

COMMENT

Crafting of cognitive institutions for overcoming the COVID-19 pandemic

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Abstract

Pablo Paniagua and Veeshan Rayamajhee (2021) propose an Ostromian polycentric view on coronavirus disease-2019 (COVID-19) preventative measures co-produced by the state and citizens. I argue that we should also use another Ostromian approach – ‘crafting of institutions.’ Focusing on the crafting of cognitive institutions allows us to understand the co-production of virus containment in all its complexity. Combining the ‘crafting cognitive institutions’ and ‘boosting’ approaches will allow for the creation of institutionally and behaviorally informed anti-COVID policy interventions in line with polycentric pandemic governance.

Key words: Boosts; cognitive institutions; co-production; COVID-19; pandemic governance; polycentricity

1. Introduction

National governments are the main actors enforcing preventative measures to contain the coronavirus disease-2019 (COVID-19) pandemic, focusing on top-down policies and sanctions. Now it is becoming more and more evident that this is an inadequate and ineffective paradigm that exaggerates the importance of state-led strict measures and diminishes the role of citizens’ agency. Building on Elinor Ostrom’s legacy, Paniagua and Rayamajhee (2021) develop an alternative to the dominant paradigm – a polycentric approach to pandemic governance. According to this approach, governments worldwide should view citizens (and other non-state actors) as essential co-producers of preventative actions.

The essence of the co-production concept is that producing most public services requires the active participation of service users. For example, qualified doctors and well-equipped hospitals alone cannot improve the health of citizens; the citizens themselves need to lead healthy lifestyles and take care of their health. As we saw during the pandemic, any individual government is limited in its ability to enforce effective preventative measures. In the polycentric governance view, both individual citizens and various non-state actors, together with the state and local authorities, should participate in the co-production of anti-COVID measures. Moreover, citizens can be seen as potential user-innovators who create new behavioral norms and new organizational forms of joint activity.

I argue that a polycentric approach to pandemic governance can be strengthened by incorporating another of Ostrom’s inventions – a ‘crafting of institutions’ approach. Crafting of institutions, according to Ostrom, refers to a bottom-up evolutionary process by which multiple actors ‘artisanally’ develop satisfactory practical rules-in-use. Through artisanship, these informal institutions are well adapted to the specific features of communities and can adjust to changes in these communities’ physical and social environments. The crafting of institutions is a creative, improvisational, and experimental process of trial and error and mutual learning. Therefore, crafting institutions ‘is not a ‘one-shot’ decision in a known environment but rather an ongoing investment in an uncertain environment’ (Ostrom, 1992: 41). Elinor Ostrom explained the concept of institutional crafting using various

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examples of self-organized, long-enduring irrigation institutions in developing countries. But she stressed that this approach is universal because '[l]earning to craft rules that attract and encourage individuals who share norms of reciprocity and trustworthiness ... is a fundamental skill needed in all democratic societies' (Ostrom, 2005: 133). This thesis is of particular relevance in connection with the COVID-19 pandemic.

We can consider the co-production of COVID-19 preventative measures as crafting of institutions, namely, of behavioral norms and rules related to the observance of antiviral restrictions (including physical distancing, wearing masks, vaccinations, and quarantining). Adherence to behavioral norms to curb the spread of the COVID-19 virus is very much the result of co-production by the state and citizens. The state plays an active role in crafting institutions (Ostrom, 1992: 14), but this is only as co-producer. Government efforts are necessary – but not sufficient – to counter the pandemic. Therefore, in the spirit of the Ostromian approach, government officials first need to enhance the capability of citizens and non-state actors to craft their own anti-COVID institutions (rules-in-use) in cooperation with central and local authorities.

