Science, technology and society for a post-truth age

Comparative dialogues on reflexivity

Edited by
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We would like to express our foremost thanks to the authors who entrusted us with their valuable contributions. Their scholarly rigor and intellectual generosity have undoubtedly enriched this collection. They conducted the necessary adjustments and revisions with great dedication. Their willingness to heed the reviewers' suggestions and recommendations has been instrumental in the excellence of this volume. They engaged with the editorial process with exceptional commitment, ensuring their work not only met but exceeded our expectations.

Our heartfelt thanks go out to the diligent reviewers, whose meticulous insights and extensive expertise have significantly enhanced the articles in this collection. Their contributions during the double-blind peer review process have been crucial in elevating the quality of this scholarly work.

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Thank you to all who have contributed to this book. It is our sincere hope that the ideas and research presented therein will help advance the discussion of the challenges and opportunities in the post-truth era.

Emine Öncüler Yayalar and Melike Şahinol
Ankara/ Istanbul (Türkiye) 2023

Introduction

Emine Öncüler Yayalar and Melike Şahinol

When the Oxford Dictionary designated “post-truth” as the word of the year in 2016, it was perceived as an indication of the prevailing epistemic crisis characterized by the dissemination of misinformation, the rise of anti-science movements, and the proliferation of conspiracy theories. Subsequently, there has been a profusion of scholarly articles, books, and reports endeavoring to examine the emergence of the post-truth era. This concern intensified during COVID-19 as researchers sought to explain the accompanying infodemic.

Amidst these debates, the interdisciplinary field of Science, Technology and Society (STS) played a central role. STS is an interdisciplinary domain that investigates the mutual shaping of science, technology, and society (Jasanoff 2010). As the concept of post-truth gained more prominence, practitioners of STS found themselves embroiled in a fervent controversy regarding the discipline's responsibility in engendering such a phenomenon and the appropriate stance it should adopt in response.

Confronted with this backdrop, the purpose of this volume is twofold. On the one hand, the book provides an intervention to ongoing debates around post-truth by reclaiming the main tenets of STS and suggesting new visions for the development of the field. This collection fosters a constructive dialogue aimed at reimagining the potential of Science, Technology, and Society in effectively addressing the challenges arising in the widely acknowledged era of post-truth. Secondly, the volume contributes to the expanding body of literature on post-truth. The prevailing emphasis on objectivity and the pursuit of truth has garnered significant attention, yet the field of Science, Technology, and Society (STS) underscores the necessity of acknowledging the contextual factors that shape the production of knowledge. In line with this observation, the volume accentuates the significance of both theoretical and empirical approaches to the increasing tendency to disregard scientific knowledge and factual evidence from an STS perspective.

The volume moves away from a clear distinction between facts and values. Instead, following Latour, it sets the stage for embracing the hybrid entanglements of the “objective” and the “subjective”. The rise of post-truth is placed in its socio-technical context and is understood to be an effect of a widespread understanding of truth as unassailable. Rather than framing the

problem from the perspective of the deficit model of science communication, the contributors to the volume emphasize the importance of the co-constructed nature of knowledge and expertise. Instead of trying to re-claim truth and inform the public through one-way communication, the authors recognize the underlying social, political, and economic factors that shape the existing knowledge claims and highlight the possibility of participatory epistemologies. This approach recognizes that a more reflexive approach to knowledge production is necessary, one that acknowledges the role of social actors in shaping scientific knowledge and that recognizes the inherent value judgments that underpin all scientific work.

The debates about the post-truth condition have focused on various concepts of STS, including symmetry, social constructivism, and “epistemic democracy” which have all been accused of being co-opted and utilized in pushing forward the post-truth agenda (Lynch 2017). According to some scholars, STS should be held responsible for instigating anti-science currents through its appeals to question the objectivity of scientific knowledge production (Latour 2004; Sismondo 2017; Collins, Evans, and Weinel 2017; Fuller 2018). This ongoing conversation has resulted in an impasse with STS being vilified for providing the tools of anti-scientific thinking. The volume provides a contemporary engagement with these debates to emerge from this impasse. In the first part of the edited volume, we propose "Rethinking STS in the post-truth era," taking reflexivity into account. In doing so, we gain an important understanding of STS concepts. This provides the foundation for a conceptually informed discussion about the post-truth era.

