

**USING THE COVID-19 PANDEMIC TO ADDRESS THE AMERICAN EPISTEMIC AND  
LEGITIMATION CRISES**

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **THE INEFFECTIVE COVID-19 RESPONSE WITHIN THE UNITED STATES**

In the United States alone, the COVID-19 pandemic is responsible for 725,000+ documented deaths (Worldometer, 2021) in addition to leaving countless others with lasting side effects (CDC, 2021). Pharmaceutical companies, such as Pfizer and Moderna, have worked with both government agencies and respected health officials to provide free vaccines for all Americans in an effort to protect the well-being of the general public. And yet, even with improvements to vaccine effectiveness over the last century, a large number of people across the globe have been showing signs of distrust and skepticism over the COVID-19 immunization shots because of their lack of trust in the institutions supporting them (Karoub, 2021). There are multiple theories as to what caused the recent pandemic induced by COVID-19. Researchers such as Petr Špecián believe that the root cause of said pandemic stems from a larger epistemic crisis, creating a breakdown of epistemic trust within society (Špecián, 2021). Having taught Economics and the Philosophy of Social Sciences at multiple universities in Europe and abroad, Špecián is well-versed in the roles of experts in a democratic society and uses this knowledge to discuss the COVID-19 pandemic through the merits and risks of behaviorally informed paternalism (PhilPeople, 2022).

The STS thesis aims to explore how the relationship between human action and technology has created an environment that has given birth to the current epistemic and legitimization crises plaguing the American public. More specifically, the thesis focuses on the theory of Social Construction of Technology (SCOT), first introduced by Bijker and Pinch (1984). The foundation of the SCOT theory, the idea that oftentimes social norms restrict alternative technological designs, allows for a deeper level of analysis in the STS thesis

which focuses on the concept of recoupling sociological studies and new scientific discoveries, especially through a technological frame change (Yousefikhah, 2017).

Through the lens of combatting prevalent epistemological beliefs within the United States, the technical thesis seeks to develop improved channels of communication between patients and their healthcare providers. Making doctors and the information they provide more intelligible and accessible for patients opens a path to reverting the distrust of doctors. Improving information accessibility also aids in fighting the ideology which claims that healthcare professionals as a part of an institution with a primary objective of harming the public for personal gain. Increased trust yields a variety of benefits, especially for patients as they “reported more beneficial health behaviors, fewer symptoms and higher quality of life and to be more satisfied with treatment when they had higher trust in their health care professional” (Birkhauer et al., 2017, p.1). The work done at Meddbase aimed to improve the user experience for the company’s software which provides an interface for doctors to share information with their patients (Meddbase, 2022).

By tightly coupling the STS thesis with findings of the work done for the Computer Science technical thesis, advised by Daniel Graham, it is possible to reevaluate the engineering process with a more specific focus on how current social norms impact products such as Meddbase’s medical management system. While formulating a conclusive format for doctor-patient communication is beyond the scope of what is discussed in this paper, the examination of which specific patient values are critical to rebuilding epistemic trust between patients and their care providers can allow for the implementation of the said conclusive format in the near future. Modernizing the medical experience comes with a multitude of benefits for both doctors and

patients alike; however, modernization comes with the cost of removing much of the human relationships in healthcare. It is critical for the future of medical management systems and the healthcare field as a whole to continue employing innovative technology without alienating the general public.

### **RESOLVING THE DISTRUST OF HEALTH AUTHORITIES**

Before beginning any analysis of the breakdown in epistemic labor within the United States, it is important to first understand the concept of epistemology in relation to both the current crisis and the COVID-19 pandemic. Instead of only viewing all epistemic crises as an “emergency in the way that communities or societies come to know information,” Špecián (p. 167 2022) references Atiba Ellis and introduces a new definition for the term which focused almost exclusively on the role and thought processes of citizens in the crisis. He went on to define an epistemic crisis as “a breakdown in the social division of epistemic labor” (p. 167), an event triggered by a social emergency that funnels citizens into a cycle of placing too much faith in personal experience as opposed to relevant expert knowledge.