But before behavioral rules-in-use for countering COVID-19 can be co-produced, necessary cognitive institutions must be co-produced too. These cognitive institutions are shared cognitive rules, shared cognitive norms, and shared mental models that underlie behavioral norms and rules (see Greif and Mokyr, 2017; Petracca and Gallagher, 2020). I will add that the cognitive institutions are not ready-made, complete, and static shared mental models but unfinished, ongoing, shared mental models that are constantly co-produced and reassembled by various actors. Cognitive institutions can instead be seen as 'shared mental processes' (Petracca and Gallagher, 2020: 753) through which existing shared mental models become objects of reinterpretation, clarification, addition, questioning, argumentation, criticism, etc. Digital technologies have greatly expanded the ability of citizens to craft cognitive institutions. When we like, repost, or comment on social media posts, we become digital co-producers of cognitive institutions. In turn, cognitive institutions are environmental resources that are immanently involved in human cognition. People think about and interpret the world around them in terms of cognitive institutions, and they are the basic building blocks for institutional change. The crafting of cognitive institutions should be at the heart of polycentric pandemic governance.

Combining the three approaches – 'co-production', 'crafting institutions', and 'cognitive institutions' – into the novel notion of co-producing cognitive institutions will allow us to understand the multifaceted complexity of pandemic governance. In particular, this notion will enable us to focus on the how question: specifically, how do citizens engage in the co-production of different cognitive norms associated with COVID-19 preventative measures and how can we involve more citizens in this co-production using 'soft' policy interventions?

2. Understanding the cognitive-institutional diversity of the pandemic

Cognitive norms, like behavioral norms, are co-produced by multiple actors with differing interests, values, and worldviews. As a result, citizens become active co-producers of preventative measures and active co-producers of alternative norms related to medical mask resistance (anti-masking), non-compliance with physical distancing, and vaccine hesitancy. The production of heterogeneous cognitive and behavioral norms is the flip side of co-production; it is an inherent feature and not just an 'additional hurdle' to polycentric governance. Many citizens worldwide have become co-producers of cognitive norms associated with COVID-skepticism, COVID conspiracy theories, and anti-vaccinationism; social media technologies contribute to the widespread dissemination of these norms. Consequently, destructive behavioral norms are becoming widespread, including wearing masks incorrectly, only formally complying with physical distancing requirements, self-quarantine violations, and buying fake vaccine passes. These norms are produced in all communities in parallel with the co-production of preventative measures.

At the same time, the cognitive institutions associated with COVID-19 are unable to compete on an equal footing. Governments worldwide have introduced COVID vaccine passes, strict masking rules,

physical distancing requirements, and mandatory vaccinations for specific groups of citizens. In addition, there are numerous restrictions for unvaccinated people (such as lockdowns, fines, and bans on entering shops, restaurants, concerts, and cinemas). These are unprecedented measures of state control over individual choices in peacetime. The situation bears little resemblance to a free ‘market for ideas’ with limited governmental regulations. And despite these strict measures, a fifth of Americans, for example, position themselves as ‘anti-vaxxers’ and consider this a feature of their social identity (Motta *et al.*, 2021). In many countries, there is strong resistance against the anti-COVID measures. Therefore, positive decisions regarding vaccination, mask-wearing, and physical distancing should not be taken as resulting from the internalization of ‘good mental models’; a significant share of these decisions were forced, and the potential number of anti-vaxxers and COVID skeptics is likely to be much larger.

Information about the pandemic was mainly disseminated by ‘big players’ – like the World Health Organization, national governments, public health leaders, the scientific community, and mass media – whose actions can cause large groups of citizens to think similarly. However, in the case of co-producing cognitive institutions, the role of ‘minor players’ is no less important. After all, the information distributed by the ‘big players’ is repeatedly transformed in the media systems of real, virtual, and hybrid communities. ‘Minor players’ don’t just pass on the information they receive from ‘big players’ unchanged; they make changes, additions, comments, and assessments and add criticisms, emotions, rumors, and narratives to it. Thus, shared cognitive norms and mental models are likely to change and are constructed collaboratively by ordinary people from diverse communities (both, communities of place and communities of interest). The followers and propagators of COVID-skeptical mental models hinder the achievement of herd immunity and overall pandemic governance.