In the first article of this part, “(Good) post-truth, (bad) alternative facts, (fake) fake news and its ideological bubbles: a dialogue”, Restrepo Forero and Ashmore critically reflect on the concept of alternative facts and fake news and argue that STS needs to embrace post-truth in order to move forward. Their use of the dialogue format is reminiscent of Freire’s arguments on moving beyond an understanding of the dialogue as a mere technique. It allows the reader to engage with new ways of thinking about epistemological relationships fostered by the use of the dialogue format. The authors provide a more nuanced STS-inspired version of post-truth that is supported by their analysis of current events and their reception in the United States and Colombia. The article cautions against uncritically accepting the low credibility of post-truth. Drawing from recent discussions within the discipline, the authors argue that the democratizing project of STS persists, resulting in a post-truth world where the construction of facts is recognized as a contingent and complex process. Following Latour’s call, they emphasize the importance of moving our attention from “matters of fact to matters of concern” and paying attention to the messy and entangled realities that shape our world.

In "New Way of Critique in the Post-Truth Era", Lee asks if post-truth simply means the end and failure of the age of truth and explains a common misconception about STS, thereby underlining the significance of the STS as a framework for raising important concerns based on reflexivity. Through the concept of 'critique,' Lee (re)historicizes the post-truth regime in order to better comprehend the contemporary period. According to Lee, the demise of expertise and the rejection of objective truth are important drivers of the post-truth era. After problematizing the attacks on postmodernism for paving the way for the destabilization of truth, Lee deploys the theories of Boltanski and Foucault to offer a new perspective based on the adoption of reflexivity and the genealogical method. The author concludes that a productive relationship between praxis and critique with a reflexive attitude is necessary to address the challenges of the Post-truth era.

In "Social Reflexivity as a Means for Critical Life Science Research on Human Diversity", Plümecke focuses on life science research dealing with human diversity and race/ethnicity and gender categories by reconsidering the concept of reflexivity. He provides an empirical analysis of how reflexivity is employed in the knowledge production process. According to Plümecke, the concept of reflexivity is not just used as a means to develop a critical awareness of how one's embodied presence impacts their intellectual output but also as a set of research practices and a normative requirement. In this chapter, the concept of reflexivity is presented as a panacea to the debates on post-truth. Plümecke emphasizes the collective and transformative nature of reflexivity as a possible tool for understanding the social dimensions of science and making a difference in the world. The chapter aligns with calls to reclaim the original mission of STS by highlighting the importance of reflexivity as a tool for improving science and ensuring its ethical and social responsibility.

The second part examines the rise of post-factual politics from two different perspectives. The articles in this section help us understand the complexity of the post-truth moment by analyzing the conditions that have enabled the corrosion of trust in expert knowledge. In the first chapter of the second part, "The spread of the 'gender ideology' and the peace referendum in Colombia: post-truth age's digital and infrastructural materialities", Guerrero Castro sheds light on Colombia's post-conflict and post-truth politics by examining the relationship between social media and political rhetoric. The chapter views "gender ideology" as part of the post-truth era, where facts and expertise are publicly contested, and fake news threatens democratic institutions. The author highlights that post-truth is not a new development but has a long political and intellectual history that goes hand in hand with modern liberal democracy.

Next, the backdrop and method of the dissident method of "living in truth" to oppose ideological manipulation; the multifaceted structure of Havel's truth claims, and the devolution of their currency in the post-communist period are examined by Kilburn in "Living in Post-Truth: Anti-Politics and the Power of the Powerless in the Twenty-First Century". Kilburn discusses the challenges posed by a post-truth society and how the case of socialist Czechoslovakia, particularly Václav Havel's "living in truth" philosophy, may offer insights for navigating the current crisis. The chapter makes an important contribution to the understanding of the post-truth condition by providing a detailed analysis of how Havel's moral positioning may have inadvertently contributed to the distrust of authority and expertise and the rise of right-wing populism, which led to the corrosion of truth.

The main goal of the final chapter of part two, entitled "Re-conceptualizing Cross-disciplinary Expertise in International Criminal Investigations: An STS Perspective," is to create, articulate, and disseminate a normatively coherent conceptual framework of transdisciplinary expertise as it is used in international criminal justice. McGregor delves into the realm of Science and Technology Studies (STS) to address challenges related to scientific and technological expertise, particularly in the context of international criminal justice and applies theories of expertise to a real-world case study, aiming to provide a theoretical foundation for addressing ontological and epistemological tensions arising from multidisciplinary scientific and technological advancements. McGregor's analysis hints at the potential for STS to contribute to resolving these difficulties.

In the third part, the contributions focus on local knowledge structures and questioning of singular knowledge claims as well as on participatory research/science. It starts with Diamary and Kumar's case study of grassroots innovations in India and proposes a potential model for improving the understanding of communication processes in informal knowledge systems. Drawing on the case study of Shodytara, the authors argue that an engagement with local communities and an awareness of place-based evidence and experiential knowledge may be crucial in moving beyond the public understanding of the science model. An investigation of alternative knowledge production and new forms of science communication are proposed as possible ways to overcome the erosion of trust in science.

