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Public communication and engagement in science: lessons learned from COVID-19

Summary report of a GSF virtual workshop

22 April, 2022, hosted by OECD, via Zoom.

This is the summary report from a workshop that was organised by the Global Science Forum (GSF) to explore the challenges and interesting practices that emerged for communicating scientific information and engaging the public during the COVID-19 pandemic. It examined how to build the public trust, which is necessary for the successful implementation of policies to address crises.

This workshop was the last in a series of events that contributed to a GSF project on Mobilising Science in Response to Crises.

The presentations and video recordings from the workshop are publicly available and the intention is that this report will be made publicly available also as a resource for all interested parties.

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Public communication and engagement in science: lessons learned from COVID-19

Summary report of a GSF virtual workshop held on 22 April 2022

Rationale and key lessons from the workshop

1. The COVID-19 crisis has dominated the public sphere for many months. The desire for rapid news on COVID-19-related developments, and the general interest of pretty much everyone in the world regarding COVID-19, means that science has been in greater demand than ever before. In this regard, the crisis has underlined the challenges of science communication and engagement with society.

2. Traditional media information has frequently been contested by postings on social networks. The role and impact of official communications, mainstream and social media in the public exchange of information between scientists (experts), government (policy-makers), intermediaries (journalists and social media platforms), and citizens evolved during the pandemic and played out very differently in different contexts.

3. At the same time, managing scientific uncertainties that are inevitable during crises, has proven to be a formidable challenge for the scientific community as the traditional debates that usually takes place within the academic system have spilled over into the public domain. That has sometimes led to confusion and distrust.

4. A potential solution for increasing confidence and trust in science is more effective public engagement, but the participatory frameworks and mechanisms for achieving this have had to be adapted to the specific and changing context of the pandemic. Public health and social measures limited in-person contacts and innovative mechanisms had to be developed, making the maximum use digital tools.

5. This workshop explored the challenges and interesting practices that emerged for communicating scientific information by various stakeholders and engaging the public during the COVID-19 pandemic. It explored how to build public trust, which is necessary for the successful implementation of policies to address crises.

6. The workshop produced a number of key messages in this regard which are summarised in the box below.

Box 1. The COVID-19 pandemic has illustrated the need for an evolution of scientific communication during crises

The COVID crisis highlighted the influence of different media sources on the success or failure of public policies

- Social media have played an important role in disseminating information and can strongly influence social behaviour. However, they can be seen as double-edged sword - while they provide very effective tools for enabling wide access to accurate information and catalysing positive behavioural changes, they can also facilitate the rapid diffusion of misinformation.

- Journalists play a major role in influencing public trust (and policy) and hold a special responsibility to ensure and communicate the quality of the scientific information that they use. Scientists need to work with journalists in this regard.
- What constitutes "Good information" during crises is not just accurate information from experts, but what resonates because it is personalised and addresses specific concerns or needs of the audience.

The science system itself needs to adapt its internal debate and communication procedures during crises

- Scientific communication during crisis cannot be restricted to hard data; it must be contextualised. Behavioural and social scientists can play an important role in providing the necessary background for communicating relevant and useful information to different communities.
- Expertise, evidence and opinion must be clearly differentiated when scientists communicate to the general public. Scientists must be transparent about uncertainties and more pedagogic when interpreting scientific evidence as it emerges.
- Fora must be established within scientific institutions to facilitate a constructive dialogue between experts with divergent scientific opinions. This can help to avoid controversies spilling over into the public domain that then lead to lack of trust.

Public engagement can help bridge gaps between science, government authorities and the general public during crises

- Citizen initiatives can play a role during crises to increase trust and compliance with emergency policy measures. However, appropriate conditions for effective citizen engagement need to be established in "peacetime". This includes long-term support for citizen engagement as well as for open data and information infrastructures that can be mobilised and used by citizens during crisis.
- Citizen engagement is hampered by too many obstacles in the scientific enterprise itself. New incentives are required to promote a more inclusive scientific process that recognises a broader definition of expertise.
- Political and financial resources should be increased to support knowledge creation by citizens and to develop new mechanisms through which their contribution can benefit science and policy-making.

