



Enric Antoni Burgos

Universidad de Valencia

@ eburgos@uji.es

@ enric.burgos@uv.es

ID 0000-0003-3721-2472

■ Recibido / Received  
28 de abril de 2022

■ Aceptado / Accepted  
14 de mayo de 2022

■ Páginas / Pages  
De la 211 a la 222

■ ISSN: 1885-365X

# Towards another social conception of science? About the television coverage of the pandemic in Spain

¿Hacia otra concepción social de la ciencia? A propósito de la cobertura televisiva de la pandemia en España

## ABSTRACT:

Numerous studies have evaluated how the situation caused by COVID-19 influences the trust that citizens place in science. Far fewer, on the other hand, have assessed the way in which the pandemic can motivate the population to form an alternative image of scientific research. Considering the role of the media and taking into account the exceptional consumption of information and dissemination during confinement (especially through television), our article aims to investigate to what extent the media may be contributing to forging a new social conception of science. To do this, we qualitatively analyze the informative and informative treatment of the crisis on Spanish television, focusing on the cases and novel aspects of the coverage that most significantly offer a different look at science. Thus, we point out how the continuous monitoring of research exposes the iterative process of science, questions its certainties and underlines its provisionality. Next, we point to the rapprochement between the scientific elite and citizens that seek the frequent appearances of experts and we highlight how the discussion of the debate shows a plural and divergent scientific community. Likewise, we value the dissemination of information and dissemination in different programs as a way of reaching the bulk of the population and sparking debate within it. We conclude that the recent experience can act as a turning point in the media treatment of science and in its popular conception, and we emphasize the important role of both transformations in the path towards the democratization of the scientific institution.

## KEY WORDS:

Covid-19; scientific dissemination; epistemology; social conception of science; democratization; television coverage.



## RESUMEN:

Numerosos estudios han evaluado cómo la situación provocada por la covid-19 influye en la confianza que la ciudadanía deposita en la ciencia. Muchos menos, en cambio, han valorado la manera en que la pandemia puede motivar que la población se conforme una imagen alternativa de la investigación científica. Considerando el papel de los medios de comunicación y atendiendo al excepcional consumo de información y divulgación durante el confinamiento (especialmente mediante la televisión), nuestro artículo se propone indagar hasta qué punto los medios pueden estar contribuyendo a forjar una nueva concepción social de la ciencia. Para ello, analizamos cualitativamente el tratamiento informativo y divulgativo de la crisis en la televisión española, centrándonos en los casos y aspectos novedosos de la cobertura que más significativamente ofrecen una mirada diferente hacia la ciencia. Así, señalamos que el seguimiento continuado de la investigación desnuda el proceso iterativo de la ciencia, cuestiona sus certezas y subraya su provisionalidad. Seguidamente, apuntamos al acercamiento entre élite científica y ciudadanía que procuran las frecuentes apariciones de expertos y remarcamos cómo la exposición del debate muestra una comunidad científica plural y divergente. Asimismo, valoramos la diseminación de información y divulgación en distintos programas como manera de llegar al grueso de la población y suscitar en ella el debate. Concluimos que la reciente experiencia puede ejercer de punto de inflexión en el tratamiento mediático de la ciencia y en su concepción popular, y remarcamos el importante papel de ambas transformaciones en el camino hacia la democratización de la institución científica.

---

## PALABRAS CLAVE:

Covid-19; divulgación científica; epistemología; concepción social de la ciencia; democratización; cobertura televisiva.

# 1. Introduction

During the first months of the pandemic, several studies tried to assess the impact that the situation caused by COVID-19 was having on the social perception of science. While Aglely (2020) did not see significant changes in the trust that science aroused in the United States when comparing the opinions collected in December 2019 and March 2020, Funk and Tyson (2020), based on surveys carried out by the Pew Research Center at the end of April 2020, highlighted how the valuation of health scientists had grown remarkably in the United States just one month later. Similarly, the periodic *Wissenschaft im dialog* (2020) polls showed that scientific research had gained credibility for the German population since the outbreak of the pandemic. In France, on the other hand, the trend was the opposite if we look at the surveys carried out by Ipsos/Sopra Steria for the Center de recherches politiques de Sciences Po (Cevipof) (2020), where a notable drop of ten points was observed in the consideration of the scientists in April 2020. Taking a different approach to the matter, Eichengreen et al. (2021) also pointed out the negative consequences that COVID-19 could have for science. After analyzing the effects of previous pandemics at the international level, the authors anticipated that, while the scientific institution would maintain its status, the image of scientists and the appreciation of the benefits of their work by citizens could be affected by the exceptional health situation.

