Special Section COVID-19 Pandemic

Science and the Narration of Science: The Shadow Line Between Explanation and Manipulation

Andrea Pensotti[a]*

[a] University Campus Bio-Medico of Rome, Italy

Corresponding author: Andrea Pensotti, Email andreapensotti@gmail.com

Abstract

The current use of science as a political argument reveals an old bias: the idea that science is about truth and therefore is potentially authoritarian. In reality, science is about doubt. The public management of the COVID pandemic should make us reflect about several aspects of our society.

Keywords: COVID-19, media, narration, science.

Disputes on data and observation reliability is not what caused Copernicus' heliocentric model to be unaccepted in the short term. Rather, his model undermined the "main stream" narration of the time.

It is worth noting that the geocentric Ptolemaic model could explain and predict almost every celestial bodies' movements. Hence, the irregularities were seen as a needed update of the model instead of a need for a radical paradigm change (Kuhn 1957).

"*L'amor che move il sole e l'altre stelle*" (Love that moves the sun and other stars)—even a great poet like Dante Alighieri (Paradise, xxxiii v. 145) considered the Ptolemaic model as a truth rather than a model. This is no longer a matter of scientific method but of narration. The popular Indian "blind men and an elephant" paradox (Goldstein 2010, p. 492) (see Figure 1) clearly shows how the implicit premises that lie in our mind and the implicit accepted narratives may affect our personal representation of reality.

Depending on both the point of view and different conceptual premises, one can interpret the same phenomenon differently. When we begin to interpret it, we use words and metaphors. Here lies the "shadow line" between observation and explanation—between science and the narration of science.

A question arises: how can we handle a scientific model or metaphor once it has permeated the collective imagination, which is already full of other representations?

If this process develops inside the scientific community, then everything is fine. Almost all scientists know that they are making interpretations, hypotheses, and models. Scientists know the limit of the models and the circumstances under which a model is reliable or not.

On the other hand, if this process enters in the domain of popular communication and political decision making processes, then things change. This is even more so nowadays, where talk shows have given more emphasis to the emotional part of the talk instead of its reliability (Dahlstrom 2014).

By using emotions to tell facts, the media can obtain a more persuasive message over a scientific one (Jones & Anderson Crow 2017). This is one of the main causes of misinformation that has spread throughout social media (Cinelli *et al.* 2020).
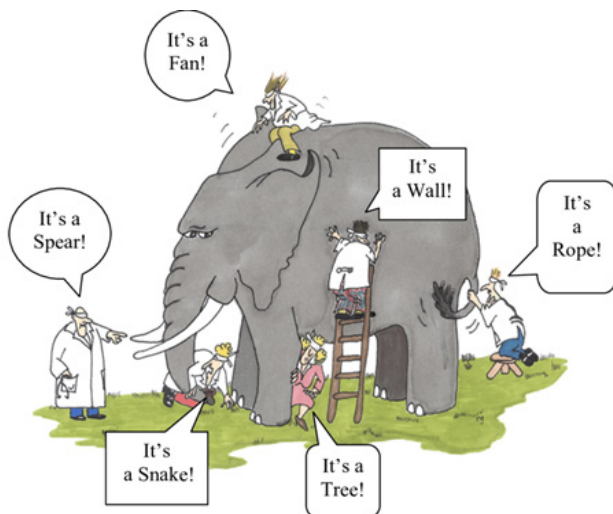
Figure 1: Original cartoon by Anon (CC BY-NC licence).

In fact, the World Health Organization (WHO) warned the public about the risk of *infodemia* during the COVID-19 pandemic.

The so-called "main stream media" launched a communication war against "fake news" to combat the spread of misinformation across social media platforms.

Media are using all their persuasive power in this battle against misinformation. It is worth remembering that, for media, the logic of the show is more important than science. Persuasion cannot be obtained through scientific evidence alone. What matters most is the trust that the narrator (journalist, anchorman, or editor) has from his public. The problem with the ongoing COVID-19 pandemic is that scientific knowledge on this virus has been continuously constructed. Scientists may change their opinion. This is normal under research processes but could be misinterpreted by the general public. Clearly, if this process happens under the spotlight every day, then the result can lead to a loss of trust from citizens who start paying more attention to misinformation on social media.

Another variable to consider is the strategy and the will of the governments that pave the way for the political interpretation of scientific data (Abbas 2020). With all these variables on the stage—data evolution, different scientific models, political interpretation, governmental strategies, and the need for an audience—a good storyteller has to manage the flow of information in order to tell the narrative that best fits the needs of the government/system without leaving space for other interpretation.

The "blind men and an elephant" paradox shows how many variables are available to a narrator who wants to tell his narrative and even politicize it.

For example, take Italy at the beginning of the pandemic where the narrative was: no need to panic. Politicians took pictures of aperitifs among young people just to show that normal life can and must go on.