Session 1: Scientific information, disinformation, and misinformation: perspectives from communication professionals

Session chair: Julian Thomas, GSF Expert Group (EG) member, RMIT University

7. This session explored the role and impact of official communications and mainstream and social media in the public exchange of information between scientists (experts), government (policy-makers), intermediaries (journalists and social media platforms), and citizens (non-experts and influencers) during the COVID-19 pandemic.

- Case studies presenters: Lu'Chen Foster (Head of health partnerships, Facebook), Takahiro Kinoshita (Deputy-Chair, Covid-19 Navigator Cov-Navi);
- Panellist: Gabriela Capurro (University of Manitoba and School of Journalism and Communication at Carleton University).

8. In her case study presentation, Lu'Chen Foster underlined the growing role of mobile applications in health information and gave an overview of the role that Facebook played during the COVID pandemic. Social media can play a positive role in promoting public health as people are increasingly discovering and engaging with health information on mobile applications. For a company like Facebook, the goal is to enable inclusive access to accurate health information and catalyse positive health outcomes.

9. In the case of the COVID pandemic, the focus was very much on vaccines and promoting vaccine confidence through two types of activity:

- Combatting misinformation by removing false claims that could lead to physical harm; those claims were debunked by public health experts (80 fact-checking partners);
- Amplifying accurate information: this was found to be of critical importance and Facebook set up partnerships with WHO and UNICEF as well as providing 120M$ in advertising credits to governments for information campaigns to promote health and positive social behaviour changes. There was a clear learning curve on how to do this in a crisis, and for example, it was found that in some communities faith leaders were more effective at disseminating messages in comparison to other well-known spoke persons.

10. Facebook used an 'ads' measurement tool to quickly measure the success of those campaigns. The goal was to understand why campaigns were successful/unsuccessful. This involved replication and re-testing across different population segments, and then increasing the budget to scale up successful campaigns. This approach allowed Facebook to have some degree of confidence in how they were amplifying information. A critical lesson learned is that "good information" does not just mean "accurate information", and that the message is more powerful when it comes from someone who is trusted. Facebook developed a COVID vaccine profile frame to allow platform users to express support to friends and families in a way that is specific to social media.

11. Partnerships were also an essential component of the Facebook action plan. For example, partnerships with UNICEF Indonesia and Gavi, the Vaccine Alliance were developed to improve perception of the safety of vaccines. In partnership with governments, WhatsApp and Messenger chatbots facilitated communication regarding vaccine requirements. This changed the way governments communicate with citizens on health issues. The learnings from this experience are applicable beyond COVID to other common health concerns, including mental health, and childhood immunizations.

12. Takahiro Kinoshita described, in his case study, the role of mass media in influencing vaccine trust in Japan, and how public perception was affected by historical legacy during the COVID crisis.

13. Japan is currently one of the countries with the lowest levels of public confidence in vaccines, and this is largely linked to the human papillomavirus (HPV) vaccination programme that took place in 2013-16 in Japan. Approval of the HPV vaccine in 2009 was followed by a national immunization programme in 2013. During the roll out of this programme, the media started to report safety concerns on the basis of a few unconfirmed cases of negative side effects (e.g., chronic pain and cognitive decline). The Japanese Ministry of Health and Welfare withdrew its recommendation for vaccination even though no reliable evidence on a causal relationship had been provided. Media coverage made it difficult to reverse this hasty decision, and although this topic has been largely neglected by the media since 2018, it has had a profound effect on public trust in vaccination.

14. This series of events demonstrated that negative reports on vaccines in the media can strongly affect government decisions, and that once government recommendations are withdrawn, uptake of vaccination can decline strikingly. It demonstrated also that people are liable to attach more importance to the potential negative effects rather than to proven positive effects of vaccines. Scientific and public health experts need to engage directly with the media to help ensure the scientific rigour of the information that they communicate and promote confidence in vaccines.

