

Environmental disinformation the cases of climate change and the origins of covid-19

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Sustainability is no longer an option





Diagnosis

Three self-inflicted threats

1. BIODIVERSITY under threat and its connection to pandemics, our health and nature's health
2. POLLUTION kills
3. CLIMATE CHANGE, the great threat



What kind of society do we live in?

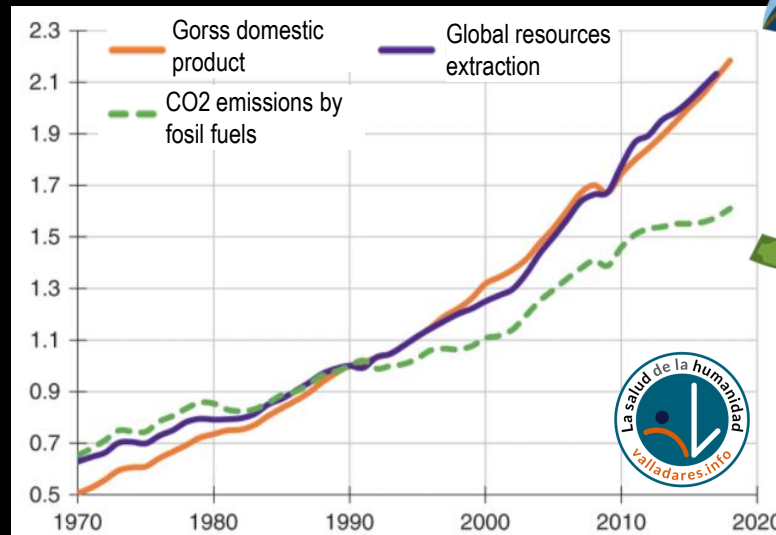
What models and values do we have and respect?



Wealth makes us environmentally poor

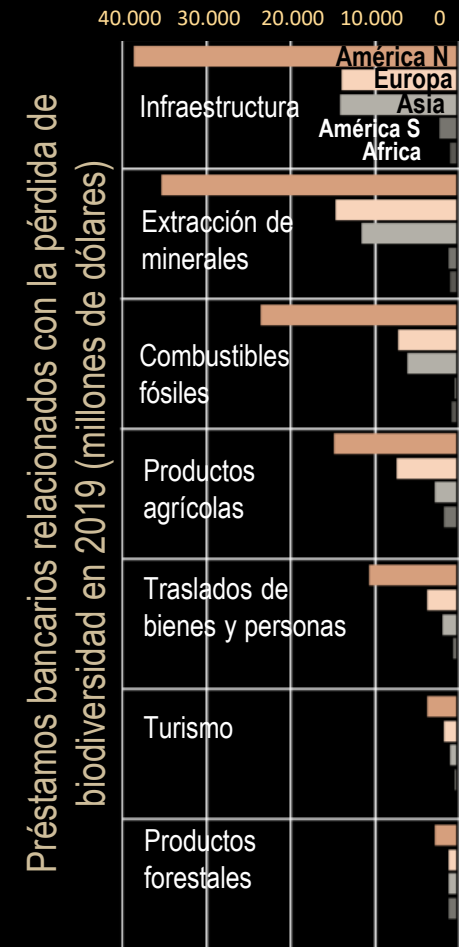
Far from gaining competence in the effective protection of nature, the richer the society, the greater its environmental impact. However, it is also much more capable of dressing its projects in green and convincing itself of the opposite. From this double capacity to degrade ecosystems and disguise reality arise the many paradoxes and contradictions of green capitalism and neoliberal efforts to lead agreements and conventions to protect the environment that are as ineffective as they are costly. Scientific analysis of this situation is important in order to get out of it (Wiedmann et al. 2020 Nature Communications 11).

Relative change in the economy and environmental impact



Banks finance climate change and biodiversity loss

In 2019, a total investment of 2.6 billion dollars (almost twice the GDP of Spain) was allocated to investments that destroy biodiversity, generate strong greenhouse gas emissions and environmental degradation in construction, food production or tourism. Those responsible were the world's top fifty banks. A recent report (Bankrolling Extinction) shows how financial institutions contribute to the destruction of the planet through loans and guarantees.