### **INTRODUCTION TO EPISTEMIC LABOR AND THE LEGITIMATION CRISIS**

While viewing the pandemic as this version of an epistemological crisis certainly still highlights the issues within the American system, a key feature of note is that different issues are being brought to the forefront. Rather than the crisis originating from a lack of general knowledge in the public or a common sense of fear and irrationality, Špecián (2022) stresses the importance of viewing the source of the issue as “conditional mainly on the institutional

grounding of knowledge dissemination” (p. 168). The major difference between these two schools of thought is which victim receives the lion's share of the blame, as the former puts each individual citizen at fault while the latter stresses that fault instead lies with the institution and requires an overhaul of the current system.

In addition to the epistemic crisis, the United States is also undergoing a legitimation crisis for many of the same reasons. Researchers Morelock and Narita identified the legitimation crisis as “when the rationality crisis at the top can no longer excuse itself effectively through support by the lifeworld, and thus the irrational system sets itself in opposition to the lifeworld” (Morelock & Narita, 2022, p. 4). This definition, originating from the ideas of German sociologist Jürgen Habermas, occurs when a country's population loses confidence in its institutions, administrations, and leadership. More specifically, Habermas (1973) states that a “legitimation deficit means that it is not possible by administrative means to maintain or establish effective normative structures to the extent required” (p. 47). Therefore, when looking at the United State’s current predicament regarding the COVID-19 pandemic, it is principal to keep in mind that “there is a deep connection between legitimation crisis and epistemic crisis, which are mutually activating and intertwined. As such, they are best understood as aspects of the current crisis climate, rather than as ontologically separate dynamics” (Morelock & Narita, 2022, p. 1).

## **THE FAULTS IN THE COVID RESPONSE OF THE UNITED STATES**

In the early months of 2022, authors Benjamin Mueller and Eleanor Lutz published an article in *The New York Times* in order to highlight the substantial differences between the

American public's response to COVID-19 and that of other wealthy countries worldwide. As one of the few reporters for *The New York Times* who has covered the pandemic in multiple countries, Mueller is able to compare and contrast the specific details that have put America near the top of the world in deaths per capita amongst other high-income countries. Assisting Mueller with this article is Eleanor Lutz, a well-respected data scientist with a Ph.D. in data science and biology from the University of Washington (Lutz, 2022).

While the main draw of the article is the scare factor of the rising rate of deaths in the United States, Mueller and Lutz bring nuance to the conversation by attempting to dissect the root cause of American health officials' failures. The authors begin by providing information and sources to back up their claims of America's failure, such as the fact that "record numbers of Americans with the highly contagious variant have filled up hospitals in recent weeks and the average death toll is still around 2,500 a day" (Mueller & Lutz, 2022, para. 15). In addition to the death toll, the article highlights how ineffective the United States has been at vaccinating its most at-risk population, with "43 percent of people 65 and over have not received a booster shot" and "twelve percent of Americans 65 and over have not received either two shots of Moderna/Pfizer or one Johnson & Johnson shot" (Mueller & Lutz, 2022, para. 18).

To explain these low vaccination rates, Mueller and Lutz reference a study published by Mr. Bollyky and Dr. Dieleman of the University of Washington. The study showed a strong relationship between a country's rate of infection regarding the COVID-19 virus and the extent of distrust between its people and the government (Mueller & Lutz, 2022). This distrust from the public, both of a country's government and of the rest of the population, "makes them less inclined to follow public health precautions like getting vaccinated or reducing their contacts

during surges” (Mueller & Lutz, 2022, para. 32) according to Mr. Bollyky, a director of the global health program at the Council on Foreign Relations.

## **LEGITIMACY AS A SOCIAL CONCEPT**

The breakdown of societal standards amongst citizens, a key aspect of Mr. Bollyky’s argument, is a crucial issue that begins to highlight the relationship between the legitimation crisis and Pinch & Bijker’s theory of Social Construction of Technology (SCOT) (1984). In SCOT, “all members of a certain social group share the same set of meanings, attached to a specific artifact” (Pinch & Bijker, 1984, p. 30) which determines how that artifact impacts the lives of the said social group. The needs and actions of relevant social groups drive the development process of artifacts in the SCOT model in contrast to technological determinism. Technological determinism, “referring to claims that place a greater emphasis on the autonomous and social-shaping tendencies of technology” (Dafoe, 2015, p. 1047), can lead to a destabilization of social groups when multiple conflicting definitions of the same artifact are present (Klein & Kleinman, 2002).