Despite the fact that all these articles and reports tried to shed light on the degree of trust that citizens place in the scientific enterprise in the midst of a pandemic, the multiplicity of approaches, methodologies and surveys, the different moments of implementation and geographical areas to which they were applied ended up deriving, as we can see, very diverse results. Deviating from the consideration of these variables, the sociologist Michel Dubois (2020) highlights the media exposure of science and scientists during those months and points precisely to it as the cause of the divergent conclusions reached by research such as the ones just mentioned. Although this unprecedented visibility inevitably involves



the entire hybrid media system (Chadwick, 2013), we cannot ignore the important role played by television, whose consumption skyrocketed spectacularly at the start of the pandemic. Various articles have approached this phenomenon to account for how television achieved the highest percentages of news consumption compared to the media as a whole (Casero-Ripollés, 2020; Montaña et al., 2020; Masip et al., 2020) and led the confidence of citizens in information on the health crisis, becoming a fundamental reference even for young people (Casero-Ripollés, 2020; Montaña et al., 2020).

## 2. Objectives

The purpose of our writing is to assess to what extent the exceptional media coverage of the pandemic (and especially television) may be motivating citizens to model an image of the scientific research process that is more adjusted to reality and, in general, a new concept of science. And it is that, although during the last century the scientific community managed to move away from the belief in the unlimited knowledge of science, popular culture remains much closer to the vision that the modern imaginary provides (and that the illustration, positivism and the media themselves have taken it upon themselves to perpetuate up to now): an idealized (even mythologized) vision presented to us by a science governed by methodical reason, characterized by its certainty, objectivity, neutrality, and autonomy, and reserved for an elite of experts. Beyond worrying about the social perception of science, like the first investigations mentioned, our contribution will consist of evaluating how the changes that we notice in the media's treatment of science are contributing to the formation of a new social conception of it and, consequently, pointing towards that democratization of the scientific institution that sociology and philosophy of science have been demanding for decades.

Throughout our journey, we will expose and comment on such changes while trying to answer the following questions in an intertwined way: How did the emergence of the pandemic affect the television schedule? In what aspects did the television approach to scientific activity during the health crisis bring about a change with respect to the type of communication about science to which television had accustomed us? What values traditionally attributed to science have suffered a setback and what alternative characterization of this has been glimpsed as a result of the different approach to scientific praxis that television has carried out? In what way(s) has the television coverage of the pandemic fueled the debate among citizens and fostered their interest in scientific decision-making?

## 3. Methodology

In order to fulfill our purposes, we will proceed to carry out a qualitative analysis of the informative and informative treatment of the pandemic on Spanish general television<sup>1</sup>, focusing on the period in which the country was confined and focusing on the aspects, cases and novel formulas of television coverage that most significantly motivated citizens to approach science

---

1/ For a synthesis of the contrasts between the modern conception of science and that other vision which admits a complex, changing and uncertain reality, see Méndez, 2000.



with different eyes. We put the focus on television due to the already mentioned predominant role in informative matters that the medium had in the midst of the crisis and we stick to the Spanish case for two main reasons: firstly, because it was one of the first countries (after China and Italy) in which the threat of SARS-CoV-2 became apparent and, secondly, due to the tendency (more marked on Spanish television than on television in other states) to prioritize information over evasion (Zamora, 2020). In this way, we circumscribe the analysis to the grills of Telecinco, Antena 3, La 1, La Sexta and Cuatro, the generalist channels that had a greater audience in those weeks. Likewise, we mainly direct our attention to the period in which citizens were confined (March 15, 2020-June 21, 2020) since it was the moment in which the new television dynamics that most interest us emerged and developed.