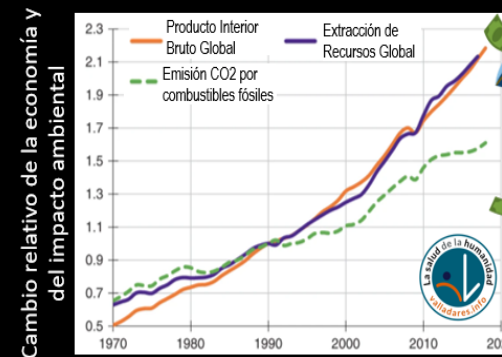
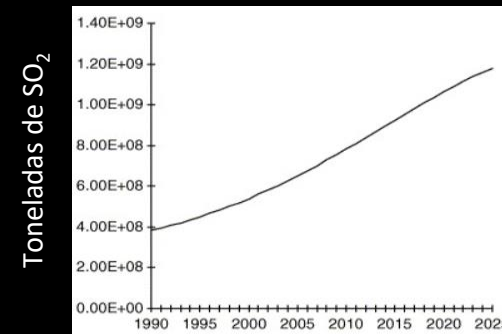
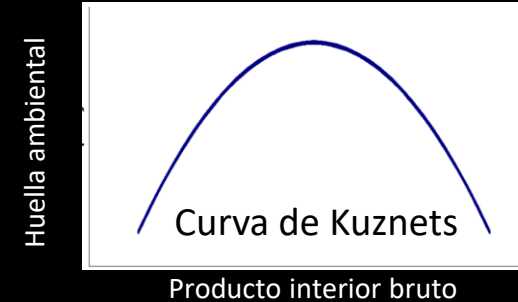
Politicians lie and do better that way

No one is surprised, unfortunately, that politicians lie. What may surprise us more is that a scientific team has shown not only that most of the politicians studied lied in a statistically significant way, but also that those who were more sincere were less likely to be reelected. Paradoxically, although society highly values the sincerity of its managers, lying is perpetuated in the political system for its undoubted electoral benefits. The study showed no differences between men and women when it comes to lying. It was conducted by Janezic and Gallego, was published on August 24, 2020 in the prestigious journal PNAS and was based on a study of 919 Spanish mayors.



The unredeemed optimism of the Kuznets curve

The Kuznets environmental curve, which models the evolution of the environmental footprint as wealth increases as an inverted "U", does not fit reality. The curve would indicate that above a certain gross domestic product the environmental impact decreases. But there are more exceptions than confirmations of the model. When the long-term evolution of pollution is projected, there is no point at which the impact decreases. Some environmental problems succeed others as wealth increases. This famous curve is a glaring example of unjustified economic optimism. Of painting a rosy picture of an unpleasant reality. David Stern (2004) dissected it in World Development 32. Twenty years later, the Kuznets curve is still being taught in many universities.



Risks of the dictatorship of positive thinking

Positive emotions that bring out the best in each one of us are one thing; applying positive thinking at all costs is quite another. Barbara Ehrenrich argues with acidity and sarcasm that it is precisely the imposed and universalized positive thinking that prevents us from maturing socially by always wanting to smile when sometimes it is time to cry. Seeing reality is the first step towards a better world. Perpetual growth, whether of a particular company or of an entire economy, is an absurdity, but positive thinking makes it seem possible. For Ehrenrich the relentless promotion of positive thinking at every turn has weakened the United States.