In the case of the COVID-19 pandemic, the artifact in SCOT theory symbolizes the vaccine and mask mandates set by the government. When different social groups created different relationships with the governments’ pandemic response, the legitimacy of the government was put into question. Christian Reus-Smit, a professor of International Relations at the University of Queensland, provides helpful insight on the social concept of legitimacy in his article studying the global scope of the legitimation crisis. According to Reus-Smit (2007),

Rights are socially ordained, and an actor has a right to act, rule, or govern only if it is socially sanctioned. Similarly, when we say that an institution is rightful, and hence legitimate, we are saying that its norms, rules, and principles are socially endorsed (p. 159).

Given this definition, it is plausible to say that the disconnect amongst the public in response to the pandemic (Karoub, 2021) removed the government's legitimacy. The principles of the artifact were never fully endorsed by all relevant social groups, removing the social sanction of the government previously referenced by Reus-Smit.

For the SCOT model to be effective, it must be incorporated into every level of the development process or else technologies created without the SCOT model can continue to create issues (Klein & Kleinman, 2002). This means that when studying the potential solutions to the legitimation and epistemic crises, change must occur on all levels and from all the experts in a given field. The public cannot socially sanction an institution's rules if it has no belief in the science and officials who provide the research that the aforementioned rules are based on. As time passes, the consequences of not implementing the SCOT model can compound over time when cycles of distrust are formed.

## **SYSTEMATIC DISTRUST AS A CONSEQUENCE OF EPIDEMICS**

Studying survivors of the Ebola epidemic in Africa, researchers Robert Blair, Ben Morse, and Lily Tsai found that "respondents who experienced hardships during epidemics expressed less trust in government than those who did not" (Blair et. al, 2017, p. 89). These hardships, as a consequence of an epidemic, perpetuate a harmful cycle of suffering amongst those in disadvantaged positions, breeding distrust for the institutions in place. More recent research regarding the COVID-19 pandemic found that distrust in vaccines specifically stemmed from a



poor relationship between America's institutions and its citizens in the middle and lower class (Karoub, 2021). Without informed consent, vulnerable populations have been subjected to dangerous medical experimentation and have held onto a distrust of institutions that has spanned generations (Scharff et. al, 2010).

University of Michigan researchers saw that “communities question whether their governments and scientific, technological and medical institutions, represent their needs and priorities” (Karoub, 2021, para. 4), shedding light on another possible explanation for different social groups' distrust. Even when given FDA approval for the Pfizer vaccine (Pfizer, 2021), resistant members of the public opposed the shot and claimed it was harmful. Tragedies such as the 725,000+ documented deaths to COVID-19 in the USA (Worldometer, 2021) can be lessened in the future if trust can be rebuilt between officials and the public.

## **HOW THE BREAKDOWN OF EPISTEMIC LABOR CAN BE RESTORED**

When looking to restore the order of epistemic labor in the United States, the solution must account for the fact that different social concepts impact the adult population's ability and desire to respond to different technical and scientific concepts. In order to effectively change how citizens respond, the combination of these social constructions needs to be effectively wielded in order to cover a wide range of perspectives. Figure 1 on page 9 visualizes multiple examples of social constructions which play a part in the social shaping of technology. These constructions provide a rough checklist for a variety of ways the conventions of society must be interpreted and taken into account when producing any new technical concepts.