Effective pandemic governance is impossible without the crafting and promotion of cognitive institutions that support vaccination, physical distancing, and masking. However, it is naive to think that in the case of COVID-19, we are dealing with a choice between ‘good’ and ‘bad’ shared mental models. Cognitive institutions do not compete in a one-on-one battle; they always compete in ensembles, or, rather, assemblages – messy combinations of heterogeneous elements. Therefore, in reality, ‘bad’ mental models represent a continuum of shared perceptions and beliefs, including ‘for vaccination but against COVID passes’, ‘for vaccination but against mandatory vaccination’, ‘for vaccination but against the production of insufficiently researched vaccines’, ‘for vaccination but against indefinitely recurrent revaccinations’, ‘for vaccination but against lockdowns for the unvaccinated’, and ‘for vaccination but against penalties for refusing to vaccinate’. Contrary to established stereotypes, the shared mental models and motivations that cause COVID-skeptical worldviews and behaviors are highly heterogeneous. Among the COVID skeptics and anti-vaxxers, some believe in science and the real danger of the virus (Maciuszek *et al.*, 2021), while others believe in conspiracy theories or are motivated by other reasons. The COVID-related cognitive-institutional continuum includes fake news and myths deliberately disseminated by organized anti-vaccine groups and spontaneously emerging half-truths and partial mental models created by unorganized anti-vaccine networks. Not only is there ‘no single organized anti-vaccine movement’ (Berman, 2020: xvi), but there is no unified set of anti-vaccine beliefs to fight against. Thus, the co-production of anti-COVID cognitive institutions becomes a non-trivial task.

In addition, we should ‘think of the mental more in terms of dynamical ... processes than in terms of static states’ (Gallagher, 2020: 99). People don’t just internalize shared mental models and use them as static attitudes; they use constantly changing cognitive institutions in their brain–world relations. In this sense, personal mental models are not internal representations of reality; they are rather processes (and simultaneously products) of interactive co-interpretations and co-constructions of the surrounding world. Therefore, the shared beliefs of pro-vaccine and anti-vaccine camps evolve dynamically over time: they are ongoing and crafted both online and offline. Although this is often overlooked, policy-makers deal with different sets of unproductive cognitive institutions at each instance.

3. Choosing and crafting cognitive institutions in a pandemic setting

Why do some people choose anti-COVID cognitive norms and behavioral patterns, while others subscribe to COVID-skeptical beliefs and destructive behavioral norms? Moral motivations, altruism, and social preferences play a decisive role in the first case. In the second, factors such as individualistic worldviews (including selfishness, opportunism, and distrust of the state) and cognitive biases (for example, low-risk perception, optimism bias, confirmation bias, or jumping-to-conclusion bias) ‘outweigh’ precautionary behavioral norms. In addition, there is the multidirectional influence of social identities, such as age, gender, health status, ethnicity, professional status, and political position. In all cases, any personal choice is a complex mix of individual and environmental factors in a particular choice situation.

Both policy-makers and social scientists recognize the influence of sociocultural factors. But, as a rule, pandemic-related decision-making is still considered from an individualistic viewpoint. Yet, people do not just consider the influence of the social and institutional environment when making decisions. Decision-making itself does not take place inside the head. It is an embodied, embedded, extended, and enacted a process of ongoing interactions between the brain, body, and environment (for details, see Gallagher, 2020; Newen *et al.*, 2018). When making decisions about COVID-related behavioral patterns, people constantly use various institutions in their cognition – such as shared cognitive rules, norms, and other mental models. Through cognitive institutions, people collect and analyze information in certain ways. Cognitive institutions are nodes in dynamic interactions between minds and environments. The mechanisms through which cognitive institutions influence cognitive processes (e.g., decision-making or problem-solving) are very diverse and vary widely from fully conscious analytical reasoning to entirely unconscious processes (e.g., intuition or affective reactions).

Personal mental models do not exist in isolation from cognitive institutions. When we use our mental models in cognitive processes, we permanently ‘activate’ external cognitive institutions, ‘connect’ to their network, and ‘update’ our personal mental models. For example, both science-based COVID-19 knowledge and conspiracy theories about COVID-19 are networks of cognitive institutions. Their proponents are constantly ‘uploading’ new arguments, narratives, examples, clarifications, and facts into these cognitive institutions. (Here, I’m drawing an analogy to how different users make edits to shared files in the cloud.) As a result, in each instance, we use somewhat changed cognitive institutions. When we refer to them, we ‘update’ our mental models to new ‘versions’ of cognitive institutions.