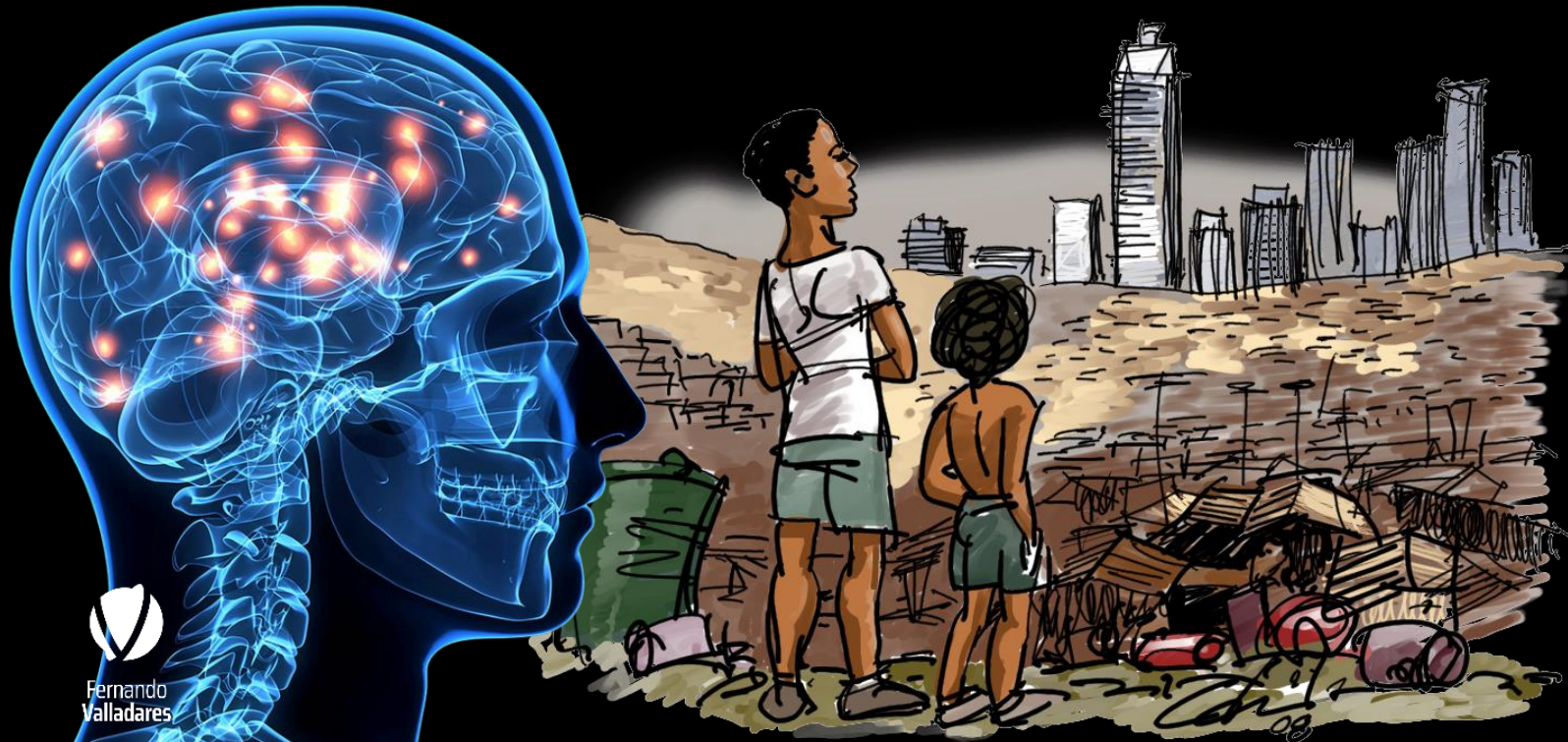


Where does knowledge remain?



The terrible spiral of pollution, cognition and poverty

The damage to health caused by air pollution has been known for some time. But the damage to the brain is only now beginning to be understood and its social and economic impact has not yet been well assessed, nor has specific action been taken. Damage to the brain at a young age can lead to a downward spiral of poor education and income that pushes people to remain in polluted areas throughout their lives.



Intelligence and honesty linked to environmentalism

In the face of the great climate and health crisis we are suffering, which has its roots in the environmental crisis, the number of people concerned about the health of the planet is slowly increasing. What are people with a special environmental conscience like? The answer is clear: more intelligent, open, honest and humble than non-environmentalists. Psychologist Beatriz Montes Berges, from the University of Jaén, summarizes this in her blog based on a recent study of more than 45,000 people conducted by Soutter and collaborators, and published in *Perspectives on Psychological Science* (vol. 15:913-941).



