socially and politically pertinent.

## 2. *Some certainty about epistemic uncertainty*

Currently, it is well established that controversies, disagreements, and internal conflicts within scientific communities are inherent to the stabilisation processes of emerging scientific and technological fields (see Collins 1974; 1981). In this regard, among social scientists, an ongoing debate explores the conditions under which diverse actors, including citizens, policymakers, and communication professionals, can legitimately participate in controversies within scientific communities. This debate highlights the evolving nature of scientific discourse and the increasing recognition of the role played by non-experts in shaping the direction and outcomes of scientific discussions.

As scientific fields continue to advance, the involvement of external actors raises important questions about the democratisation of knowledge and the intersection of expertise with broader societal perspectives. In recent years, science-contestation practices have garnered renewed attention from scholars across disciplines, resulting in numerous research monographs and edited collections exploring the emerging forms of mistrust in technoscientific expertise and the popular and political cultures engaged in contentious relationships with diverse epistemic institutions. The present so-called «crisis of expertise» and the current mistrust towards the political and scientific establishments have generated a wealth of studies, but discussing them comprehensively is beyond the scope of this contribution. However, a general overview is provided to shape a conceptual compass for navigating this special issue.

In general terms, popular suspicion against academics, scientists, research organisations, public agencies and the institutional informational landscape has often been described as a deviant attitude or socially dangerous behaviour linked to the dissemination and lending of credibility to claims lacking a scientific foundation. This perspective is reflected in recent international volumes edited by Lavorgna and Di Ronco (2020) and by Giusti and Piras (2021). Lavorgna and Di Ronco (2020) analyse the spread of pharmaceutical and therapeutic approaches developed outside evidence-based medicine, while Giusti and Piras (2021) explore how disinformation can undermine democratic regimes. Notwithstanding their different substantive and empirical frames of reference, both volumes adopt a well-integrated multidisciplinary perspective for understanding current mistrust towards public and political agencies. They strongly emphasise how the speed and volume of inaccurate, decontextualised or false information have been enhanced by digital communication networks, mobile devices and the commodification of virtual settings of interaction. While these works provide insight into the challenges posed by digital media to the informational landscape, they align with the idea that the public is exposed to powerful media effects (see Bory *et al.* 2022a). This approach, widely shared by various works analysing science contention phenomena, suggests that the «platformisation» of everyday life has facilitated the uncontrolled propagation of deception and misinformation cultures (see Armstrong *et al.* 2019; Zarocostas 2020; Niemiec 2020). The

digitalisation of social interaction, especially in news consumption (Cotter *et al.* 2022; Bridgman *et al.* 2020; Garrett *et al.* 2016), and a cultural shift towards «narcissism» (Papacharissi 2008) are considered major drivers behind the uncontrolled propagation of unreliable and inaccurate information. In this context, prevailing epistemic institutions and institutionally recognised experts seem to have lost their monopoly in defining the public debate on socially relevant issues. As Gieryn (1999, 15) put it, they have lost the privilege they once held «to declare a certain rendition of nature as “true” and “reliable”». On the flip side, «malicious agents» and misinformed citizens have begun spreading their own unscientific claims and conspiratorial beliefs.

It is not surprising that many opinion makers, academics and members of scientific communities argue that advanced democracies are sinking into a state of emergency due to the «democratisation of epistemology» (Wight 2018, 25).

According to proponents of this argument, the crisis manifests as an open conflict among research scientists, experts, policy-makers, business lobbyists and concerned groups of people in «areas where both the public and the scientific and technical community have contributions to make to what might once have been thought to be purely technical issues» (Collins, Evans 2002, 236). In this regard, the «post-truth paradox» is attributed to various factors, including the spread of social media-based infodemics (see Zarocostas 2020; Crabu *et al.* 2021), changes in the professional structure of scientific journalism and increasingly misinformed populations (despite an empirically evident increase in the average level of education, at least in Western populations). This paradox is characterised by the observation that «(t)he more educated societies have become, the more dysfunctional democracy seems to be. The supposed positive link between democracy, education and knowledge seems to be broken» (Wight 2018, 25). In a similar vein, recent scholarship indicates that antiscientific positions can also be associated with political populism (Smith 2018; Mede, Schäfer 2020; Merkley 2020; Saarinen *et al.* 2020; Crabu, Magaudda 2020; Tipaldo *et al.* 2022a), opening the door to science-related populism where anti-elitist sentiment targets both traditional political parties and other representatives of an alleged «dangerous establishment», including scientists, universities, biotech industries and scholarly institutions.

