

ESSAY COMPETITION: PRIZE QUESTION 2020
WHAT CAN SCIENCE ACHIEVE DURING PANDEMICS?

INSPECTING TEMPORALITY: DISENTANGLING SCIENCE AND “THE CURRENT SITUATION”

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TO KNOW OR NOT TO KNOW – THAT’S NOT THE QUESTION

Our essay is a contemplation of one possible answer to the question of what science can achieve in pandemics. In good scientific tradition, before delving into the infinite depths of this timely question we would like to clarify its assumptions. The most obvious one being that science *can* achieve something during pandemics. In other words, science is endowed with agency¹ – a dangerous premise in the sense that it risks omitting who is behind science and in what ways. Yet, it’s a worthwhile task to undo the hazy veil of that assumption and to look more closely at what it speaks to: who is doing what and how in the name of science? In our view, a related worthwhile question is about what science *cannot* do. After all, science is but a mode of knowledge production². So one cannot take for granted that scientifically gained knowledge is utilized to any specific end.

Another assumption of the question is that science can *achieve* something. Paraphrased according to the definition of the *Oxford English Dictionary*, science can “successfully bring about or reach a desired objective or result by effort, skill, or courage” during pandemics. But who gets to define what desired objectives are, and by which criteria they are to be evaluated, depends on power relations. Judged by their own quality criteria, scientific practices can achieve no more and no less in a pandemic than otherwise: they can create knowledge. Knowledge production relies and builds on knowledge that is already available to establish new knowledge. Whether science has an obligation to understand its achievements differently during a pandemic is a question that brings us right to the heart of the debate of whether and how science should serve the public interest – a normative debate we will not go into in this essay. Assuming that knowledge gained from science *could* serve public interest, we must stay attuned to who is in a position to mobilize that knowledge to achieve a greater public good however defined.

Suggesting that science can achieve something *during pandemics* that cannot be achieved otherwise, seems like a treacherous approach to us. Science is an activity and societal domain in which highly specialized professionals apply intellectual and practical methods established by consensus to gain greater knowledge about a particular phenomenon³. No branch of science suddenly obtains new definitions of scientific rigor and scientific objectives when the WHO proclaims a pandemic. Nor do scientists obtain magical powers that enable them to answer questions posed in public debate. But how does the mutual relationship between science and society at large

¹ i.e. with the capacity to act

² Whether one adheres to a positivist (science describes the sole reality) or a constructivist view (science is a way of making meaning of the multiple socially constructed realities) of the world.

³ In this essay we discuss the potential of science as an institution. For that purpose, we talk about science as what it can deliver at its best. We are not idealizing actual scientific practices, and we are well aware that more often than researchers would like to think, scientific actors behave hypocritically and/or cheat the system of scientific knowledge production for their own good.

change when high societal expectations appear? We doubt that pressure can affect the grammar of scientific knowledge production. Yet, financial incentives such as funding schemes or a race to the first COVID-19 vaccine do affect what research is done, and which is forborne. The precious resource of time that is so decisive for scientific advancement, takes on a completely different meaning when expectations are high and time is considered scarce. In what follows, we draw attention to the embeddedness of science in larger societal relations and then describe how we understand science to work. We maintain that science follows a different timeline than the crisis-induced sense of urgency may demand. In our view, science needs to be able to follow its own timeline for it to continue to function, i.e. for it to be able to continue producing knowledge. Whether and how one applies this knowledge, is a next step and rarely up to the scientist to decide.

We reflect on our observations and experiences of the current pandemic of COVID-19. Knowing that pandemics, or at least their potentiality, are an ever more common phenomenon, we hope our contemplation not to be taken as limited to the here and now. Occasionally throughout the essay we turn to examples beyond the ongoing pandemic to demonstrate the larger validity of our thought.

WHO DOES WHAT: THE LIMITATIONS OF SCIENTISTS AS WORLDLY ACTORS

More often than not, invoking science (in the same sentence as pandemic) will lead the audience to imagine natural science to matter, if not to narrow it down even more strictly to biomedical disciplines. Although nearly everyone has been socially impacted, i.e. by economic changes or by political decisions redefining the barrier between the legal and the illegal, there is no broadly shared consciousness of social sciences holding knowledge that is important for decisions that affect our everyday lives. It is true that not all sciences are equally spotlighted in the media during the current pandemic: professional opinions of virologists and epidemiologists are broadly given the floor⁴. Mainstream media were constantly covering what natural sciences had to say about the ongoing pandemic and ignoring what social sciences had to say about it. Along the way, no opportunity to spread nationalistic sentiments was missed⁵. Different scientific domains had different capacities to influence society-in-pandemic from the outset because of broader societal dynamics of appreciation and depreciation, of domination and subordination.