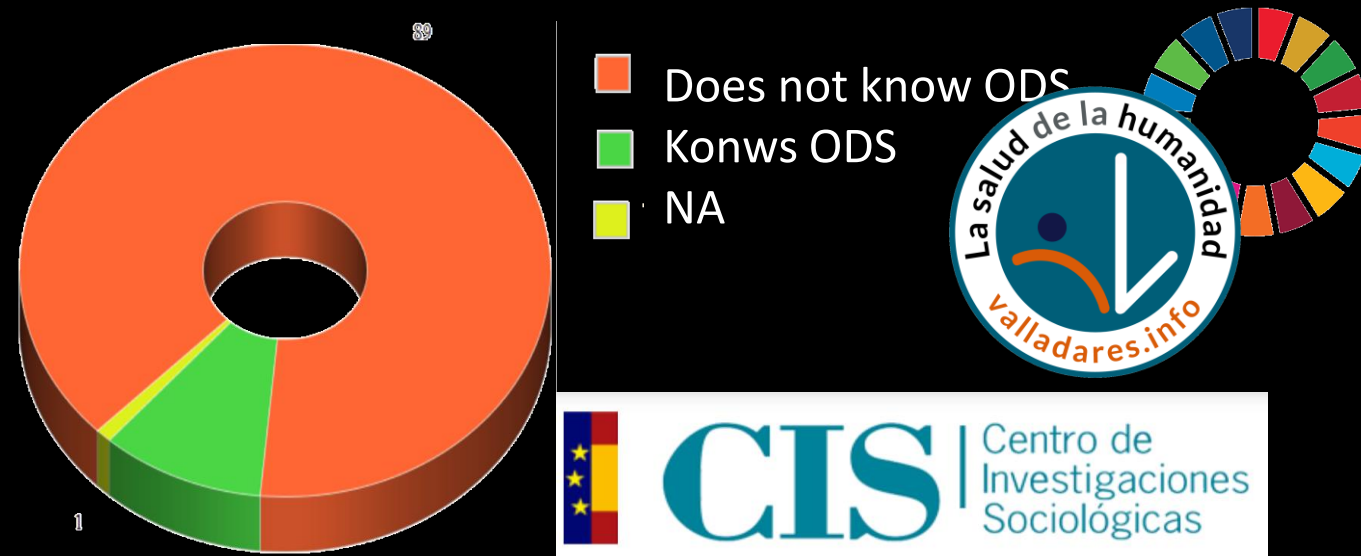
There is much to teach and learn

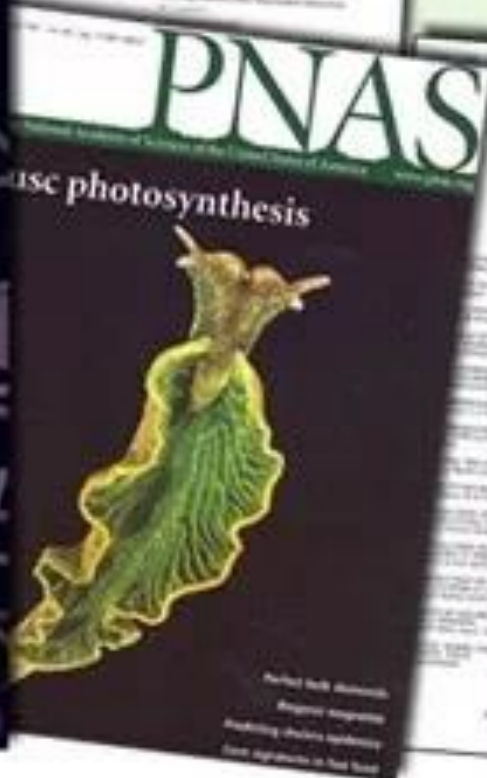