15. Learning from the HPV vaccine, a Health promotion group, COV-NAVI, was set up at the beginning of the COVID pandemic to avoid a similar experience. This group engaged with a broad diversity of experts and used a variety of communication platforms to provide accurate information and fact-check false or misleading information. In order to go further and try to understand the motivation of people to spread misinformation, Takahiro Kinoshita proposed using the "MICE" model (Money, Ideology, Compromise, Ego) as a starting point. This identifies four major factors that can operate independently or in concert and help explain the spread of conspiracy theories.

16. To introduce the panel discussion, Gabriella Capuro described a Pan-Canadian research project looking at health communication in relation to vaccine hesitancy. This included the role of misinformation, how it flows in social media, and potential action to minimize its impact.

17. Science and health communication face many challenges and require a lot of creativity:

- It is very hard to communicate science and elicit trust in a context of scientific uncertainty where information is changing all the time;
- One of the main reasons for the loss of trust or lack of adherence to public health and social measures is the constant change in information and recommendations, which can create anxiety and a loss of public confidence in health agencies. This is accentuated by misinformation and the politicization of science;
- This is often aggravated in social media in their default role as 'gatekeepers' of information (e.g. algorithmic news feeds can rapidly propagate misinformation).

18. As described earlier by Lu'Chen Foster, access to accurate scientific information is not enough to motivate people to get vaccinated or get tested. More effort is required to develop communication strategies that resonate with the public. To do this, one must move beyond what the traditional approaches that were common before COVID-19. For example, communication campaigns that addressed specific concerns regarding the vaccine have proven to be significantly more compelling and persuasive than traditional top-down vaccination injunction or messages fostering guilt to hesitant populations. It was also underlined that the novelty of the mRNA vaccines generated a unique kind of vaccine hesitancy, which was could not be addressed effectively by adopting previous communication strategies, such as those used for childhood vaccines. Choosing the right person to communicate is particularly important to get the message across. As indicated earlier, the leveraging of community leaders, faith leaders, or scientists with a background in science communication are useful in different contexts. It is not enough to be an expert and there is a need to express empathy and to communicate with people on a human level. Trust drops significantly when the messenger is perceived to have a vested or political interest.

19. The discussion that followed underlined the central role(s) of the journalists during crises. In addition to communication to the public, journalists play an important role in making officials aware of what the public are most concerned about. They play a critical role in framing pubic understand of what is going on and in communicating uncertainties. However, there also have been difficulties in the media in separating what narrative is supported by strong scientific evidence (even with uncertainties) from what remains largely speculative.

Session 2: Managing diverse scientific opinions and uncertainties

Session chair: Tereza Stockelova, Czech Academy of Sciences

20. This session explored how the scientific community, including scientific institutions and individual scientists, can help organise internal and external debate and communicate uncertainties with decision-makers and the general public. It explored approaches for managing a plurality of scientific views, whilst ensuring transparency and avoiding public confusion and distrust.

- Case studies presenters: Anat Gesser-Edelsburg (University of Haifa), Jean-Gabriel Ganascia (CNRS, France)
- Panellist: Tracy Vaillancourt (Royal Society Canada)

21. The evolution of the discourse on COVID within health institutions and towards the public in Israel was at the heart of the presentation of Anat Gesser-Edelsburg.

22. A survey conducted to analyse the perception of physicians towards the COVID vaccine in Israel showed that a significant number had some reservations primarily related to effectiveness and concerns about long-term side effects. These people tended to get vaccinated eventually because of internal pressure and department norms rather than from being convinced through internal discussion. More generally, there was an absence of dialogue between experts advising on and buying-in to government policy and experts criticising government policy. Therefore very little evolution in the opinion of these two groups occurred, each side accusing the other of bias and lack of professionalism, with many personal attacks. The Israeli case raises the question of how the scientific community can manage conflicting views effectively.