Based on cognitive institutions, people develop a set of emotionally charged personal mental models and then glean information to reinforce and support those mental models. In social psychology, these are called ‘attitude roots’, which are ‘the underlying fears, ideologies, worldviews, and identity needs that sustain and motivate specific ‘surface’ attitudes’ (Hornsey and Fielding, 2017: 459).¹ Therefore, the provision of new and more reasoned data and facts to debunk COVID-related myths does not change the views and beliefs of anti-vaxxers and COVID skeptics and may even strengthen them. De facto attitude roots are ‘loaded’ from external cognitive institutions and become powerful decision-making drivers. These include, in particular, worldviews – that is, general cognitive orientations toward the world; identity-related cognitive norms; and shared emotion norms that prescribe ways of perceiving, interpreting, and expressing emotions. Importantly, these cognitive-institutions-based personal mental models ‘are not simply mental states (propositional attitudes), or causal brain states – they are often co-constituted with others, and extend beyond any one individual’ (Gallagher, 2020: 62). Consequently, individual-oriented information activities will be much less effective than joint co-productions of COVID-related cognitive institutions.

In addition to ‘downloading’ external cognitive institutions to ‘update’ personal mental models, people also ‘upload’ new elements into existing cognitive institutions. Thus, people do not just use

¹ ‘Attitude roots’ is a relatively static concept: once formed, these ‘roots’ are only reinforced by new information. The notion of cognitive institutions, on the other hand, allows for a dynamic interactionist perspective on the minds–institutions relationship.

ready-made cognitive institutions as frames for interpreting the world or tools for cognitive processes (similar to notebooks and laptops), they are also constantly crafting cognitive institutions and adding new ideational elements, such as arguments, emotions, assessments, facts, and conjectures. Citizens with the same mental models about COVID-19 communicate and connect on social media platforms, leading to the reinforcement and dissemination of appropriate cognitive and behavioral norms. From the beginning of the pandemic, communities of COVID skeptics, COVID conspiracists, and anti-vaxxers have been actively using social media to craft shared cognitive norms that oppose that of official medicine and authorities. Officials' confusion, conflicting comments, unpopular (and controversial) regulatory measures, and disagreements among experts are used as ideational building blocks to create COVID-skeptical cognitive institutions. The online community played the role of a 'sounding board for anti-vaccination discourse' (Germani and Biller-Andorno, 2021: 1) by co-designing, co-defending, and co-promoting relevant shared cognitive norms and shared mental models.

Of course, during the pandemic, we also see numerous examples of the successful co-production of anti-COVID cognitive institutions. Thus, volunteer activities and self-help groups in many countries help the state co-produce measures to counter the virus, including by co-designing new cognitive norms. COVID-19 fact-checkers around the globe significantly contribute to the co-production of scientifically supported shared beliefs. Healthcare professionals, journalists, bloggers, activists, and ordinary 'netizens' use a variety of hashtags to spread reliable information and coordinate joint actions quickly. Hashtags – such as #VaccinesSaveLives, #ThisIsOurShot, #MasksWork, and many others – have become platforms for co-producing evidence-based, shared mental models about COVID-19. Public health workers, activists, and volunteers organize online groups and networks to rally against mis/disinformation about COVID-19 on social media and to promote productive cognitive norms and rules.

And yet, so far, the co-production of anti-COVID cognitive institutions is happening spontaneously and is not adequately addressed in pandemic governance. The reason is that pandemic governance is based on outdated cognitive institutions, including the Hobbesian view of human nature, according to which, without state paternalism, citizens will inevitably prioritize their interests (Rayamajhee *et al.*, 2021). Therefore, throughout the pandemic, we see not only new waves of infections but also new waves of lockdowns, travel bans, and other restrictive measures. Pandemic governance is directed mainly toward preventing violations of state-led preventative actions. To paraphrase Abraham Maslow, he who has a hammer sees nails everywhere: similarly, COVID-related institutions based on an understanding of human actors as opportunists paradoxically promote opportunism. Indeed, it is impossible to quickly rebuild existing opportunism-focused pandemic governance institutions for trustworthiness, altruism, cooperation, and solidarity. Policy-makers first need to rethink the idea of citizens as self-interested norm violators and imagine them as morally motivated norm co-producers.