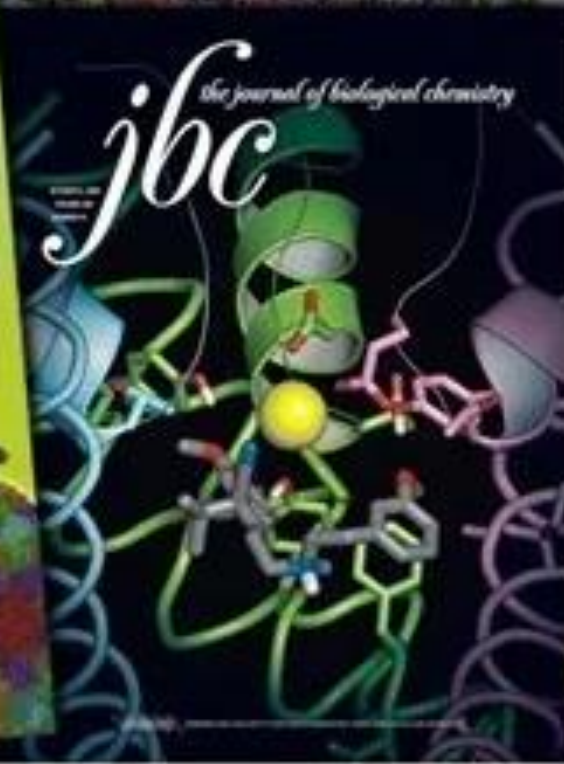
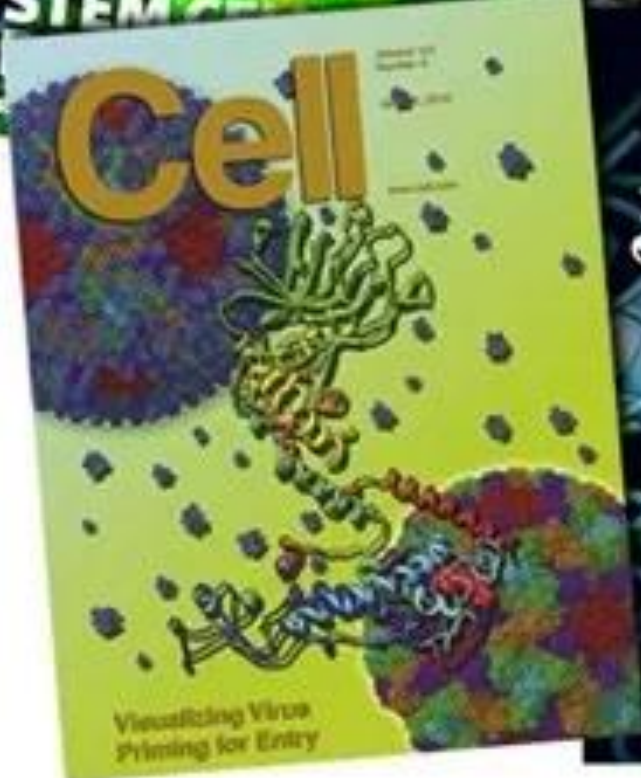
And it has to be done
quickly and well