23. Scientific facts and scientific discourse are dependent on context, time and, place. This crisis showed that turning public communication into a confrontation between truth and falsehood rather than addressing the main questions of relevance to peoples' lives is ineffective. Opening up decision-making to diverse views, including marginal opinions, is important for identifying potential risks and challenges.

24. Because differences in scientific opinion were not resolved in a constructive way within the health system, scientific controversies spilled over into the general public and this resulted in confusing messages. As was mentioned in the first session, there was a failure to address the public's emotional needs, partly due to the tendency to prefer communicating certainties rather than uncertainties. In addition to the quantitative data as the basis of communication strategies, science and policy actors should acknowledge uncertainty and pay more attention to narratives. Some questions just did not have clear-cut answers and, where there is uncertainty, the general public prefers transparency.

25. Jean-Gabriel Ganascia explored, in his intervention, the potential conflicts that exist between academic freedom of scientists and responsibilities regarding society and what this implies for scientific behaviour during crises.

26. It is important to preserve academic freedom. Disagreements between scientists are part of the normal scientific process and can help move science forward, but those disagreements can also lead to misunderstanding in the general public that is not familiar with how the academic system operates. Academic freedom, which relates to the choice of research topics and of methods in the quest of truth, should be distinguished from free speech, which has particular responsibilities associated with it during crises.

27. During the COVID crisis, some scientists debating government decisions referred to unproven or discredited hypotheses to support their views and this raises questions regarding the ethics of scientific practice and expression. In France, the CNRS ethics committee, which is responsible for scientific integrity, stated that the urgency and pressure of an emergency was not a valid reason for bypassing standard procedures and requirements for sound scientific practice. Reliability and transparency of the scientific methodology should be guaranteed regardless of emergency conditions. While scientists must be able to openly debate hypotheses within the scientific community, their domain of intervention in public debates as experts must correspond with their field of research. It is important to distinguish between provision of qualified expertise that contributes to objective knowledge and personal convictions.

28. As a starting point for the panel discussion, Tracy Vaillancourt gave an overview of how the Royal Society of Canada developed policy briefings and used partnerships with key stakeholders to disseminate timely information to reinforce trust in science during the pandemic. The communication strategy included vetting of experts to avoid strongly conflicting messages and the use of evidence-based messaging, but it was noted that scholars still had their research challenged or discredited when it conflicted with the agendas of politicians.

29. What also emerged was a lack of engagement with behavioural research, culture and social sciences that led to some inappropriate communications and the development of entrenched opinions. This demonstrated the need to review scientific processes related to policy advice and communication during crises and the importance of cultural context in the interpretation of content. Generally, a lack of transparency erodes trust: transparency regarding gaps in knowledge helps policy and science actors to address these gaps and can prevent them from being filled by nefarious actors.

30. Changing the direction of established policy due to new evidence requires careful communication or else it risks being weaponised to discredit previous positions. There was very little tolerance for change of policy direction with COVID-19 and this was exacerbated by several factors, such as misunderstandings caused by obscure scientific language and incorrect information being introduced due to political agendas. Low science and data literacy can limit the ability of journalists and of the general public to ask informed questions and interrogate misleading or incorrect use of scientific evidence, including cherry-picking of data.

31. The discussion highlighted the difficulty to communicate how scientific consensus emerge and what constitute scientific evidences to the public. The public usually does not understand disagreements between scientists and has little tolerance for this as it prefers certitudes. On the other hand, scientists are “trapped by their doubts”, which are inherent in their job, and it is important to communicate this and to explain that scientific knowledge evolves over time and uncertainties do not mean that nothing is known or that no informed decisions can be taken.

Session 3: Public engagement and mobilisation in science and science advice during crises

Session chair: Tereza Stockelova, Czech Academy of Sciences

32. This session explored the role of public engagement through bottom-up mobilization in research and science advisory processes during the COVID pandemic and their potential impacts on the effectiveness of the evidence-based response to crises.

- Case studies presenters: Li-Yin Liu (University of Dayton), Felicity Callard (University of Glasgow);
- Panellist: Barbara Prainsack (University of Vienna).