Let us give you an example. In German-speaking countries (that have discursively been competing with one another for the image of a better crisis manager than their neighbors), the figure of the virologist Christian Drosten became emblematic of hope for clarity in the plethora of advice to cope with the new normal but also of hope for improvement of the situation. In this narrative, improvement is to be understood as enabling us “to go back to normal”, to how life functioned before the risk of a COVID-19 infection and before lockdowns⁶. But the social scientists whose narratives are critical about the previous “normal” are barely heard. Those scientists can illuminate us on the ways in which health care systems consistently discriminate against specific populations, how the shift to home office would/did affect job security on a global scale, or how it would/did affect gender-based violence and femicide. Viewing knowledge from both natural and social sciences together, it would be more accurate to define “individuals at risk” not only in terms of age and medical preconditions but also in terms of one’s location in the global power hierarchy.

Social scientists were not sought out to talk to the public like biomedical experts when the pandemic began. So some created their own media and took it upon themselves to share their knowledge and concerns about what is

⁴ See [this article in the Guardian](#) for a snapshot of emerging experts in some North Atlantic countries and Australia at the beginning of lockdowns in the West.

⁵ For instance, German, Turkish, Greek, and even Austrian media were quick to claim their national heroes that contributed to the development of the vaccine by BioNTech and Pfizer. [This article](#) claims an Austrian to be “the father of the corona vaccine”.

⁶ What seemed scary about contracting COVID-19 is that there was no known effective way of healing or treating it. But how is that different from Malaria, Ebola or AIDS, for example? The most obvious observation seems to be that COVID-19 equally affects white people.

to happen if no action targeting specific deplorable circumstances is undertaken⁷. Their critique is sharp and as timely as ever, one could easily derive a mode of action. Yet, none followed. Even if their opinions had been broadly broadcasted in mainstream media, the political will required to do something about the raised issues would remain lacking. What social scientists *could* contribute during pandemics, is identify and explain relevant social relations. They could instruct us about these relations that were constructed bit by bit over the course of history. Social relations do not emerge out of nothing when a pandemic or any other type of crisis is proclaimed by politicians and policymakers (many of whom would say that the pandemic or crisis “hits”). Many known inequalities and their underlying power relations were exposed in new ways rather abruptly approximately a year ago in wake of the first so-called lockdowns worldwide: the burdens created by the ways in which governments have been managing the present health situation is distributed unequally along lines of intersectionality⁸. Everywhere in the world people of color are disproportionately affected by loss of livelihood, often signifying existential struggle. Women carry a disproportionate amount of the burden associated with both childcare and household, and with what is now called “essential jobs”.

There was a period during the first months of the pandemic when an optimistic prognosis emerged that finally the profound systemic inequalities that became so painfully visible would enjoy greater awareness, and consequently things could change to reduce them. We certainly wish this were true. But unfortunately, we acknowledge that the simple state of having established knowledge and raised awareness for it, does not automatically make those in a position to tackle raised issues actually make an effort. For decades there have been calls for improvement understood as changing the status quo for the better by decreasing inequalities. In some cases, policy recommendations based on scientific insights are fairly straight forward: legalizing sex work and abortion or investing more in social reintegration rather than in jails and armed forces would significantly improve the everyday conditions of many people. Nevertheless, in terms of achievement, not much can be done for society at large from speaking strictly within science. In terms of scientific achievements, we find it quite impressive that many extremely sharp social analyses were published and that paths to an effective vaccine were found despite hampered working conditions.

What is unfortunate, if not to say shameful and disgraceful, is that the uneven expectations of different scientific domains have real-life consequences for those who are in the most difficult situations. We do not intend to make any generalizations about the appreciation/depreciation of different scientific domains. The case of Didier Raoult demonstrates that you can be a professor, a medical practitioner, and policy advisor and still be accused of being polemical and ultimately face charges⁹. The case of Jean-Dominique Michel shows that not everything that sounds scientific and has considerable coverage is scientific¹⁰. One must look very closely at who does what in the name of science.

KNOWLEDGE VS. DISINFORMATION

Whatever drives Didier Raoult’s or Jean-Dominique Michel’s contentious public assertions, scientists are facing increasing pressures of disseminating their research results, and a pandemic can present the opportunity to get hold of visible spaces to do so. This is a very dangerous requirement of researchers. Because of the associated time commitment there is an inherent tension between being dedicated to advancing research and being dedicated to communicating one’s research, e.g. to share knowledge with the public or advise policymakers. The rules of the game of being a “good” scientist are flawed: the bigger the pressure on scientists to disseminate their knowledge,

⁷ See [this blog](#) for an example.