Nine out of ten Spaniards what the SDGs are

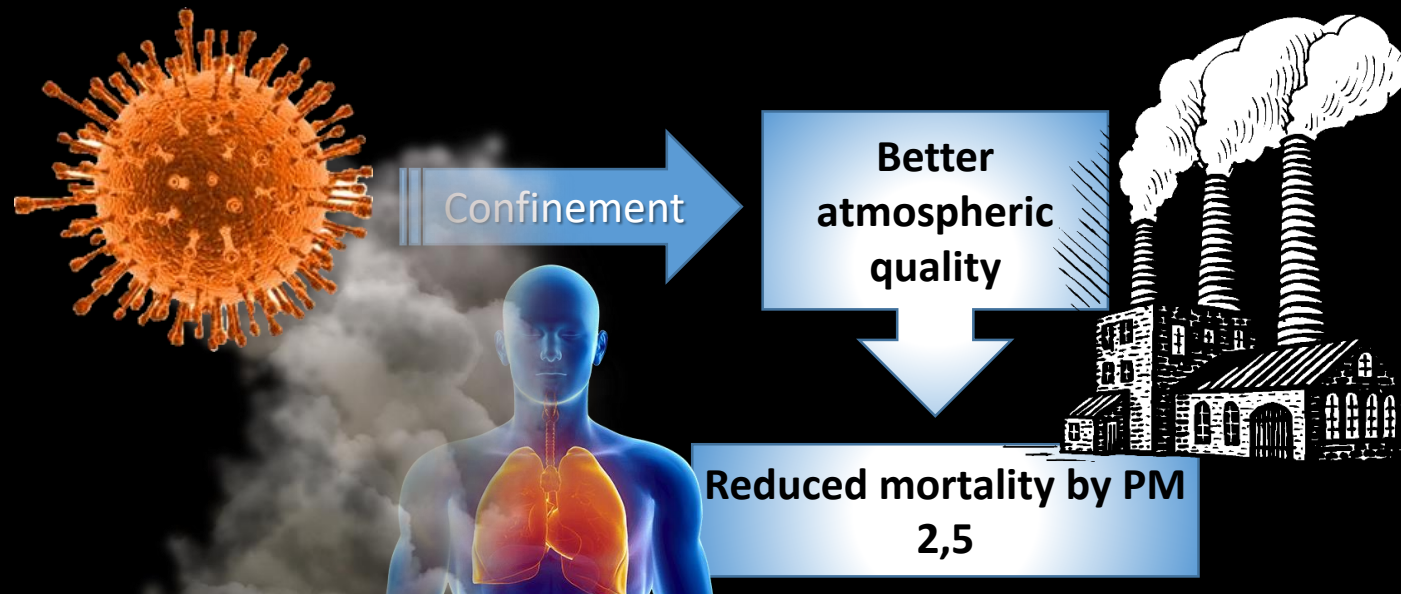
Spain is among the countries with the greatest environmental concern and more than 80% of the population considers climate change to be a serious or very serious problem. However, the population does not know about solutions or alternatives and is overwhelmingly unaware of the mere existence of international programs to establish sustainable development such as the 2030 Agenda and the SDGs (Sustainable Development Goals). Only 11% of the Spanish population had heard of the SDGs, but 56% consider that the main obstacle to sustainable development is the lack of political will.





Covid-19 mitigation reduced mortality from contamination

Measures to contain the pandemic reduced not only the economy but air pollution deaths in cities around the world. Son and co-workers (Science of the Total Environment 20 Nov 2020) have found an average reduction in US cities by Covid-19 of 13% of dangerous PM 2.5 nanoparticle pollution with a significant reduction in severe respiratory conditions. In California's urban areas alone, 483 deaths have been avoided thanks to a cleaner atmosphere. Let us not forget the lesson when the pandemic is over.



Infodemia

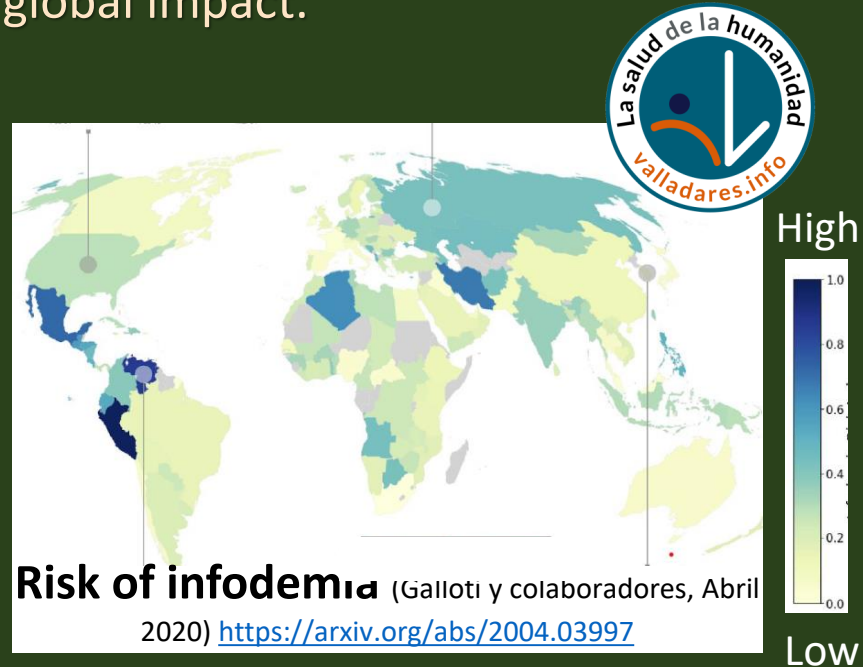
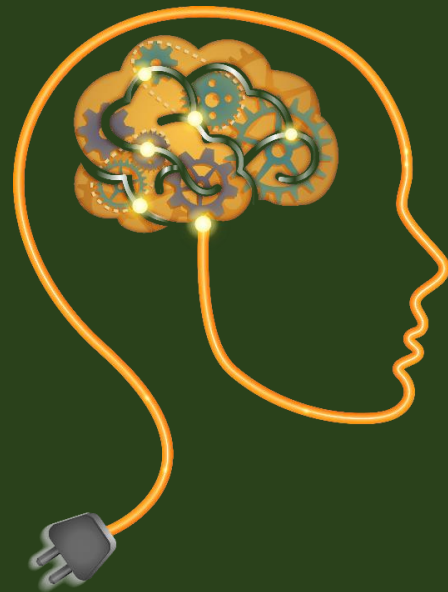