However, fear among the population grew because media were using expressions like "case fatality rate", meaning the proportion of deaths from a certain disease compared to the total number of people diagnosed with that disease in a given period. It was as if they had meant mortality rate, which is the measure of the relative number of deaths (either in general or due to a specific cause) within the entire population per unit of time. Furthermore, previous news from China had scared the West.

Therefore, TV programs invited experts who tried to explain the difference between these two expressions. This presented the case fatality rate as something deeply connected to the number of cases diagnosed, so a number that is generally stabilized only after the occurrence of the epidemic or pandemic. The takeaway message, as understood by both journalists and the public, was that there was no need to panic—at least in the Italian case.

This narrative met the government's need to reassure the population.

A few weeks later, however, the government's need moved toward preventing a possible spread of the pandemic. They then preferred to put pressure on the population to ensure more compliance to the safety norms.

The narrative needed to shift from "do not panic" to "stay alert, we are under threat."

"*The flu is more harmful than the coronavirus in Italy: But fear raises awareness*" (D'Aria 2020) is a headline from one of Italy's main newspapers.

Those same experts then came back to TV following the same trick of the "blind men and an elephant" under new terms: the R_o, or the basic reproduction number. This indicates the expected number of cases directly generated by one case in a population where all individuals are susceptible to infection. These experts, who had assured the population that the number of deaths were not as high as the "potential/supposed" number of infections, now told citizens that they had to be careful because R_o must be lower than 1 and it is dangerously on the rise instead.

Organisms
Science and the Narration of Science: The Shadow
Line between Explanation and Manipulation

SAPIENZA
Università di Roma

Most likely, journalists and audiences do not know that R_0, according to Wikipedia (entry: Basic reproduction number),

"can be calculated from many different mathematical models. Each of these can give a different estimate of R_0, which needs to be interpreted in the context of that model. Therefore, the contagiousness of different infectious agents cannot be compared without recalculating R_0 with invariant assumptions (…) R depends on many factors, many of which need to be estimated. Each of these factors adds to uncertainty in estimates of R."

But when you match such a delicate concept with adjectives like "dangerous" or "worrying", then the real meaning of data shift toward a fictional narration of data. Headlines suddenly appeared: "Alarm in Germany, R0 Goes up Again" or "R0 on the Rise and so is Fear" or "R0 Leap to 1.13 and Now We Fear a New Diffusion".

This communication could better frame another concept: social distancing. The cognitive process that has been introduced is clear. We need to reduce R0 in order to rescue our society from the virus. If people stay away from each other, then the R0 index will go down. Thus, it is important to respect social distancing and lockdowns.

Daily updates on the R0, hospitalizations, and deaths are meant to encourage like details on burning calories following physical activity do for a person who wants to slim down. It is a motivational process (Verstuyf *et al.* 2012), and it does not matter if the concept of calories still do not clearly and strictly correlate to slimming down (Del Gobbo *et al.* 2018). What does matter is that this concept should be coherently interpreted through a specific narrative that may be untrue but at least effective for a specific purpose.

Science, however, should try to grasp "the elephant" in its wholeness. Temporary disagreement among scientists due to different perspectives are usually solved once a global viewpoint/systemic model is established. Generally, time plays a crucial role in this process.

With COVID-19 still ongoing, it is difficult to establish clear data and general considerations. Nevertheless, scientists are starting to agree on numbers like the global fatality rate, assessed around 0.5–1% (Mallapaty 2020). A recent WHO bulletin outlined that "the infection fatality rates tended to be much lower than estimates made earlier in the pandemic," explaining that "justification for various non-pharmacological public health interventions depends on the infection fatality rate. Some stringent interventions that potentially also result in more noticeable collateral harms may be considered appropriate, if the infection fatality rate is high. Conversely, the same measures may fall short of acceptable risk–benefit thresholds, if the infection fatality rate is low" (Ioannidis 2021).

Furthermore, the average age of death has been 80 years. Accordingly, Mitra and colleagues (2020) focused on the potential lifespan that has been lost.

From a global point of view, the consequences of the COVID-19 pandemic appear to be mild in terms of both general health and mortality if compared to all previous pandemics. Nevertheless, the current narrative diverges from the reality of data (Schwab 2020, p. 12).

Recently, one interesting narrative was proposed by the Director of the World Economic Forum, Professor Klaus Schwab:

"The world as we knew it in the early months of 2020 is no more, dissolved in the context of the pandemic. Radical changes of such consequence are coming that some pundits have referred to a "before coronavirus" (BC) and "after coronavirus" (AC) era … We should take advantage of this unprecedented opportunity to reimagine our world, in a bid to make it a better and more resilient one as it emerges on the other side of this crisis" (Schwab 2020, p. 19).

The author is probably right. However, is this change due to COVID-19 or the current narrative?

In looking for an answer to this question, it is worth remembering the end of Plato's Republic allegory of the cave:

"SOCRATES: And now, I responded, consider this: If this person who had gotten out of the cave were to go back down again and sit in the same place as before, would he not find in that case, coming suddenly out of the sunlight, that his eyes are filled with darkness?"

GLAUCON: Yes, very much so.