In pursuit of greater clarity, we will structure the exposition in four epigraphs destined to examine each one of the characteristics that we consider fundamental in the aforementioned transformation of the television treatment of the scientific company. Thus, the first section will give accounts of the real-time monitoring of the investigation that the television coverage entailed. Next, we will refer to the constant television appearances of scientists. Thirdly, we will comment on the showing of the debate among the scientific community on the small screen. Next, we will dedicate ourselves to assessing the conversion of formats and the dissemination of informative and informative content in different programs. Finally, the conclusions will consider whether this type of media look at scientific issues will be maintained over time and will synthesize the characteristics of the new social conception of science that said look suggests.



## 4. Desarrollo Development

### 4.1. Real-Time monitoring of scientific activity

The exceptional health situation in Spain around mid-March 2020 led to a flood of information and the population sought refuge in the traditional media, especially on their television sets. Since the World Health Organisation officially declared the covid-19 pandemic on 11 March, television consumption in Spain has increased considerably and soared two days later - when Pedro Sánchez announced the government's intention to decree a state of emergency - reaching an all-time record of 344 minutes of television viewing per person per day on the 15th (Barlovento, 2020a). The different free-to-air channels break with the regularity of programming and their schedules are altered to make room for news specials on covid-19 and live broadcasts of appearances by public authorities, news programmes considerably increase their presence throughout the day, and infoshows and magazine programmes dedicate their content almost exclusively to the star topic.

The speed with which scientists publish preprints on the virus is reflected, then, in a television monitoring that involves a kind of live monitoring of the research with important consequences: "Until now, what has reached society, through the media, is the end product of science, but in these months what has been seen is how science works, the guts" (López-Goñi, cit. in Fernández de Lis, 2020). In other words, as opposed to the sporadic news about science that, at the time while the pre-pandemic, often definitive results and great achi

events were presented to us, the exhaustive television coverage of the crisis strips the process of scientific research bare.

Communicative attention to the development of research makes it easier for ordinary citizens to move away from the traditional idealized communication of science and stop thinking about it in terms of Cartesian certainty to assess its conjectural and circumstantial nature. While, as Lobera states (in Ferrer, 2020), in recent decades we have witnessed «a communication highly based on almost absolute certainty and predictive power» of a science understood as «revealing permanent truths capable of resolving all problems», the recent coverage of the crisis has exposed its ins and outs, its unconfirmed hypotheses, its indecisions and, above all, that provisional nature of scientific knowledge in which, up to now, we have been educated so little. This new television approach to science reveals to the average viewer what those who are dedicated to it know well, that is, that science provides plausible and credible theories and not absolute truths and that theirs is relative knowledge (Laudan, 1986), or if you like, that «science produces valid results for the world precisely because it admits from the beginning that it can be refuted, that it does not always have to be true; that is, it is critical of itself and it corrects itself» (Fernández Mallo in Fernández de Lis, 2020). Thus, the different approach of television to science that the pandemic has caused invites us to question its supposed demonstrability and infallibility, to abandon positivist verificationism and to conceive scientific activity from other perspectives such as, without going any further, falsificationism (Popper, 1980, pp. 39-42) to which the words of the physicist and writer Fernández Mallo point or Laudan's epistemology to which we have referred.



## 4.2. THE CONSTANT APPEARANCE OF SCIENTISTS ON THE SCREEN

The exceptional coverage of the pandemic soon leads to the continuous presence on our televisions of specialists in the field. Never before has the small screen given such prominence to these professionals, nor have they lent themselves to this extent to use the medium to convey their messages to the public. In this sense, the figure that previously achieved the greatest media coverage is Fernando Simón, an epidemiologist and director of the Center for the Coordination of Health Alerts and Emergencies who acts as a spokesman for the Ministry of Health during the crisis. But apart from the appearances derived from holding public office such as Simón's, the role that the different channels give to experts in their communication strategy stands out. Among the names that became popular in those days we find those of people dedicated to research such as Margarita del Val, virologist and immunologist at the Higher Council for Scientific Research (CSIC) or José Antonio López Guerrero, neurovirologist and professor of microbiology at the Autonomous University of Madrid, as well as those of the doctors César Carballo, assistant in the emergency department of the Ramón y Cajal Hospital in Madrid or Julio Mayol, university professor and medical director of the San Carlos Hospital in the same city. In the same way, specialized information professionals such as Graziella Almendral, president of the National Association of Health Informants, or disseminators with notable recognition on social networks such as Rocío Vidal (Schrödinger's cat) or Marián García are beginning to multiply their presence on television (García Apothecary).