In the next chapter, "Reflexive philosophical dialogue about science, technology and society: tacking the post-truth condition," Dunlop and Stubbs claim that in a post-truth era, public philosophy, particularly philosophical discussion, can create conditions for critical thinking through reflexive philosophical inquiry into science, technology, and society. According to the authors, it is important to recognize the limitations of scientific decision-making and the need for interdisciplinary collaboration and public engagement in

shaping research trajectories and policy decisions. By promoting public reflexive philosophical inquiry, we may be able to treat the post-truth condition, particularly in relation to climate change and geoengineering (large-scale intervention in the Earth's climate). They argue that philosophical dialogue develops scientific and political criticality and engagement, which is required to construct and deconstruct arguments and communicate sensitively through challenge, disagreement, and disjuncture based on empirical, interdisciplinary work in chemistry/philosophy/education.

Vidmar's contribution "Towards the PERIpatetic Approach: Epistemology of Close Encounters Within Contemporary STS" outlines major characteristics of an evolving shift in research philosophy in STS, which involves closer proximity to participants through longer-term contact and embeddedness in diverse contexts of Participatory Action Research. The text also emphasizes the significance of the researcher's positionality and makes the case that a closer relationship based on meaningful engagement and embeddedness in the studied environment while maintaining critical analytical distance is crucial for the post-truth age. This approach of the "uninformed insider" fosters greater confidence among stakeholders and increases confidence in the research process. This multi-layered process incorporates principles of reflexivity as well as participatory and longitudinal analysis, which may be useful in overcoming the paralysis presented by the post-factual period.

Finally, the fourth part brings together key empirical examples that address changing practices in the post-truth era. In doing so, the authors enrich the volume with examples of practices in art, education, and work. Da Veiga's chapter on "Post-fake artivism: how activism and art can break reflexivity" focuses on the Science Gallery in Dublin's "Fake" show as a case of how the dismantlement of the unprecedented curtain of clichés becomes urgent in a reality guided by the cognitive overlay of a barrage of buzzwords – from the simpler like friend, or tag to the more complex Internet of behaviors, extended reality, or enhanced connectivity – produced and controlled by dominant cultures to inculcate habits and norms and to consolidate power. Da Veiga concludes that post-fake artivism may be a step in the right direction.

Aldous Arantes' chapter on "Comparative dialogues on reflexivity: What do pre-service teachers need to understand about 'objectivity' and 'evidence' in their emergent workplace, during a post-truth age?" offers both a theoretical and an empirical approach, drawing on the findings of the author's PhD, the Apps in Australian Classrooms Project. In her analysis, Arantes explores the various challenges that teachers face in the post-truth era of technology and argues that STS perspectives could be beneficial in addressing these issues. She emphasizes that we need to shift our focus from approaching edtech as a neutral learning tool to addressing its role in the commercialization of

education and the potential biases amplified by the extensive use of these tools. The article underscores the importance of understanding the political implications of commercial data in education and advocates for a critical stance towards using edtech. By highlighting the importance of the sociotechnical context, Arantes emphasizes the need for teachers to develop a reflexive understanding of 'objectivity' and 'evidence' in their emergent workplace.

In "Exploring the Masculine Roots of Scientific Tradition: A Comparative Analysis of Two Cases from Sweden and Turkey," Pehlivanlı-Kadayıfçı gives us insights into current discussions of gender in STEM departments in Lund University and Middle East Technical University (Ankara, Turkey) in the wider context of STS and post-truth. The article provides a critique of the pipeline model, which focuses on increasing the number of underrepresented groups in the STEM fields without addressing privilege and questioning the objectivity of science itself. This results in the persistence of gender disparities in the physical sciences, with differences in representation, inclusion, and pay equity. Pehlivanlı bases her analysis at the backdrop of the post-truth rhetoric and anti-gender movements and highlights the significance of contextual factors in the creation of scientific knowledge.

In the final chapter, "Techno-social equities and inequities in the post-truth age. The case of remote work in Greece during the COVID-19 pandemic" Papazafeiropoulou stresses that the rise of remote working necessitates a reconsideration of the STS paradigm so that its tools can aid in the understanding of the interplay of techno-social elements not just in the sector of consumption, as has been stressed to date, but also in the sphere of production. In light of the foregoing, the presented case study focuses on distant working conditions in Greece in 2020 to explore the discourses of working groups that are primarily influenced by such changes.