This perspective has been further developed within a recent research stream coalesced in the so-called «post-truth» theory(ies). Noteworthy works in this area include those by Davis (2017), McIntyre (2018) and Fuller (2018), which argue that contemporary societies are immersed in a «post-truth» or «post-factual» cultural atmosphere dominated by processes that generate fake news. These works illustrate how the concept of «truth» and factual evidence is increasingly contested in public opinion and decision-making processes, manipulated by a politics of falsehood grounded in «science denialism». While these works exhibit different epistemological and conceptual nuances, they share at least a couple of common substantive features. First, they link the current challenges to the authority of science at the grassroots level to an academic postmodernist stance. Due to space limitations and the specific focus of this contribution, we provide a brief summary of this complex issue (see, among others, for a historical overview: Daniels 1967; Gieryn 1983; Mulkay 1976; Tobey 1971). Critics of postmodernism argue that the analytical focus on the ideological use of demarcation by scientists has significantly eroded the public standing of science, leaving it susceptible to both unrestrained epistemic relativism internally and conspiratorial scepticism outside the academic sphere (see Urkens, Houtman 2023). The second shared characteristic of this research stream focuses on how the symbolic and empirical repertoires inherent in institutionalised scientific knowledge can be mobilised in what is commonly referred to as «politics of evidence-based policymaking» (Cairney 2016).

However, in advancing this critique, the body of research scrutinised above adopts a lexicon (i.e. «fake news», «fake science», «post-truth», etc.) that does not allow for any step forward from the limitations of a normative approach that has informed the demarcation strategies of institutional scientific rationality for decades. This is particularly evident in the books by Davis (2017) and McIntyre (2018), which reinforce mainstream accusations of irrationality towards movements contesting science, without clarifying the social and material relations between technoscience and other forms of knowledge and expertise competing – or, more simply, coexisting – with it. While serving as a catalyst for further exploring the reconfiguration of the interface between technoscientific expertise and society, this perspective overlooks the cultural and socio-technical factors that contribute to the

tensions between science and the diverse and ever-changing group of stakeholders. In the diverse empirical manifestation of epistemic conflicts, these stakeholders vehemently challenge its legitimacy – a focal point emphasised in this special issue.

Moreover, the argument of irrationality as a demarcation tool to axiomatically establish the indisputable infallibility of institutional scientific knowledge has, with the Covid-19 pandemic, become even more slippery and problematic. Tensions, contradictions, rash assertions and hasty retractions, remarks relating to cultural and political values and furious quarrels between exponents of institutional medical-scientific institutions have redrawn the boundaries of the media narratives of technoscientific expertise. Consider, for instance, the close confrontation between the scholar Neil Ferguson of the Imperial College London and Sir Patrick Vallance, Chief of Prime Minister Johnson's Scientific Cabinet, which led to a hasty reversal of the «herd immunity» strategy endorsed by the British government during the early stages of the pandemic. Or examine the reactions raised by the so-called «Swedish model» of individual responsibility. Dr Anders Tegnell, a Swedish physician specialising in infectious disease, who played a key role in the Swedish response to the Covid-19 pandemic, has garnered enthusiastic support from his peers. Notably, Mike Ryan, one of the most authoritative experts on public health emergencies at the WHO, expressed approval. However, contrasting viewpoints have emerged, with increasing scepticism or concern. In April 2020, 22 scientists from leading universities and research centres in Stockholm signed a petition urging the Scandinavian government to revise its policy on the management of contagion in more restrictive terms (Tibaldi 2021). Also, a recent study focusing on the Italian context (Tibaldi *et al.* 2022b) documented a considerable number of problematic statements. These statements, characterized by argumentative fallacies or elevated to the status of purported scientific facts despite being rooted in personal opinions, were often accompanied by contempt, derision or insults directed at one or more counterparts. Notably, these statements did not originate from «lay» publics or proponents of practical or traditional knowledge but rather emanated from qualified medical personnel, researchers accredited by authoritative scientific institutions and academics recognised within their disciplinary community.