In a few days, numerous more or less unknown faces became familiar after alternating their participation in different television spaces of the different networks. Their presence contributes to bringing the research elite closer to the public in at least two ways. On the one hand, viewers are offered the chance to better understand the work and messages of these professionals and gradually bridge the gap between the layman and the scientist that science has traditionally been in charge of maintaining with its hermeticism and unintelligibility of its language (Feyerabend, 1993, p.36). On the other hand –and here it is worth taking into account the circumstances of the (more fully physical) appearance of the expert on the small screen, unlike what happens in other media–, television seeks an emotional approach to the scientific elite by putting faces, voices and feelings to the investigation, by placing ourselves in front of flesh and blood individuals with concerns and interests and crossed, like the rest of the citizenry, by the uncertainty of the moment.

The television treatment in a pathic key of a science that has been considered in exclusively logical terms helps us to understand it as the human activity that it is, to strip it of the objectivity with which the modern imaginary covers it and to question the traditional subject-object distinction in which such characterization is protected. In another way, it helps us to contemplate the unavoidable subjectivity of the scientific enterprise, to remember something as obvious as that science is not a divine matter but rather that human beings do it (Lobera in Sapiña, 2021) and to be aware that «In a secularized society, science has occupied an almost religious space, but we must return it to its real space» (Lobera in Ferrer, 2020). And in this real space, as Feyerabend (1986, p. xv) would argue, neither does scientific rationality act as the only guide for research nor does the discourse of science rest exclusively on the *logos*.



### 4.3. THE DEMONSTRATION OF THE SCIENTIFIC DEBATE

The mentioned, continuous appearance of people of science normally derives in the concurrence of various experts in the same program. With few exceptions in which a specialist stands as the only scientific voice on television, the small screen is committed to colloquium (gathering, round table and, especially, debate). It is fair to highlight the pioneering nature of *Cuarto Milenio*, the Cuatro program whose guests began to discuss the threat of the coronavirus in mid-February, almost a month before it was recognized that we were facing a pandemic. And it is also worth noting the special on the coronavirus of *La Sexta Noche* (La Sexta) broadcast live on March 14, 2020, coinciding with the start of the state of alarm. With a completely technical staff, *La Sexta Noche* will choose to repeat the formula weekly during the following months, obtaining great audience success. In the days immediately following, various spaces followed suit (this is the case of *Liarla Pardo* and *Al Rojo Vivo*, both also from La Sexta) and abandoned practically any other topical topic to focus their debates on the health crisis.

The television commitment to the colloquium emphasizes the questioning of certainty and objectivity as defining characteristics of science and, at the same time, contributes to questioning the alleged univocality of scientific discourse and the monolithic image of science that we have inherited. The fact that the debate between scientists has taken place in front of television cameras (rather than in specialized magazines or conferences) is decisive

for public opinion to appreciate the role of dissent in scientific practice and to be aware of the plurality of approaches and voices that feed the research. In addition to perceiving the differences between experts belonging to different scientific disciplines, the population attends the discussion between professionals of the same specialty who often hold divergent positions on issues such as the origin of the virus, the measures to be taken to stop contagion (confinement, use of masks and what type, interpersonal safety distance, cleaning of shared surfaces, transmission by aerosols...), the treatment of the disease with hydroxychloroquine or the possible efficacy of the different vaccines that are being developed.

As is to be expected, the debate soon transcends strictly scientific limits, even more so if we take into account the decision to include informants, disseminators, political officials, economists, sociologists, psychologists or representatives of civil society in these colloquia. On the one hand, such inclusions illustrate the need expressed by those who maintain (Mormina et al., 2020; Lohse and Bschrir, 2020; Mazzochi, 2021) that responses to the pandemic must be sought through dialogue between multiple disciplinary perspectives that they encompass much more than the mere natural and medical sciences. On the other, the extension of the debate reveals more eloquently to public opinion the interests (mainly economic and political) that condition scientific decisions and thus compromises the presumed autonomy of science. Let us think, for example, of the discussions around the various measures to avoid contagion that each country implements in accordance with what their respective group of experts advises, of how the economic benefits of the pharmaceutical company are exposed while liberalization is being considered of vaccine patents or the way in which the public perceives that the Spanish government's willingness to eliminate restrictions for the following summer is mainly due to the need to save the tourism sector and reactivate the country's battered economy.