⁸ Intersectionality is an analytical framework developed by Kimberlé Crenshaw to understand how people’s social and political identities combined create modes of privilege and discrimination. Race, gender, caste, sexuality, political orientation, disability, religion, appearance etc. are all factors relevant to one’s advantage or disadvantage.

⁹ See [this article](#).

¹⁰ See [this interview](#) with a man who claims to be a medical anthropologist.

the more slippery the slope from producing knowledge to advancing one's career. The present moment bears a real danger of creating a science based on (career) interests as opposed to facts, much like what has become the norm in politics. Without condemning some interventions to be plain misleading and others overdue, science as an institution should seriously tackle the question of how to disseminate scientific knowledge in a sustainable way. By sustainable we mean that it should be guaranteed by structures in place rather than depend on the goodwill and capacities of individual researchers. Oftentimes scientists are overloaded with various tasks and simply do not have the capacity to share their knowledge outside of scientific circles in meaningful ways. Of course, researchers should not entirely withdraw from public discussions of their findings. That would be an invitation to misunderstandings and misinterpretations, to the spread of false information, and a sense of being lost in (dis-)information that could fodder conspiracy myths¹¹. Effective dissemination of scientific knowledge could boost trust in science as a type of knowledge production, at least for a part of the population. Of course, many people would simply remain interested in other things.

As for societal responsibility, it is crucial that politicians make informed decisions. Multiple scientific communities have known about the increasing risk of pandemics for decades, and this knowledge has informed policy papers about pandemic preparedness plans since the late years of the 20th century. Yet many cities saw themselves unprepared when their governors could no longer ignore that COVID-19 affected their cities too. In the present post-truth era one cannot expect scientists to be able to scream louder than politicians who manipulate the population with tales and polarize emotionally, a practice increasingly normalized. Possibly, it's even too optimistic to think that knowledge is able to form the basis on which political decisions are made. Many politicians may simply be busy accepting the rules of obtaining political power and cannot dedicate the necessary time to informing themselves while remaining in a position of political power. Either way, the language that politicians invigorate influences the way the population perceives the matters at stake. What should we make of it when not only politicians but also shop owners and simply people in private conversations start to employ newspeak and talk about "the current situation" instead of openly saying what they're referring to?

Nevertheless, in an optimistic world, an informed general public could pressure politicians to make informed decisions. The interesting thing with conspiracy myths is that it seriously challenges scientific knowledge¹². Conspiracy myths have existed for centuries, if not millennia. While some of them seem far-fetched (such as that the world is flat), others are much more difficult to discern. Let's go back to the example of the medical scientist Didier Raoult. He claimed that chloroquine could heal COVID-19 in March of 2020. This claim was picked up by the media and quickly went viral resulting in conspiratorial contemplation on why some doctors may be refraining from making use of it and why some politicians may be continuing to claim no treatment exists. Skepticism started to grow in the scientific community too about the medication's effectiveness, and by now it is widely accepted that chloroquine is not helpful for treating COVID-19. Notwithstanding today's clarity, back in March 2020 things were much fuzzier and nobody could have predicted with certainty what we now know. To further complicate the picture, in June 2020 *The Lancet*, one of the most renowned journals for medical research worldwide, published an article that claimed that chloroquine was even dangerous when used to treat COVID-19. The article was retracted only two weeks after its publication.

For someone not particularly conversant with contagious diseases who simply follows the news, i.e. for most people, the nebulous flow of information can quickly become destabilizing: What to believe? Particularly coupled with the populist agitation of our times, it's a plausible thought that the media are putting up a show conducted by powerful agents just to play mind tricks on us in order to better manipulate us. Conspiracy myths are a phenomenon to be taken very seriously, and their importance will most likely only become greater in the future. Beyond playing a decisive role for those who believe in them, they can affect the ways in which science is perceived

¹¹ We prefer the term conspiracy myths over conspiracy theories. For an interesting account of the difference tune into [this episode](#) of "Ganz offen gesagt".

¹² They have a wonderful capacity of incorporating whatever argument is brought forward to counter them into their own narrative. As such, they are immune to epistemic claims and irrefutable.

by the general public, as they pick up elements from scientific knowledge production and encase them in their own narratives to give them another meaning. In times like ours in which it's becoming more and more common to have one statement stand against another without evidence, one can only expect the distant observers of new knowledge to become increasingly confused.