A different approach has recently emerged at the crossroads between science and technology studies (STS) and cultural studies by engaging a dialogue with the symmetry principle, as it has been rediscussed in the field of STS (see Lynch 2017; Bory *et al.* 2022b; Crabu *et al.* 2023; Neresini *et al.* 2024). This is an analytical stance aimed at examining science contestation practices without privileging any kind of statement over others or normatively labelling particular claims as true or false, successful or mistaken. Within this research stream, the work by Harambam (2020) on conspiracy theories is particularly relevant in assuming an agnostic positioning about alternative forms of knowledge, that is, without passing judgement on their ethical value or explaining them through causal factors, such as cognitive biases, scientific illiteracy or emotional drivers. From this perspective, contemporary hostility towards science cannot be considered as only triggered by digital media or as the product of a deviant mindset. Indeed, it elucidates how science-contestation practices can engender both epistemological and sociocultural conflicts, where people can shape and share claims and counter-knowledge in an ambivalent relationship with science, knowledge institutions, public agencies and mainstream media. Hence, it opens the way for analysing the role of experiential knowledge and expertise as a way to analytically grasp issues related to epistemic instability, avoiding simplistic essentialisms.

On this point, in contrast to other markedly normative concepts such as the «post-factual society», the «age of suspicion» or «civic narcissism», the concept of I-pistemology (van Zoonen 2012) highlights in a non-prejudicial manner how individuals recognise themselves and peer interactions as an alternative source of reliable knowledge for addressing everyday life concerns. While the epistemology of science emphasises the sources and methods of experts, symmetrical I-pistemology encourages scholars to observe how individuals recognise within themselves and their interactions the emergence of spaces where truth can manifest. This occurs within a broader framework in which digital media plays a facilitating role in such practices.

### 3. *Exploring epistemic instability at the crossroad between politics and the social construction of incompetence*

Despite the success of post-truth theories in providing a common framework for understanding the current controversies and conflicts involving scientific expertise, STS scholars have recently begun calling for a critical rethinking of normative labels, such as «post-truth» or «post-factual society», which appear to primarily qualify different forms of knowledge by mobilising the same demarcation criteria of mainstream scientific rationality (see Lynch 2020; Harambam 2020). However, analyses and critical interpretations that animate this debate are still far from being composed in a shared analytical perspective (for a reconstruction, see Pellizzoni 2019). Some authors invite the construction of an analytical gaze by continuing to rely on the «symmetry postulate» (Lynch 2017; 2020; Prasad 2021), whereas others have started to question whether it is legitimate to treat all kinds of knowledge in the same way (Nerlich 2021) without succumbing to the side effects of the «false balance» (Boykoff, Boykoff 2004). Indeed, the legitimation of knowledge is a process in which scientific expertise and lay knowledge face each other in a hierarchised social space, engendering boundary work and epistemological demarcation, thus enacting power conflicts by mobilising claims and counter-claims as well as evidential, symbolic and material resources (Van Zoonen 2012; Heyen 2020; Vuolanto *et al.* 2020).

Is the act of questioning the authority of technoscientific expertise intended to contribute to the delegitimisation of science as a whole? For some social scientists, especially those influenced by STS, viewing science as a collective enterprise shaped by epistemological, social, political and historical perspectives does not entail labelling knowledge-making processes as «junk science» or asserting that alternative facts inherently possess scientific epistemic value. Symmetry, in this context, is not an epistemic but a methodological approach that advocates for the examination of both «true» and «false», or «rational» and «irrational» knowledge using the same analytical resources and categories (Pellizzoni 2019). In this sense, the so-called post-truth society «appears not so much a consequence of or a reaction to the governmental strategy rooted on “evidence-based decision-making” to which the ruling elites have relied in a season now over, but

rather an intensification of it by reversing the means» (Pellizzoni 2021, 148 – authors' translation).