Leaving aside the dirty laundry of science that these and other collateral issues addressed on television can air, exposing these issues helps citizens to keep in mind the pluralism that scientific practice entails and positively value such circumstance, to understand the debate as a cornerstone of progress in science and envision the possibility of participating in it. And when we talk about embracing pluralism, we are not only referring to the existence of different voices and approaches within the same specialty or in the whole of scientific knowledge, but also appealing, as we noted, to the convenience of a transdisciplinary perspective to address the complexity of reality, because the coexistence of different points of view is a sign of intellectual maturity and the debate to which it leads involves the enrichment of science (Feyerabend, 1986, p. 18 and ss) and because only if scientific research manages to connect with a wide spectrum of visions, opinions and experiences will it be able to serve the general good (Caniglia et al., 2021).

#### 4.4. THE DISSEMINATION OF INFORMATIVE AND INFORMATIVE CONTENT

The consumption of television during the confinement confirms the tendency of the population –already noticed more than a decade ago by Williams and Delli-Carpini (2011)– to obtain information and form an opinion mainly going to infotainment spaces. As indicated by the data from Kantar Media corresponding to the second half of March 2020, «infoshow-type programs





are the ones that get the most audience, above traditional news programs» (Montaña et al., 2020, p. 164). It is worth noting here the high screen shares achieved throughout the confinement by magazines from the different channels, whether we are referring to the morning shows –*El programa de Ana Rosa* (Telecinco), *Espejo público* (Antena 3), *La mañana* (La 1)–, to the after-dinner ones –*It's already noon* (Telecinco)– or to the evening ones –*Cuatro a day* (Cuatro), *Better late* (La Sexta), *Save me* (Telecinco)–. All of them pay special attention to the health crisis and, to a greater or lesser extent, bring out their desire for information and dissemination. Likewise, many of these magazines, especially those in the afternoon, increase their presence on the grid by advancing their start time and/or delaying their end time during confinement.

The case of *Sálvame* is particularly striking. Anticipating the extension of hours that other spaces would carry out, the format adds from March 9, 2020 to its usual *Sálvame Limón* (4:00 p.m.-4:55 p.m.) and *Sálvame Naranja* (4:55 p.m.-8:00 p.m.) a last stretch called *Sálvame Tomate* (8:00 p.m.-9:00 p.m.), with which it would obtain on April 27, 2020 the record of 3,139,000 viewers on average and a 21.4% share of the screen (Barlovento, 2020b). Apart from the fact that the program achieved the best audience records in its more than thirteen years on the air in those weeks, what is most relevant to our interests has to do with its conversion in terms of content. *Sálvame*, which from its beginnings had been dedicated solely to yellow news, came to house information and dissemination about the pandemic, leaving in the background (at least during the first weeks of the health crisis) the topics that usually served its purpose. The transition from the most frivolous entertainment to service information is sought, for example, with recurring interviews with doctors and health personnel, economic explanations of the restrictions applied by the Government or the collaboration of Jesús Sánchez Martos, professor of Education for Health from the Complutense University and former Minister of Health of the Community of Madrid, whose daily section dedicated to resolving public doubts about the virus soon becomes one of the highlights of the program.

In our opinion, the transformation carried out by television spaces such as *Sálvame* is an effective way of bringing science closer to a segment of the population that, a priori, could show less interest in it and of stimulating communication between the scientific community and the group of society without exclusions. Regardless of the greater or lesser rigor and/or success of their informative incursions, this type of television gesture can be understood as a first step towards bridging the gap imposed between the layman and the scientist, as a way of sparking debate between citizens and, consequently, as a basis from which to move, in terms of scientific decisions, from the technocracy of experts towards a sort of –as Habermas (2005) or in a certain way also Apel (1986) would suggest– democratic formation of the Will. And it is that at a time when an editorial in the British Medical Journal allows itself to advise that «The more certain someone is about Covid-19, the less you should trust them» (Smith et al., 2020), Feyerabend's proposal (1986, p. xvi) of forming committees of non-experts for scientific decision-making does not seem such a far-fetched idea. Not surprisingly, in the midst of a pandemic, we could well agree with the philosopher that «it is completely false that taking the most important decisions out of the hands of the experts and leaving them to the profane will decrease the percentage of success in decisions» (Feyerabend, 1982, p. 101). In any case, what is not so much doubt is that the informative willingness shown by many television spaces, normally more inclined to entertainment, has contributed to fueling