33. The case study presented by Li-Yin Liu demonstrated how National Epidemic Prevention in Chinese Taipei was linked with bottom up initiatives. The involvement of scientists and other experts in non-profit initiatives aimed at providing trustworthy information to the public existed before COVID-19 and was amplified during the pandemic. In Chinese Tapei, the pandemic saw the mobilisation of "civil hacker" groups, to develop useful tools for the public. These were complementary to, and in synergy with, the government public health policies. Several mobile apps were developed, by civic groups in cooperation with scientists, for a variety of issues: to provide the location of pharmacies were masks were available, contact-tracing or fast-checking.

34. These initiatives proved to be very successful as there is a tendency for people not to trust government officials. Governments try to be comprehensive in their approach but are challenged in seeing the real needs of the public, including vulnerable groups like older people. Rather than governments, civic groups can often identify the needs of the public, and of unique population groups that might need certain services. Fact checking and contact tracing are also liable to be perceived as politicized activities that can create tension between governments and publics. The general public does not like governments policing information. With contact tracing, publics may get the impression that their privacy is being invaded but they are more tolerant to such a policy if it is developed by a civic group, which they consider to be trustworthy.

35. The success of these initiatives was made possible thanks to two important factors: the prior existence of civic groups which most people trusted thanks to their previous role in democratic processes, and the presence of data and communication infrastructures, developed by the government, which could be leveraged during the crisis. These infrastructures included map stores and websites for government released information, which were transparent and easily accessible. The crisis demonstrated the need to move from a top-down/vertical compliance philosophy to a more horizontal and bidirectional communication flow.

36. Engaging the public in research processes was at the core of Felicity Callard's case presentation, with a focus on the "Long COVID" issues. Involving patients in research through participatory approaches and involving patients in research design is not a new challenge and many initiatives have been undertaken in recent years to improve patient engagement but these have usually been led by the scientific or medical establishment.

37. At start of 2020, many people accessed information on the new disease by turning to social media, and as time progressed one of the emerging topics of discussion on social networks was that of prolonged COVID-19 symptoms. Indeed, the term itself "Long-COVID" is taken from a publication that was authored by an all-patient group in May 2020. This was the product of a bottom-up collaborative process between patients, including a survey with 640 responses. The study was a direct challenge to early accounts of mild-COVID and the prevailing assumption that all patients were likely to recover within 2 weeks. Although this study was initially denigrated by some in the academic system, it progressively gained recognition and the persistence of long term symptoms following COVID-19 infection is now widely accepted.

38. This is an emblematic case of patients finding one another on social media and this leading to the emergence of the name Long-COVID. Although the name has been superseded by other more formal terminologies is some professional circles, Long-COVID

carries a lot of weight and remains important as a non-medical term to name an illness in a way that is not stigmatizing.

39. This case shows a shift during the pandemic from the traditional model of patient engagement into a much more dynamic model. However, the experimental observation and openness that characterized the first year of the pandemic response gave way to increasing polarization as Long-COVID was appropriated and 'professionalised' by different parts of the scientific and medical establishment. There have been several studies that have tried to capture a broader range of patient expertise and experience in the context of COVID-19 but there are challenges posed by hierarchies in science and medicine that make it difficult for their contributions to be taken seriously. Exclusion is a major ethical issue that affects the ability of those with Long-COVID to make epistemic contributions. This is reflected in a variety of embedded factors, such as gate-keeping by scientific journals, inability of patient groups to access funding for research or advocacy, the definition of expertise and marginalisation or discounting of heterogeneous expertise from patients.

40. As an introduction to the panel discussion, Barbara Prainsack discussed why there is supposed mistrust in science and why it may seem to have increased during the pandemic.

41. Science entered the public domain during the pandemic in a different way and format than before. Science is typically presented as a breakthrough at the end of the scientific discovery pipeline but in the case of COVID, the public watched science live in the making and was privy to the contradictions that are inevitably part of science in a way that has not occurred to this extent in the past.