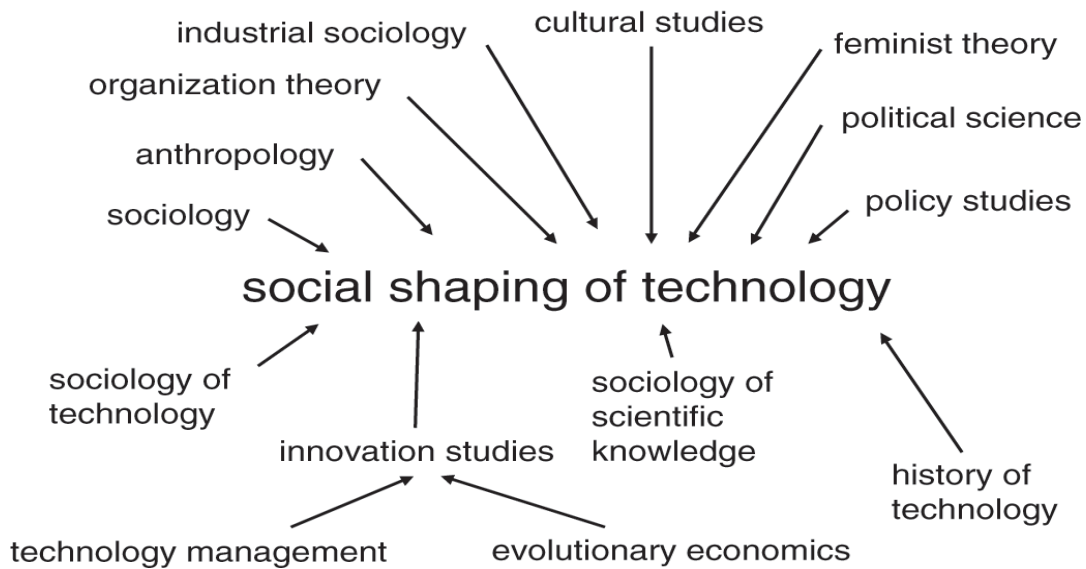


Figure 1: Social Shaping of Technology Model: Various social constructions which play an important role in society’s acceptance of new technologies from *Science, Technology, and Society: New Perspectives and Directions* (Williams, 2019).

The process of accounting for social concepts in technological innovations is the foundation of the Social Construction of Technology (SCOT) theory and is synonymous with the theory of Social Shaping of Technology (Pinch & Bijker, 1984). Social Shaping of Technology, or SST, argues that “the design and implementation of technology are patterned by a range of ‘social’ and ‘economic’ factors as well as narrowly ‘technical’ considerations” (Williams & Hedge, 1996, p. 865). In examining the tightly coupled relationship between both SCOT and SST to the technical thesis, the Meddbase management portal provides an interface for patients to interact not with technological innovation per se, but instead with medical reports which often contain medical concepts and terminology that the patients may not be familiar with. Therefore, the importance lies on Meddbase software engineers to create a portal that factors the various social constructions highlighted in Figure 1. This is so that the consumer, or in this case patient, is able to interact with the information in a way that allows for a fundamental understanding of

what is being relayed instead of potentially alienating patients that are unable to effectively communicate with their care provider. This theoretical alienation can lead to a separation between society and medical facts, laying the basis for the division of epistemic labor.

Referring redundant to the technical thesis and its coupling with that of the STS thesis, further analysis of potential improvements to the Meddbase system can set an example of how to build similar medical systems in the future. Figure 2 on page 10 details another approach to the engineering process, but rather than specifying social constructs it instead introduces the importance of moral judgment and a technologies ethical impact on society.