the interest of the population as a whole in scientific matters and that such interest may lead to the decision awareness that every individual in a free society must have the possibility of intervening in the functioning of institutions (such as science) to which they have contributed.

## 5. Conclusions

Undoubtedly, the crisis caused by the SARS-CoV-2 virus has opened a period of exceptionality in all areas of our lives. The science professionals most directly linked to the pandemic and its control have been forced to react quickly and make an unusual effort that has led them to achieve a degree of international collaboration never seen before. For its part, the population as a whole has faced a global threat surrounded by anguish and fear, has had to adapt to new living conditions and overcome the deaths of their peers which, after two years of pandemic, are estimated at more than six million worldwide. In this situation, the media have been faced with the challenge of exercising in the most professional and humane way possible the role they are supposed to play, namely, acting as intermediaries. For better or for worse, the way in which citizens have experienced and understood the crisis has been notably marked by the messages transmitted by the media.

Many are those who reflect on whether a phenomenon of this magnitude will mean a turning point at different levels. From those who maintain that the ways of carrying out scientific research will never be the same as before (Caniglia et al., 2021) or hope that economic investment in science will improve after the ordeal, to those who see the current pandemic as an opportunity for new ways of life (Nancy, 2020) or models of social organization (Žižek, 2020), going through to those who wonder if the preponderance of traditional media will be maintained over time (Casero-Ripollés, 2020, p. 11) or those who, like us, consider whether in the future the media will continue to bring science closer to the public in the terms that we have had the opportunity to assess and, therefore, contribute to underpinning a new social conception of scientific research.

More than two years into the period analyzed, we observe that the four characteristics of the television coverage of the crisis on which we have based ourselves to account for this new look at science have remained in force, although certainly with less emphasis. Information on the evolution of the pandemic has remained constant and monitoring has been exhaustive at many key moments, such as the arrival of vaccines and the establishment of vaccination guidelines, the appearance of new virus variants (especially Delta and Omicron) or the critical weeks of the different waves that the country has been going through. Likewise, and despite the fact that our streets are already feeling a certain normality, the appearance of science professionals on the screen has become chronic and the scientific debate has continued to be televised. Thus, we have witnessed the clash between different positions on issues such as the safety offered by the AstraZeneca vaccine, the sense of maintaining certain measures to avoid contagion or the convenience or not of combining different types of vaccine in the regimen of the same individual. In a similar way –and despite the fact that *Sálvame* can no longer act as a paradigmatic case, no matter how long the *Jesús Sánchez Martos* section has survived–, most of the magazines mentioned have continued to carry out their informative work and fuel the debate among citizens around issues such as the mandatory nature of



vaccination, the need to immunize the child population or the requirement of the COVID passport.

In any case, the path towards a new social image of scientific praxis goes through the type of response that the media give to other newsworthy events in which the various branches of science are involved, in one way or another. If we focus again on the Spanish television environment, we find a case that invites us to think that such a path continues. We are referring to the type of informative treatment that the eruption of the Cumbre Vieja volcano on the island of La Palma received. Despite the fact that the reaction of the main channels that afternoon of September 19, 2021 was not immediate in general terms (only La 1 and La Sexta interrupted their programming with informative specials), the first days of the eruption were marked by minute narration, by minute on the situation in La Palma on all channels, which involved its news programs but also numerous spaces more tending to entertainment. In the same way, they soon began to resort to experts –volcanologists Vicente Soler from the CSIC, Stavros Meletlidis or Itahiza Domínguez from the National Geographic Institute or geologist José Mangas from the University of Las Palmas de Gran Canaria, to name only a few– for their participation in colloquia in which their theories were contrasted and the unpredictability of the volcano and the conjectural nature of Earth Sciences were evidenced. In short, during the 85 days that the eruption lasted, we witnessed television coverage of the phenomenon posed in terms that were difficult to imagine before the communicative experience that was unleashed after the outbreak of the pandemic.