The contributors to the volume provide a comprehensive exploration of the post-truth era with insights from the interdisciplinary field of Science, Technology, and Society (STS). By emphasizing the co-constructed nature of knowledge and expertise, the volume not only challenges the prevailing emphasis on objectivity and the pursuit of truth but it also presents the significance of the unique contributions of STS in thinking beyond the post-truth period. Doing so advocates for a more reflexive approach to knowledge production that acknowledges the social, political, and economic factors shaping existing knowledge claims.

While some scholars have accused STS of contributing to the erosion of trust in expert knowledge, the authors argue for the continued relevance of STS in addressing the challenges of the post-truth era. They advocate for embracing post-truth as an opportunity for reimagining the potential of Science,

Technology, and Society rather than dismissing it as a threat. By exploring concepts such as reflexivity, critique, and social reflexivity, the volume offers innovative perspectives for understanding and navigating the complexities of the post-truth condition. The empirical case studies presented in the book shed light on various aspects of the post-truth era, including its impact on political rhetoric, grassroots innovations, philosophical inquiry, and changing practices in art, education, and work. Collectively, these contributions contribute to the expanding body of literature on post-truth while highlighting the importance of interdisciplinary approaches and participatory research in addressing the challenges of our increasingly complex information landscape.

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Kyunghwan Lee is a doctoral candidate in Sociology at the University of Southern California (USC). He obtained his MA and BA from Yonsei University, Seoul, Korea. His research grapples with how knowledge and ideas travel globally and interact with the object and the world. His dissertation project, entitled 'Making the Economy through the National Income in South Korea,' attempts to trace how the national economy in South Korea has been

constituted as a quantified entity through a collection of statistical practices, economic knowledge, and policy-making technologies.

Karen McGregor Richmond is a postdoctoral research fellow at iCourts, the Danish Centre of Excellence in International Courts. Karen holds an LLB (Edinburgh), an LLM in Advocacy, and a PhD in Law. Her work is situated at the boundary of law and science. Karen's doctoral monograph used STS perspectives to chart the influence of marketization on forensic science provision, whilst her postdoctoral work focuses on developing methods to measure the probative value of evidence. She is a member of the Faculty of Evidence-Based Health Care at Oxford University.

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Alexia Sofia Papazafeiropoulou teaches History and Sociology of Technology and Urban Civilization at the National Technical University of Athens (NTUA). She conducts postdoctoral research at the same university, titled: "The Notion of the Subject within the Context of Mobilities. A study of the bibliographical current as a potentially new paradigm." The title of her Ph.D. thesis is "Car Culture and Road Networks in Greece, 1930-1980." She has published papers on Mobility and Science and Technology Studies in international academic journals and chapters in collective volumes.

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Olga Restrepo Forero is a Professor at Departamento de Sociología, Universidad Nacional de Colombia, Bogotá. She has published on Darwinism in Colombia and the historiography of Darwinism in Latin America, on scientific writing and scientific rhetoric. She has also researched, with Malcolm Ashmore, institutional settings that produce and negotiate trust relationships, such as notaries and identification cards, and their uses in Colombian society. From 2010 to 2013, she directed and published an enormous research project called *'Ensamblado en Colombia: producción de saberes y contrucción de ciudadanías'* ('Assembling Colombia: producing knowledge and constructing citizenships'). Most of her previously published work is in Spanish.

Joshua Stubbs is a PhD of Education student in the Psychology in Education Research Centre at the University of York. His research focuses on education, health and social justice. He has contributed to research on how to establish more inclusive social and academic environments within education; how to support students' transition from one stage of education to another; and how to incorporate philosophical inquiry into the curriculum. He is also interested in helping young people to identify logical fallacies, construct better arguments, and become more politically literate and engaged.

Laura Schnieder is a medical sociologist by training. Currently, she is employed as a project coordinator in clinical research. Her social scientific research focuses on questions at the intersection of the production of biomedical knowledge and feminist theory.

Pedro Alves da Veiga is a Portuguese transdisciplinary artist and researcher with a degree in Computer Science and earned a PhD in Digital Media Art. He is a Professor at Aberta University in Lisbon, Portugal, the subdirector of the Digital Media Arts PhD programme and a member of the Scientific Council of the Research Centre for Arts and Communication (CIAC). He developed his research at the intersection of art, science and technology; focused on interactive and multimedia generative systems, new media artivism, curatorship, and a/r/cography, a novel creative research methodological approach.

Matjaz Vidmar is a Lecturer in Engineering Management at the University of Edinburgh and Deputy Director of the Institute for the Study of Science, Technology and Innovation. He is researching innovation processes, R&D (eco)systems, and future strategies and design, especially within the space industry, artificial intelligence, and data-driven economy. He leads interdisciplinary

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