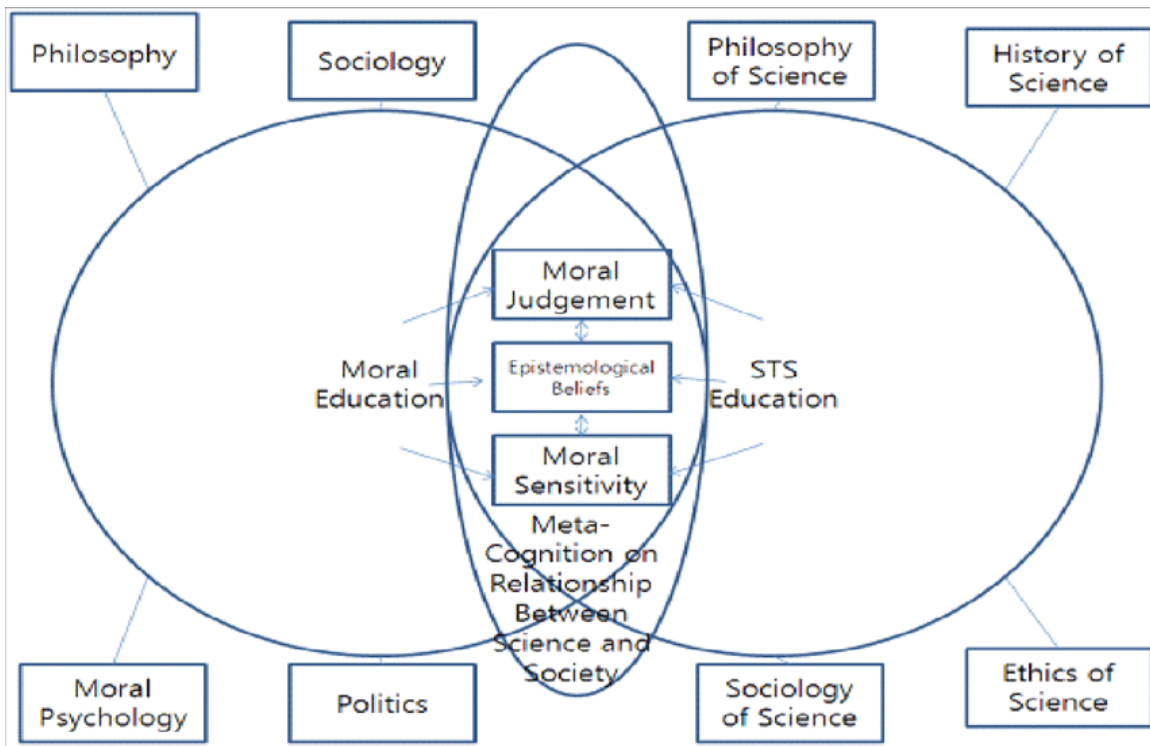


Figure 2: Overlap between moral and STS education in regards to the relationship between science and society (Han & Jeong, 2013).

The introduction of ethical implications is a critical one as generally “people do not think that scientific research includes ethical values or would be ethical or value-based issues” (Han &

Jeong, 2013, p. 372). An engineer has the responsibility to determine the potential risk to public welfare during the research process, no matter what the subject may be. For example, in the case of Meddbase, software engineers must be vigilant that the information being relayed to patients is relevant, or else the consequences could be severe. While a majority of the responsibility lies with the doctor and what he chooses to share with his patients, the accessibility of the system directly impacts the doctors' ability to personalize communication for each patient. Certain treatments may be more effective for different demographics, and by removing the freedom to dictate those differences, engineers are indirectly putting minority demographics at a disadvantage.

### **USING THE CURRENT CRISES TO PREVENT FUTURE SYSTEMATIC FAILURES**

When considering the epistemic and legitimation crises, analyzing the speed at which misinformation and distrust spread is the first step in solving each crisis. According to the research of Morelock and Narita, “the legitimation crisis is accelerated with the fast contagion—connected to the mobility of globalized world—and the weak public policy, especially in the United States and Brazil, with delayed responses and negationist moves by the governments” (Morelock & Narita, 2022, p. 17). The pandemic, while devastating, has given experts the opportunity to prove from an unbiased perspective that the current format of scientific discovery and consensus removes the average citizen from the process so emphatically that any published findings are no longer discussed as established knowledge.

The results of the STS thesis state that a more conscious inclusion of social constructs and ethical implications during scientific discovery and technological innovation can lead the

way to recover from the current epistemic and legitimation crises. For any future discoveries and new products, or even for the maintenance of current technologies, this finding should guide those in positions of expertise. Experts will be able to both conduct effective scientific discourse in addition to bringing attention to moral concepts, especially given that “moral dilemmas and issues about scientific discovery, in particular about the acceptance of scientific hypotheses and the conduct of scientific inquiry can offer a fertile condition for moral discussions” (Han & Jeong, 2009, p. 371).

Making a notable effort to enact these changes now is still important. While researchers argue the consequences of ignoring the intersection of public belief and expert opinion have already caused countless deaths, the academic community still has a moral obligation to change the fundamentals of the current system if it will improve the safety of society in the future. However, while implementing these ideas is a necessary step in resolving said crises, there are still potential difficulties that should be acknowledged in order to increase the likelihood of rectifying the epistemic labor disparity. In his analysis of re-establishing the proper chain of expertise, Špecián highlights three potential major pitfalls:

- (1) Domain uncertainty: the problem at hand does not map neatly onto the recognized expert specializations.
- (2) Peer disagreement: putative experts’ testimonies are mutually inconsistent, and the public’s ubiquitous meta-expertise does not suffice to identify the epistemically superior position.
- (3) Absence of credible third-party meta-expertise: institutional meta-experts best positioned to facilitate the ‘true’ expertise’s democratic legitimacy are compromised by conflict of interest (Špecián, 2022, p. 175).

The success of creating a safer and more trusting general population relies on experts and creators of future works. These creators should be able to recognize the pitfalls laid out by

Špecián and prepare for them while continuing to employ a high level of social and moral consciousness.

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