4. Toward a cognitive institutions policy for pandemic governance

In addition to 'hard' COVID-19 preventative measures, such as government mandates, restrictions, and punishments, the state can implement two types of 'soft' (nonregulatory and nonmonetary) anti-COVID interventions.

On the one hand, mainstream economists and policy-makers adhere to the illusion of (boundedly) rational human thinking and believe that individuals form personal beliefs mainly based on logical reasoning. From this rationalistic viewpoint, the main problem is the scarcity or poor quality of information available for decision-making. It is expected that detailed explanations, clear arguments, and more reliable facts will convince citizens to comply with anti-COVID rules. However, experience shows that public authorities cannot convince COVID skeptics simply by providing accurate scientific information and reliable public health guidelines. This is largely because the behavioral norms that hinder anti-COVID-19 measures are often based on shared cognitive norms associated with a heightened and often radical understanding of freedom, human rights, democracy, and social justice. Therefore, straightforward attempts to convince COVID-skeptics by providing them with additional

information are ineffective. Instead, in my opinion, it is necessary to co-produce alternative cognitive institutions that make it possible to bring together opposing views and beliefs.

On the other hand, behavioral economists and policy-makers see the main problem as the cognitive limitations and biases that make people ‘predictably irrational’. From the behaviorist viewpoint, two things can help people make better decisions. First, nudges are targeted changes in the choice situation architecture that imperceptibly force people to correct their decision-making. Examples of anti-COVID nudges are easier access to vaccinations, behaviorally informed instructional posters and visual campaigns, reminder messages, and descriptive social norms. Second, boosts are training programs and tools that can improve the quality of conscious decision-making. Boosts also include simple cognitive rules and procedural routines. The boosting approach aims to upgrade decision makers’ cognitive and motivational competencies ‘by enriching his or her repertoire of skills and decision tools and/or by restructuring the environment’ (Grüne-Yanoff and Hertwig, 2016: 152). With the help of boosts, people learn to correctly understand medical information, carry out fact-checking, and increase their statistical or risk literacy.

Despite their similarities, nudging and boosting interventions are based on fundamentally different theoretical foundations. The nudge concept is based on the heuristics and biases (H&B) research program pioneered by Daniel Kahneman and new behavioral economics. The H&B program showed that heuristics (simple interpretation and decision rules or rules of thumb) are the primary source of systematic cognitive errors. Therefore, nudging helps correct the built-in imperfections of human cognition by imperceptibly steering decision-making. In turn, the boost concept is based on the fast and frugal heuristics (FFH) research program by Gerd Gigerenzer in the tradition of old behavioral economics (Hertwig and Grüne-Yanoff, 2017). From the point of view of the FFH program, adaptive heuristics are pretty helpful, and easy-to-use cognitive rules adaptable to specific environments allow us to make domain-specific or even domain-general decisions efficiently.

While in the case of nudges, decision-makers are not even aware of the impacts exerted on them, in contrast, boosting involves the participation of decision-makers as co-producers of this type of policy intervention, albeit in the relatively passive role of trainees. An essential feature of boosts is that they are developed in advance by expert psychologists and taught in a given, unchanged form; the role of citizens, in this case, is reduced to assimilating knowledge and skills training. Institutional crafting, in contrast, is a multi-faceted co-production process in which all participants play an active role. Crafting cognitive institutions implies shared cognitive norms and shared mental models that are co-created, though not optimally, by the majority of citizens from various social groups and communities.

I believe that boosting is the first step toward a cognitive institutions policy. Anti-COVID boosts include simple rules pertaining to collective intelligence, FFH, and brief instructions (Krawiec *et al.*, 2021). We can say that boosts are simple, intuitive cognitive institutions. Therefore, boosting is an integral part of the crafting or co-production of cognitive institutions. According to Elinor Ostrom, the result of institutional crafting is practical rules-in-use. In my opinion, there is also another result of institutional crafting: shared cognitive rules-in-use and norms-in-use, which form community-specific systems of cognitive institutions. The study of such systems and our participation in their co-production as experts can be a promising area of cooperation between institutional and behavioral economists. This collaboration is crucial for the development and promotion of polycentric pandemic governance.

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