Thus, we believe that the media approach to the health crisis has led to important changes with respect to the way in which the media have traditionally presented scientific research to the public and that there are reasons to believe that this new approach can be maintained and even continue to evolve in the future. In any case, and regardless of what happens in the future, we can maintain that the great hybrid system, led by television, has allowed science to appear more open and accessible to the population and for it to become a more faithful portrait of itself, the dynamics of science in which the attributes of certainty, objectivity, autonomy, univocality and elitism are gradually diluted. As we have been able to verify, the live monitoring of the research has exposed the scientific search process before the viewer and has shown the conjectural, conjunctural and provisional nature of scientific knowledge. For its part, the constant appearance of experts on television has narrowed the abyss between the elite and the citizenry while at the same time providing a pathetic approach to science professionals and has presented science for the human activity it is. The exposure of the scientific community debate, in turn, has revealed the plurality of voices that exist within science and the different interests that move them, in addition to evidencing the need for a transdisciplinary perspective and a balanced dialogue between science and the other spheres of knowledge. At the same time, the notable inclusion of informative content in programs that are normally more dedicated to entertainment has contributed to fostering interest, debate and involvement in scientific matters among the majority of the population.

Therefore, and despite the noise of fake news, sensationalism and alarmism of the infodemic, it seems fair to recognize the merit of those communicative attitudes that, like those reviewed, have worked in favor of the democratic aspirations of the media, feeding a new social conception of science and, consequently, illuminating advances in the necessary democratization of the scientific institution. And it is that, after all, it will only be possible for the

usual subaltern position of citizens in scientific debates to be compromised if we progressively embrace a new image (humbler, closer, more humane) of science like the one that the media they are helping us outline.

## 6. Bibliography

- Agley, J. (2020). Assessing changes in US public trust in science amid the COVID-19 pandemic. *Public Health*, 183, 122-125. <https://doi.org/10.1016/j.puhe.2020.05.004>
- Apel, K. O. (1986). Necesidad, dificultad y posibilidad de una fundamentación filosófica de la ética. En K. O. Apel, *Estudios éticos* (pp. 105-173). Barcelona: Alfa.
- Barlovento Comunicación (2020a). *Cambio de hábitos y preferencias de la ciudadanía española frente al televisor por la crisis del coronavirus. Informe especial, marzo 2020*. <https://cutt.ly/V9wyjAY>
- Barlovento Comunicación (2020b). *Audiencias lunes 27 de abril de 2020*. Barlovento Comunicación. <https://bit.ly/3CZnQkd>
- Caniglia, G., Jaeger, C., Schernhammer, E., Steiner, G., Russo, F., Renn, J., Schlosser, P. y Laubichler, M. D. (2021). Covid19 heralds a new epistemology of science for the public good. *History and Philosophy of the Life Sciences*, 43, 59. <https://doi.org/10.1007/s40656-021-00413-7>
- Casero-Ripollés, A. (2020). Impact of covid-19 on the media system. Communicative and democratic consequences of news consumption during the outbreak. *El Profesional de la Información*, 29(2), e290223. <https://doi.org/10.3145/epi.2020.mar.23>
- Chadwick, A. (2013). *The hybrid media system: Politics and power*. Nueva York: Oxford University Press.
- Dubois, M. (18 de junio de 2020). La crise a-t-elle changé notre regard sur la science? *CNRS Le Journal*. <https://lejournal.cnrs.fr/billets/la-crise-a-t-elle-change-notre-regard-sur-la-science>
- Eichengreen, B., Aksoy, C. G. y Saka, O. (2021). Revenge of the experts: Will covid-19 renew or diminish public trust in science? *Journal of Public Economics*, 193, 104343. <https://doi.org/10.1016/j.jpubeco.2020.104343>
- Fernández, P. (27 de diciembre de 2020). El año de la ciencia. *El País Semanal*. [https://elpais.com/elpais/2020/12/22/eps/1608637752\\_983427.html](https://elpais.com/elpais/2020/12/22/eps/1608637752_983427.html)
- Ferrer, S. (15 de mayo de 2020). El coronavirus baja a la ciencia de su pedestal, ¿habrá una crisis de confianza?. *Público*. <http://bit.ly/3Hq6vs5>
- Feyerabend, P. K. (1982). *La ciencia en una sociedad libre*. Madrid: Siglo XXI.
- Feyerabend, P. K. (1986). *Tratado contra el método*. Madrid: Tecnos
- Feyerabend, P. K. (1993). *¿Por qué no Platón?*. Madrid: Tecnos.
- Funk, C. y Tyson, A. (30 de mayo de 2020). Partisan Differences over the Pandemic Response Are Growing. *Scientific American*. <http://bit.ly/3HfSvAZ>
- Habermas, J. (2005). Tres modelos de democracia. Sobre el concepto de una política deliberativa. *Polis. Revista Latinoamericana*, 10. <http://dx.doi.org/10.32735/S0718-6568/2005-N10-346>
- Laudan, L. (1992). *El progreso y sus problemas. Hacia una teoría del crecimiento científico*. Madrid: Encuentro.
- Lohse, S. y Bschr, K. (2020). The covid19 pandemic: A case for epistemic pluralism in public health policy. *History and Philosophy of the Life Sciences*, 42, 58. <https://doi.org/10.1007/s40656-020-00353-8>
- Masip, P., Aran-Ramspott, S., Ruiz-Caballero, C., Suau, J., Almenar, E. y Puertas-Graell, D. (2020). Consumo informativo y cobertura mediática durante el confinamiento por el covid-19:

- Sobreinformación, sesgo ideológico y sensacionalismo. *El profesional de la información*, 29(3), e290312. <https://doi.org/10.3145/epi.2020.may.12>
- Mazzocchi, F. (2021). Drawing lessons from the covid19 pandemic: Science and epistemic humility should go together. *History and Philosophy of the Life Sciences*, 43, 92. <https://doi.org/10.1007/S40656-021-00449-9>
- Méndez, E. (2000). El desarrollo de la ciencia. Un enfoque epistemológico. *Espacio Abierto*, 9(4), 505-534. <https://www.redalyc.org/articulo.oa?id=12290403>
- Montaña, M., Ollé, C. y Lavilla, M. (2020). Impacto de la pandemia de covid-19 en el consumo de medios en España. *Revista Latina de Comunicación Social*, 78, 155-167. <https://www.doi.org/10.4185/RLCS-2020-1472>
- Mormina, M., Schöneberg, J. y Narayanaswamy, L. (2020). Knowledge and science advice during and after covid-19: Re-imagining notions of 'expertise' for postnormal times. *SSRN Electronic Journal*. [doi.org/10.2139/ssrn.3790389](https://doi.org/10.2139/ssrn.3790389)
- Nancy, J. L. (30 de marzo de 2020). Comunovirus. *Público*. <https://blogs.publico.es/dominiopublico/31569/comunovirus/>
- Popper, K. (1980). *La lógica de la investigación científica*. Madrid: Tecnos.
- Sapiña, L. (1 de julio de 2021). Entrevista a Josep Lobera. *Mètode*. <https://metode.es/noticias/entrevistas/entrevista-a-josep-lobera.html>
- Sciences Po. (2020). *Attitudes Towards covid-19. A Comparative Study*. <https://www.sciencespo.fr/cevipof/attitudesoncovid19/>
- Smith, G. D., Blastland, M. y Munafò, M. (2020). Covid-19's known unknowns. *British Medical Journal*, 371, m3979. <https://doi.org/10.1136/bmj.m3979>
- Williams, B. A. y Delli-Carpini, M. X. (2011). *After broadcast news: Media regimes, democracy, and the new information environment*. Cambridge: Cambridge University Press.
- Wissenschaft im Dialog (2020). *Science barometer special edition on Corona*. <http://bit.ly/3GUzlyX>
- Zamora, I. (22 de abril de 2020). El mapa televisivo del coronavirus: información y muchas series. *ABC*. <http://bit.ly/3WoMA0P>
- Žižek, S. (2020). *Pandemic!: Covid-19 Shakes the World*. Nueva York y Londres: OR Books.