42. Anti-science attitudes were typically linked with anti-authority attitudes: this has been demonstrated by many social studies, which show, for example, that vaccine hesitancy is largely a vehicle for political expression. During the pandemic, mistakes were made in the official communications in many countries. Messages need to be consistent and policies need to be effective and fair and seen as such. People will comply with measures they do not like, or even oppose, individually if they consider the whole package of measures to be consistent, effective and fair.

43. As was described in earlier sessions, social determinants were not considered enough by officials. It is important that governments respond to the underlying need of the population and to do this they need to focus on increasing security and reducing uncertainty. During the pandemic response, political leaders and the media bombarded people with statements and information that later turned out to be incorrect or inexact and this had a strong negative effect on trust. The less people have to navigate uncertainties in an already unstable situation, the better and less susceptible they are to misinformation.

44. As was described in the case of Chinese Taipei, civic organizations and other forms of public participation can often provide good solutions but these are not usually seen or taken into account by policymakers because they are not taught to see them or they perceive them as a threat or challenge. There is a need for authorities and scientists to experiment with and adopt new ways of harnessing citizen participation.

45. The discussion underlined the need to widen the expertise engaged in informing policy. There have been clear gaps on the panels of experts being used by governments and questions about who is really being listened to. Whilst it is necessary to better engage citizens and expertise across society, dedicated citizen science initiatives can be a mixed blessing. Sometimes such initiatives are no more than mislabelled attempt to exploit free labour for data collection and crowd-out professional scientists. More support is required to support useful knowledge creation that comes from citizens. Bottom-up initiatives that challenge vested interests are important, but this is often where support from policymakers stops.

Session 4: building confidence and long-term trust

Session chair: Julian Thomas, EG member, RMIT University

46. This session built on the earlier sessions and explored what policy measures and actions might be taken to promote confidence and trust in science in the longer-term. It explored the role of different actors and how they can work together more effectively to improve mutual understanding and trust.

47. Panellists agreed that, in a democratic society, there is no way to prevent the dissemination of misinformation. While there is a general assumption that the generation and dissemination of most misinformation has been carried out by members of the general public, it should be recognised that politicians and experts have also played a significant role in some countries. This top-down spread of misinformation – whether or not it is deliberate - creates polarization, divides populations and is potentially more damaging. Hence policy-makers and experts need to be held accountable for their communications. It can also be important to clearly separate the roles of policy-makers who take policy decisions (that should be evidence-based), and scientific experts who provide data, information and views that inform those decisions. Scientific expertise is only one of multiple inputs to policy decisions.

48. While the dissemination of misinformation is often intentional, one must also recognise that there are a lot of people who unintentionally spread misinformation using social media. Fact-checking by trusted sources can play an important role provided that it is carries out efficiently and rapidly. There are also a number of other longer term policy measures that can be taken to improve digital literacy and manage misinformation on-line.

49. New participatory approaches are potentially very promising for better connecting science and civil society during crisis. There was an openness to how things might be done differently at the beginning of the pandemic response, but unfortunately this gave way to a growing polarization about many aspects of the pandemic response. Conventional scientists perceive that people are relying on the anecdotal experience and lots of things are not evidence-based but people turn to the anecdotal because their concerns have not been registered within the scientific enterprise.

50. To organize science differently and be more inclusive of society, we must consider also who might be missing from the digital spaces that have tended to dominate debates during COVID-19 i.e. minorities without access or an organised platform for their positions or perspectives (vulnerable, older people…). There are a lot of voices that are not adequately represented or part of the discussion at all and there is a lot of existing expertise in grassroots communities on how to bring hidden voices in. It is clear that scientists, service providers and governments need to use multiple ways to communicate and engage with people and take proactive efforts to engage minorities into processes rather than excluding them.

51. Finally, more social science expertise should be engaged in designing science communications. It should not be assumed that knowledge and facts will be accepted by the public just because they are accurate or true. “Good information” is not the same as “accurate information”.