Examining power dynamics in the context of scientifically and institutionally recognized knowledge brings to light questions about the public mobilization of scientific categories and objects. These categories and objects should be regarded as not merely «natural kinds» neatly defining nature, or as mere social conventions. Instead, they should be considered performative statements with peculiar conditions of possibility within a specific truth regime (see Foucault 1977; 2002; Latour 1987). These conditions are diverse, situated in historical contexts, and subject to change. While in mainstream approaches to knowledge-making practices they encompass aspects traditionally categorised as material, technical, institutional and «social», it is essential to treat them symmetrically. They function indeed as conditions that both enable and restrict what can be articulated about the social and natural world, as well as what can be observed, manipulated and done. Some kinds of knowledge(s) are institutionally considered of exclusive jurisdiction of a circle of experts and professionals. In this case, the production of knowledge is intertwined with the social reproduction of groups of individuals who have common interests (as Weber would have it) – and in many cases also common socio-demographic backgrounds – and who work together in order to maintain a position of advantage. Part of the socio-political mechanisms by which these competitive advantages are consolidated, reproduced and shared across time and space concerns the social construction of institutional legitimate competencies and, at the same time, the identification of what shall be considered as «incompetence». This process, as extensively argued in par. 2, is characterized by a form of boundary work and politics of knowledge, encompassing both discursive and material dimensions. The objective is to ostracise bodies of knowledge located outside the epistemic boundaries of institutional science and technoscientific expertise (Sarfatti Larson 2018; Caselli 2020).

Rather than being a direct exercise of coercion, the relationship between power and knowledge unfolds at the interface between rational and legal authority, influencing social action and simultaneously impacting codified rules, tacit norms and shared beliefs. The «rational» aspect is grounded in so-called «institutional» or «prevailing» scientific knowledge, while the

«legal» dimension pertains to «democratic compliance» and, at the very least, formal consistency with the democratic principles of modern constitutional charters and procedures. Hence, by examining the nexus of power and knowledge through the lens of rational-legal authority, one can analytically comprehend the expanding influence that scientific knowledge and technoscientific expertise exert in the governance of contemporary society and in addressing societal issues.

Given this state of affairs, there are at least two relevant aspects: on the one hand, the conflicts of interests among heterogeneous social actors and groups – in and out of the scientific arena; on the other, people’s perspectives over, and the public trust in, the scientific method – as a peculiar way of producing expert knowledge.

The intertwining of these two issues can be exemplified by reflecting on the relationship between the structures of professional power and expertise. It is well recognised that such relationships can be publicly disputed on the grounds of different forms of knowledge-making practices performed by individuals or concerned groups of people traditionally marginalised and framed as mere consumers, and not producers, of knowledge, such as in the case of patients’ organisations (Wehling *et al.* 2019). The key point here is not so much to promote the replacement of a hegemonic/elitist regime of truth with a new one – self-vindicated as more horizontal and democratic. Instead, it is crucial to systematically consider in sociological analysis the conditions under which people outside the strict domain of scientific epistemology can be engaged in diverse domains of expertise, whether they are rooted in natural, social or economic sciences (see Callon 2003; Callon, Rabeharisoa 2003; Borghi 2017; Caselli, Moiso 2023). Some of the essays hosted in this special issue highlight that this need is particularly evident in the medical field. The debate in this regard emerged a few decades ago, but its implications, as we will demonstrate in the concluding section, extend beyond the domains of health, illness and care.

Against this backdrop, it is worth noting that in many fields, lay, or better experiential, knowledge is still far from being socially legitimated, and the conflict among groups of interest arises. One of the ways in which dominant groups want to preserve their rational-legal-technical authority is the so-called social construction of the «incompetence» and «ignorance» of «non-scientists» in

order to delegitimise and then expel them from a public debate rooted in a specific field of technoscientific expertise.

In this regard, we may mention some well-known examples, such as the case of scientific knowledge about AIDS and how it was produced and contested, shedding light on the social and political dynamics that influenced the course of the epidemic (see Epstein 1996). Another example concerns research by Brian Wynne (1989) about the aftermath of the Chernobyl nuclear disaster and its impact on sheep farming in the UK. Wynne argues for a more inclusive and participatory approach to risk communication, pointing out the importance of engaging local communities and incorporating their knowledge and concerns. He highlights the limitations of relying solely on technical expertise without considering the social and cultural dimensions of risk perception. Following this line of enquiry, we may argue that the processes of constructing incompetence intersect with social class, ethnicity, gender and age. Hence, looking at this process means analysing the social production of incompetence in a relational manner, that is, a process occurring within a hierarchised socio-technical space. Let's consider the case of economic science. For instance, individuals with low incomes, especially migrants, are overrepresented in adult financial literacy programs, as well as in various income support programmes that incorporate mechanisms to regulate economic practices (over-indebtedness procedures, advice on budget management, judicial accompaniment measures). In this regard, Ana Perrin-Heredia (2023) shows how such people are judged incompetent insofar as they enact mundane and experiential practices that are obviously quite different from those recognised as legitimate by prevailing economic and financial science.