SOCRATES: Now if once again, along with those who had remained shackled there, the freed person had to engage in the business of asserting and maintaining opinions about the shadows -- while his eyes are still weak and before they have readjusted, an adjustment that would require quite a bit of time -- would he not then be exposed to ridicule down there? And would they not let him know that he had gone up but only in order to come back down into the cave with his eyes ruined -- and thus it certainly does not pay to go up.

SOCRATES: And if they can get hold of this person who takes it in hand to free them from their chains and to lead them up, and if they could kill him, will they not actually kill him?

GLAUCON: They certainly will."

References

Abbas A H 2020, "Politicizing the pandemic: A schemata analysis of COVID-19 news in two selected newspapers", *International Journal for the Semiotic of Law,* July 3 [ahead of print]. Available from: https://doi.org/10.1007/s11196-020-09745-2

Bruce Goldstein E 2010, *Encyclopedia of Perception*, New York: SAGE Publications.

Cinelli M *et al.* 2020, "The COVID-19 social media infodemic", *Scientific Reports*, vol. 10, article no. 16598. Available from: https://doi.org/10.1038/s41598-020-73510-5

"Coronavirus, Zingaretti aperitivo pubblico a Milano: "Niente panico, isolare i focolai. Il governissimo? Non c'è la crisi" 2020 (27 February), *Repubblica* [online] https://www.repubblica.it/politica/2020/02/27/news/coronavirus_zingaretti_contro_il_panico-249718891/

"Coronavirus, Galli: "Fatti pochi tamponi, il numero dei contagiati è più alto di quello ufficiale" 2020 (13 March), *Repubblica* [online] https://video.repubblica.it/dossier/coronavirus-wuhan-2020/coronavirus-galli-fatti-pochi-tamponi-il-numero-dei-contagiati-e-piu-alto-di-quello-ufficiale/355754/356320)

Dahlstrom M 2014, "Using narratives and storytelling to communicate science with nonexpert audiences", *PNAS*, vol. 111, no. 4, pp. 13614-13620.

D'Aria I 2020 (12 February), "Coronavirus, in Italia fa più danni l'influenza. Ma il timore del virus ci rende più attenti", *Repubblica* [online] https://www.repubblica.it/salute/medicina-e-ricerca/2020/02/12/news/il_coronavirus_fa_paura_l_influenza_no_ma_si_rispettano_di_piu_le_regole_di_igiene-248416492/) .

Gardner *et al.* 2018, "Effect of low-fat vs low-carbohydrate diet on 12-month weight loss in overweight adults and the association with genotype pattern or insulin secretion: The DIETFITS randomized clinical trial", *JAMA*, vol. 319, no. 7, pp. 667–679. DOI:10.1001/jama.2018.0245

Ioannidis J P A 2021, "Infection fatality rate of COVID-19 inferred from seroprevalence data", *Bulletin of the World Health Organization*, no. 99, pp. 19-33F. Available from: https://www.who.int/bulletin/online_first/BLT.20.265892.pdf.

Jones M D & Anderson Crow D 2017, "How can we use the 'science of stories' to produce persuasive scientific stories?", *Palgrave Communications*, vol. 3, article no. 53. Available from: https://doi.org/10.1057/s41599-017-0047-7.

Kuhn T 1957, *The Copernican Revolution: Planetary Astronomy in the Development of Western Thought*, Cambridge: Harvard University Press.

Mallapaty S 2020, "How deadly is the coronavirus? Scientists are close to an answer", *Nature*, vol. 582, pp. 467-468. DOI: https://doi.org/10.1038/d41586-020-01738-2

Mitra *et al.* 2020, "Potential years of life lost due to COVID-19 in the United States, Italy, and Germany: An old formula with newer ideas", *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, p. 4392. DOI:10.3390/ijerph17124392.

Schwab K 2020, *COVID-19: The Great Reset*, Cologny/Geneva: Forum Publishing.

Tebano E 2020 (2 May), "Coronavirus, come si calcola l'indice di contagio R_o da cui dipenderà quando potremo tornare a uscire", *Corriere della Sera* [online] https://www.corriere.it/cronache/20_maggio_02/coronavirus-come-si-calcola-l-indice-contagio-r0-cui-dipendera-quando-potremo-tornare-uscire-3dc473dc-8c3a-11ea-9e0f-452c0463a855_preview.shtml?reason=unauthenticated&cat=1&cid=556p_wkq&pids=FR&credits=1&origin=https%3A%2F%2Fwww.corriere.it%2Fcronache%2F20_maggio_02%2Fcoronavirus-come-si-calcola-l-indice-contagio-r0-cui-dipendera-quando-potremo-tornare-uscire-3dc473dc-8c3a-11ea-9e0f-452c0463a855.shtml.

Verstuyf J *et al.* 2012, "Motivational dynamics of eating regulation: a self-determination theory perspective", *International Journal of Behavioral Nutrition and Physical Activity* , vol. 9, article no. 21. Available from: https://doi.org/10.1186/1479-5868-9-21 .