

COVID-19 Health Technology Governance, Epistemic Competence, and the Future of Knowledge in an Uncertain World

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“In a time of deceit, telling the truth is a revolutionary act.”
-George Orwell (Venturini, 1982)

TO STEM THE CRISES brought about by pandemics, we need to address complex and interdependent challenges in health care and society. A crosscutting issue amid the COVID-19 pandemic caused by the SARS-CoV-2 is governance of emerging health technologies and innovations when the facts are uncertain and the stakes are high (Bayram et al., 2020; Sclove, 2020). There is extraordinary potential for abuse as everyday decisions that impact millions of people under lockdown are currently being made, ranging from access to COVID-19 diagnostics to acceleration of vaccine and drug innovation and to the rhythms of quotidian life, for travel, vacation, and how we live, work, and play (Özdemir, 2020a, 2020b; Wade, 2020).

Historically, the debates on innovation policy have tended to focus on technical knowledge. Questions such as “what is the diagnostic performance of COVID-19 diagnostic tests” and “which technologies should underpin the development of new vaccines and drugs against the pandemic?” among others usually come to the fore. These are essential questions. But they are insufficient to make responsible innovation policies that stand the test of time, not to mention the diverse social and political contexts across the planet (Von Schomberg, 2019; Von Schomberg and Hankins, 2019).

To democratize the pandemic digital innovation policy, presence of elections and elected political leaders do not, in and of themselves, guarantee the democratic quality of the innovation policy outcomes. Indeed political scientists have long noted the imprecision of voting as mechanism for democratic decision making, and observed that elected officials and government functionaries can in fact act as barriers to greater popular control over policy making (Lindblom and Woodhouse, 1993). An innovation policy can help steer the COVID-19 science and technology to democratic ends (Table 1).

Because factors such as race, gender, and region are likely to be included in systematic data collection efforts related to COVID-19, addressing data provenance is crucial for avoiding biases and other unintended consequences that could “skew predictions, diagnoses, risk scores, and decisions about where, or to whom, finite resources and care should be prioritized” (Horvitz et al., 2020).

We also need to check the frames and framing of science and technology before a body of knowledge is transitioned for implementation in planetary health (Koopman, 2017; Özdemir and Springer, 2018). Epistemology concerns the frames and framings of knowledge: *how do we know what we know?* Questioning the epistemology of a given body of COVID-19-related knowledge, before accepting its veracity and legitimacy, is a necessary new skill set in 21st century (Garvey, 2019; Özdemir, 2019, 2020c). An “epistemic check” provides a crucial opportunity to provide checks and balances against abuses of power, and ensures that whatever pathways we ultimately take, we have considered the contingencies and potential obstacles.

We highlight this skill set as “epistemic competence,” *the ability and willingness to examine the frames and framings in which knowledge is produced.*

Epistemic Competence Matters for Innovation Policy

To illustrate the concept and practice of epistemic competence, and even though vacations are currently postponed with the pandemic, let us imagine a travel scenario where we are taking the pictures of beautiful scenery. The breadth of our lens and the angle we choose for the camera determine the photograph contents and the types of images we create. If a 100-year old interesting and beautiful tree is left outside

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TABLE 1. RATIONALE FOR COVID-19 PANDEMIC INNOVATION POLICIES

Innovation policies are important. They can, in the ideal case, broaden our thinking, enhance the reflexivity of persons and communities, and conjure up collective imaginations on the:

- (1) broader social and political contexts in which scientific discoveries emerge,
- (2) alternatives to proposed technology solutions,
- (3) proponent as well as dissenting views on new technologies,
- (4) multiple possible future(s) and scenarios in which innovation trajectories evolve, and
- (5) unintended (positive or negative) consequences of emerging technologies.

Adapted from Bayram et al. (2020).

the camera frame, it will not be in the photograph. If we choose a close up versus a distant shot, that impacts what comes across prominently in the photograph or remains in the shadows in the background.

Knowledge production is no different in life sciences or social sciences and humanities. How we frame a question determines the type of answers we create and represents a distinct application of power within contemporary society (Law, 2004; Özdemir, 2019; Özdemir and Springer, 2018). The framings of planetary health policy in the course of the COVID-19 pandemic are shaping what gets to be produced as solutions and who has access to them and who does not (Wade, 2020). The choice of a particular framing over another, for example, whether health care is a human right and ought to be available to all persons especially amid the pandemic or a commodity to be traded has direct impacts on the targets prioritized and the outcomes of COVID-19-related innovation policies. No doubt, we cannot stem a planetary scale health challenge such as COVID-19 if health care were available only to some but not all persons on the planet. This line of critical inquiry also begins to scratch the surface of the taken-for-granted understandings of wealth distribution in our societies, since we know that impoverishment, whether moderate or widespread, is not conducive to positive health outcomes (Kickbusch et al., 2020; Wade, 2020).

Health is consequently “part of the right to an adequate standard of living,” as recognized by the 1948 Universal Declaration of Human Rights (United Nations, 2008). The right to health was also recognized as a human right in the 1966 International Covenant on Economic, Social and Cultural Rights (United Nations, 2008). To this end, the COVID-19 pandemic has raised both instrumental and principled questions.

From a practical or efficiency standpoint, inclusive access to planetary health care, by all people from all walks of life and economic status, is important for robust and effective pandemic response. That is, who and what are omitted matter greatly (Barad, 2011). Absent inclusive access to health care, the marginalized, underserved communities, overcrowded work spaces that lack preventive health care and social distancing, not to mention war and social conflict zones, will pave the way for recurring peaks of new cases and deaths from SARS-CoV-2, especially if extensive diagnostics capacity is not in place to test, trace, and isolate the new cases. Prioritizing profit over people is never going to

result in health care delivery that results in equitable outcomes (Kickbusch et al., 2020; Springer, 2016; Wade, 2020), and it is becoming increasingly evident that the public is ready for systemic change toward a greater ethic of community care (Butler, 2020; Springer, 2020).

Framing and understanding of health as a universal human right are part of the epistemic competence crucial for emerging health technology governance (Özdemir, 2020b; Özdemir and Springer, 2018). Health technology governance ought to check the framings of the complex questions and solutions emerging as part of the pandemic (Bayram et al., 2020; Springer, 2016).

Placing epistemology/framing before the knowledge serves as a “truth tracker” and can boost collective reflexivity as new science and innovation policies emerge in response to the current COVID-19 pandemic, and other likely zoonotic outbreaks in the future (Holst and Molander, 2019).

Conclusions

To the extent that epistemologies shape the types of knowledge we produce in science and society, epistemic competence in emerging health technology governance and innovation policy has bearings on the future of trustworthy and veritable knowledge in the 21st century (Boschele, 2020). Moreover, if epistemic competence and framing of scientific knowledge are broadly appreciated, whereby society starts to recognize the “bigger picture” through greater understanding of the cognitive biases we maintain, it may offer opportunities for new and creative solutions.

In particular, and of profound consequence in the current moment, we might begin to address the disparity between the enormous technical progress and investments made in health technologies versus our currently inadequate and underfunded understanding of the societal dimensions of health technologies that are being deployed to stem the pandemic (Frodeman, 2020).

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