Another dimension that can help highlight the forms of boundary shaping between «competence» and «incompetence» concerns the current digital quantification of social life. The current phenomenon of quantification drives describing phenomena through numbers, and it is one of the dominant tools for governance and surveillance in contemporary societies. Here, we refer to the widespread trend of expressing phenomena through numbers, collected and processed by digital technologies and infrastructures, to transform a contingent and processual phenomenon into discrete elements that can be managed and assessed via algorithm-mediated procedures (Fourcade, Healy

2013). However strong the persuasive power of numbers may be, it cannot prevent us from observing that, not infrequently, the process of constructing data incorporates rhetorical strategies aimed at objectifying dominant representations of a phenomenon by means of quantification. Conversely, alternative social and cultural dimensions, representations closely linked to practical experience and lay knowledge, risk being systematically ignored or incorporated into stereotyped visions. Thus, the massive mobilisation of digital datasets and knowledge bases may enact a kind of «reification processes», in which the way concepts or categories are represented performs the reality itself (see Neresini 2015; Airoldi 2021; Moiso 2023). Hence, a reflection on epistemic conflicts cannot be separated from an analytical gaze towards the form by which knowledge is legitimised through social relations, struggles for hegemony and symbolic domination. Analytically speaking, this means to consider the socially embedded use, in time and space, of devices for the quantification of social life since they incorporate specific situated scientific knowledge and procedural scripts (whether a vaccine, a programme in financial education, or a system for assessing the emissions of an incinerator) that are proposed to people, who in turn will use them in their daily practice, to carry out actions or form their own representations of reality.

#### 4. *Papers in this special issue*

The manuscripts compiled in this special issue provide, in many respects, both methodological and innovative conceptual perspectives for analysing the contemporary figurations of epistemic instability in relation to diverse technoscientific fields and societal domains. The paper co-authored by Mario Cardano, Dino Numerato, Luigi Gariglio, Jaroslava Hasmanová Marhánková, Alice Scavarda, Piet Bracke, Ana Patrícia Hilário and Paulina Polak, titled *A team ethnography on vaccine hesitancy in Europe. A case study of a local truth construction*, opens the special issue with a methodological reflection on the ethnographical analysis of the situated relationship between scientists and non-scientists. This study focuses on vaccine hesitancy across seven European countries through a comparative, quick team ethnography of clinical settings. The findings highlight ethnographers' challenges

in researching a contested public topic, influencing the fieldwork's dynamic nature and contributing to discussions on constructing a cohesive «thought style» among researchers. The conclusion underscores that vaccine hesitancy stems from the interactive context between parents and healthcare professionals, not as a personal trait. This introduces a theme for deep exploration in subsequent papers: the situated and relational construction of knowledge amidst epistemic conflicts.

Conflicts, in the form of «low-intensity epistemic war», are at the core of the contribution of Enrico Lusardi, Micol Bronzini and Enrico Maria Piras, titled *Low-intensity epistemic war. Medical communities and the development of legitimate knowledge in times of radical uncertainty*. This paper delves into the emergence of various networks of physicians offering home treatment during the early phases of SARS-CoV-2 infection in Italy. These communities of practice actively generated and exchanged knowledge, occasionally seeking validation from the scientific community, policymakers and public opinion. Consequently, they functioned as an epistemic community, enacting contentious relationships with prevailing epistemic authorities. By examining diverse epistemologies and practices within contemporary medicine, the paper provides a nuanced framework for exploring the construction of «truth» knowledge as an emerging outcome of a broader context of professional relationships, ongoing scientific debates and the influence of epistemic and political institutions.

Internal conflicts in science and technology are further put into scrutiny by Maddalena Cannito and Eugenia Mercuri in *Epistemic wars in academia. The case of gender studies*. The focus of their analysis is on how institutional science can produce hierarchies among and within disciplines. By considering the Italian context from a comparative perspective, the authors reflect on some examples of the delegitimisation processes affecting gender studies in Italian academia. In doing so, they explore how these processes occur through discourses mobilised by the so-called «anti-gender movement», which aims to portray gender studies as a threat to academic freedom. In a similar vein, the contribution by Elisa Lello and Luca Raffini titled *Science, pseudo-science, and populism in the context of post-truth. The deep roots of an emerging dimension of political conflict* proposes a conceptual frame to foster a democratic and plural debate as a way to better navigate the interactions between science, politics

and society. Despite the difficulties presented by the current state of polarisation, the authors argue that democratisation stands out as a more hopeful and forward-thinking approach to managing complexity compared to existing strategies primarily centred around combating disinformation.