SCIENCE'S LACK OF INDEPENDENCE

Much like whether the public can push for political action, the extent to which the general public's opinion can have a leverage on the ways in which science is done and whether it's done at all remains open. Certainly, those in the positions to do so, heavily influence which research¹³ is done and therefore which knowledge is given a chance to be scientifically produced by offering specific funding schemes. We have seen one COVID-19-related fund announced after another across disciplines ranging from computing to physics and anthropology. What has been less visible, is the deletion of previously existing funds from which resources were pulled. Science is limited in its response to crises such as pandemics not only because of its dependence on society at large, e.g. on decisions about funding sources, about closing, merging or (re-)opening both public and private research institutes. There is further a big discrepancy between the temporality to which science preferably adheres in order to conscientiously produce knowledge, and the temporality proclaimed necessary by authorities in times of crises.

The urgency perceived in pandemics, e.g. to protect the vulnerable, to develop a vaccine, to make a living, works in favor of conspiracy myths that are established fairly fast rather than science that is much slower in obtaining new knowledge. Science is mainly concerned with building knowledge that relies on logical reasoning and seeks consensus by debating, questioning and challenging findings. Its querying is so profound that oftentimes an endless awareness of not-knowing trumps the sense of knowing¹⁴. One can think of it as producing uncertainty rather than inviolable knowledge. Always deconstructing, happy to be challenged and to rethink. A scientific theory is said to be true only until the next, more accurate one, disproves it. According to scientific methodology, one cannot verify or prove anything, one can only falsify. While this can come across as destabilizing – especially compared with the comforting binaries of conspiracy myths and populism –, it is what makes the strength of science. Through its erosive process of creation only the most persistent concepts and theorizations survive. This step-by-step process would be important to communicate broadly alongside scientific results for people outside of science to understand that the discomfiting uncertainty is not at all an evil but a necessary (and delightful if you ask us) part of the process.

This type of knowledge needs time to come into being. Before a notion becomes widely accepted, it is proposed in one work, criticized in the next, refuted in another, praised by yet another, and explored from various vantage points in many more. There are considerable lapses of time between all these steps that are filled with (thought) experiment, reflection, and deduction. Researchers need time to take the risk of asking big questions and of not finding (immediate) answers, to carefully think about them, to distance themselves from the questions' adjacent realities, i.e. from its real-world context. Although it's only considered a standard procedure in the most defunded of social sciences, researchers of probably all disciplines would benefit from taking the time to distance themselves from their own selves: to undo their own preexisting conceptions and to deliberate how their own intersectional being may focus their attention on one aspect over another or change their approach to the object of study altogether¹⁵.

In spite of science being about real phenomena, we think it best for it to be free of fixed ideas of application in the moment of fundamental knowledge creation. This is not to say that scientists should just naively pursue a line of

¹³ We view the process of scientific research to be the path ultimately leading to scientific knowledge.

¹⁴ In contrast, conspiracy myths are powered by the need to get a sense of stability and of obtaining control again. See [this recent paper](#) that discusses this point through the example of COVID-19.

¹⁵ In social theory this process is known as reflexivity.

inquiry. One ought to seriously think about whether one is comfortable with producing knowledge that enables certain decisions affecting society at large in the future. (We all know the example of the atomic bomb and the ethical dilemmas the involved researchers faced.) If the body of knowledge one is working on seems ethically sound, we are convinced that researchers should take the time to think about its possible applications instead of rushing from one urgency to the next. Especially when there is reason to believe a scientific epistemology could diminish suffering, every researcher should think about whether they could inquire into something helpful with their highly specialized toolset. However, the ability of science to identify pathways of diminishing suffering are not limited to moments of crisis such as pandemics. But to walk that pathway is a next set of steps; this walk could never become the principal driver of scientific insight.

Actually, this two-step process of creating applicable scientific knowledge is exactly what we witnessed when it became known that the whole of humanity is affected by a virus that was given the name SARS-CoV-2: if scientists had not previously taken the time to be guided by their curiosity that took them on insightful detours, we would have known much less to nothing about coronaviruses at the outset of the pandemic. We would for example not have known enough to develop a vaccine within a year¹⁶. Also, more transversal knowledge such as how to detect the virus through a PCR test or how to detect specific antibodies may have also remained unknown. Of course, not all perspectives discovered and explored on an intellectual detour will be of interest for direct application or even yield enough insight to be considered new knowledge. And yet, they are all important stepping stones for a rounder understanding of an inspected phenomenon – the sole achievement science can make autonomously and in dignity.

¹⁶ Although of course businesses could have collaborated to achieve better results instead of taking it as a competition.