Trust in expertise and the importance of an agnostic analysis of dissent are among the main themes discussed in Lorenzo Olivieri, Annalisa Pelizza and Claudio Coletta's contribution, titled *Temporalities of non-knowledge production. The quest for acceleration in the asylum system*. The contribution is steeped in the research stream of Ignorance Studies, focusing on how the generation of uncertainty and information scarcity can shape decision-making processes, including their temporal dimension. Analysing interactions between asylum seekers and authorities through narrative and semi-structured interviews with various stakeholders, the authors argue that «accelerated procedures» engender non-knowledge about applicants' lives and circumstances. This rushed process legitimises knowledge that reinforces preconceived notions about asylum seekers' conditions, adversely affecting their life possibilities in host countries and aligning with politically motivated control mechanisms. This special issue is closed by the contribution of Maria Carmela Agodi, Ilenia Picardi and Luca Serafini, titled *The socio-pragmatic dimension of truth. How knowledge claims refused by science find support in public discourse*. The authors use focus groups to examine the prevalence of argumentative repertoires supporting knowledge refused by science in the discourse of laypeople who generally trust science. The study reveals various argumentative repertoires, including a) the experience of the fallibility of medical science; b) the unaccountability of institutions legitimated to produce knowledge in health matters; and c) pragmatic investments and participation in networks of associations on which health care practices are based. Overall, the socio-pragmatic dimension of knowledge emerges as a crucial factor for re-evaluating the incorporation of knowledge claims within ecosystems that support everyday life choices.

## 5. Final remarks

In conclusion, this essay «*What is truth?*». *Knowledge, expertise and political decision-making in the age of epistemic instability* highlights three key themes discussed by the contributions within this special issue. These themes may pave the way for further investigation by scholars interested in understanding the current challenges to technoscientific expertise.

The first theme centres on Open Science (OS) initiatives, which encompass ongoing efforts by governmental agencies and other stakeholders in research and innovation to restructure models of organising, producing and publicly disseminating scientific knowledge via genuine participatory and deliberative democratic procedures. This means that knowledge-making practices, as well as technological developments, occurring under the aegis of the OS, necessitate a reconsideration of the valuable contributions of diverse actors. These actors include those within the institutional scientific community as well as external entities such as informal civil groups, non-governmental associations, vulnerable segments of society and so on.

Reconsidering OS in the context of epistemic instability as the signature mark of the current technoscientific landscape reveals that there is much work to be done on various fronts. Multidisciplinary education and research models, especially those that effectively bring together technoscience, humanistic and socio-political disciplines, still remain a distant goal. With a few exceptions, we could say that boundary work persists within institutionalised science and indeed shows excellent health precisely when diverse fields of enquiry (or represented as such by the academic mainstream) are called upon to come closer together. Strictly connected to the need for defining suitable multidisciplinary instances in the frame of OS, it is crucial to consider how policy advice and guidelines are defined, especially for what concerns the permeance of certain «formalism of rules». This is what we may call a «utilitarian strategic vision», which frames «innovative» teaching and research proposals within a discursive rhetoric of rendering science more democratic and transparent by following, procedurally, formal requirements of a competitive ethos or mere ex-post quality assessment processes borrowed from neo-liberal organisational cultures. In doing so, the risk of excluding precisely those vulnerable subjects who, in

fact, would need to be more actively involved, both in research practices and in initiatives for the dissemination of scientific results, is gradually increasing. Enhancing such competitive skills may contribute to reproducing a system of social roles – hence, of powers and expectations – that assigns the social sciences little more than the task of «doing the dirty work». Social scientists are frequently urged to use their theoretical and empirical tools to foster consensus building within science-based public policies or to address potentially contentious issues. This is particularly crucial among (vulnerable) stakeholders whose unique concerns warrant increased attention and inclusiveness. However, this call often falls short of affording them equal participation in the epistemological debate that constructs and legitimises technoscientific knowledge. This is markedly evident in the field of multidisciplinary science education initiatives, which are apparently incapable of freeing themselves from the positivistic paternalism of the knowledge deficit model.

The second theme concerns the current dynamics and tensions between the need to make science and technoscientific expertise a matter of democratic process and how these simultaneously open the way for including diverse stakeholders within the politics and practices of science, research and innovation. From a historical perspective, it is undeniable that scientists, technologists and researchers, in collaboration with the industrial sector, have provided public decision-makers with extremely valuable tools and knowledge for the governance of complex societal issues (e.g. electrification, urban and transnational mobility, the prediction of adverse weather conditions, antibiotics or long-distance information transmission). Nevertheless, many scholars have recently affirmed that the relationship between technoscientific expertise, political representation and democracy is still far from consolidating into a robust and indisputable «partnership» (see Callon *et al.* 2009; Jasanoff 2012; 2019). Recent cases, such as public policies to counter climate change, underscore the complexities in integrating technoscientific expertise into democratic decision-making (Kulin *et al.* 2021). The reassuring belief, dominant until the 1980s, that the scientific method and the development of increasingly complex expert knowledge would create fertile ground for socially desirable discoveries and technological applications capable of promoting social progress – thus providing an escape from cyclically recurring crises (whether social, health-related, economic

or geopolitical) – has been called into question by the emergence of scenarios fraught with uncertainties. Indeed, technoscientific controversies – public debates around issues of significant collective relevance, such as nuclear energy production or genetic engineering, where scientists themselves may hold divergent views (see Bauer 2015) – have highlighted the ambivalent aspects of research and innovation, sometimes perceived by the public as unsettling dystopian futures (see Sturken *et al.* 2004). At the same time, concerns about the politicisation of technoscientific expertise in debates on anthropogenic climate change, personal data security or public health issues like pandemics – along with cases of scientific fraud (both alleged and real, as in the case of the fabricated link between autism and measles-mumps-rubella vaccination) – have definitively challenged the presumed neutrality of expert judgement. In this regard, it is worth emphasising that issues of such complexity cannot be addressed solely by public decision-makers, in accordance with scientists and experts from various sectors and disciplines. On the contrary, citizens and concerned groups of people (such as patients' associations and non-governmental organisations) are increasingly aware and engaged in the public scrutiny of science and technology, demanding precise information and a high level of transparency, if not active involvement, in the processes of innovation aimed at providing solutions to significant issues for collective life. Thus, a key issue emerges regarding which actors and institutions should legitimately decide on the forms and contents of technoscientific innovations to be developed and implemented. At the same time, there is a need to establish criteria that allow for the identification of which actors (both institutional and non-institutional) should be involved in financing such innovations, who should be entitled to realise them and who, in turn, should benefit from and enjoy their advantages, even on a non-exclusive basis.

The final theme revolves around the notorious «symmetry postulate», emphasising the need for an agnostic methodological stance in studying science-contestation practices. This approach advocates applying the same interpretative models to explain both scientifically sound knowledge and that which may appear or turn out to be fragile or wrong, regardless of the (perceived) degree of sophistication of the actors involved or the domain of knowledge. After all, there is no sociological mind immune to interpretative fallacies and idiosyncrasies, (sometimes) clumsily

disguised as unshakable «scientific» truths. Each of us, in fact, is subject, more or less consciously, to limitations imposed by analytical categories and prejudices deriving from biographical trajectories and professional roles often constructed predominantly within the dominant epistemic and social institutions. Notably, although the scientific method and related research procedures aim to formally eliminate normative biases and articulate any analytical limitations, the impact of these aspects cannot be entirely neutralised. For these reasons, while we are convinced that it is worth continuing to search – and, therefore, this special issue can only mark a contribution along a path still largely to be explored – agnosticism is proposed as the most suitable methodological posture for sociologically investigating technoscientific conflicts in an era of epistemic instability.

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### «What Is Truth?». Knowledge, Expertise and Political Decision-Making in the Age of Epistemic Instability

This contribution discusses the relevance of contemporary practices contesting scientific knowledge, with a focus on the current epistemic instability as a context in which the truth is no longer assured by a single epistemic authority, or institution. It introduces the current theoretical and methodological perspectives adopted by sociologists, and social scientists in general, to investigate how people, public decision-makers and institutionally recognised experts deal with

epistemic instability in relation to some of the most salient topics currently fuelling public debate. Then, the papers included in this Special Issue are introduced by also highlighting major issues at stake in understanding the current challenges to technoscientific expertise.

*Keywords:* technoscientific expertise, epistemic instability, scientific controversies, science contestation, symmetry.

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