According to science, there are three complementary ways to "flatten the curve" of infodemia, the information plague of conspiracy theories and hoaxes:

1. carry out exhaustive tracing and isolation work analogous to that done with pathogens in a health epidemic.
2. to flood the system with truthful information supported by serious and verifiable sources.
3. Improve scientific training and the critical attitude of all the people who make up society so that we can contrast information and verify its origin.

Ignorance is resounding and goes viral easily.

Climate change and the pandemic have amplified many forms of ignorance. Infodemia or infoxication (over abundance of information), denialism, conspiracy theories, hoaxes and fake news, alternative reality, post-truth and emotional lies are different manifestations of the essential fuel of populism and fanaticism. They take us away from the essence of what makes us human and democracy. Unlike science, all these manifestations of ignorance provide information in a roundabout way. Not all countries have the same risk of falling into them. Peru, Venezuela, Algeria, Iran and Mexico stand out, but the USA and Russia are of concern because of their global impact.



Not everyone has the time or motivation to read and study
(although it is a lot of fun and even exciting).



Some pieces of information are
very complex



Strategies

1. Recommend and support reliable sources of simplified and clear information.
2. Analyze the arguments of the denialists



Political bias in the acceptance of climate change science.

Climate change challenges our cognitive capacities and worldview. Climate change mitigation confronts people whose personal identity and worldview are tied to free market economics. There is a very strong statistical association between right-wing or liberal worldview and rejection of climate science. Stephan Lewandowsky (April 2021 Annual Review Public Health) reveals that it has been demonstrated in 56 nations around the world including 22 European countries.



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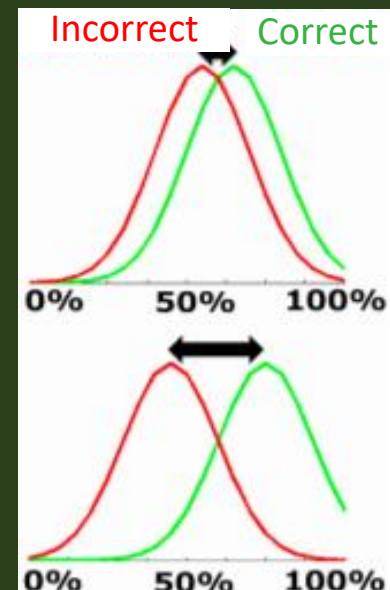
Regardless of how worldviews (as market freedom or as political conservatism) and attitudes toward climate (approval of science or support for policies) are measured, the strong association between right-wing political attitudes and climate skepticism represents one of the strongest findings on the acceptability of climate change science.

Radicals have lower metacognitive sensitivity

We live in complex times where it is more important than ever to be able to recognize mistakes and learn from a world in constant and rapid change. Environmental, economic or health crises polarize political, scientific, social and ethical issues, generating radical positions that are difficult to reconcile. The study by Rollwage et al. (Current Biology 2018) shows that radical thinkers have lower metacognitive sensitivity, i.e., they maintain the same conviction when they are right as when they are wrong. Luckily, this metacognitive sensitivity is not fixed, it can be trained. But you have to want to do it. How do we explain it to the most radical?



Sensibilidad metacognitiva
Low
High



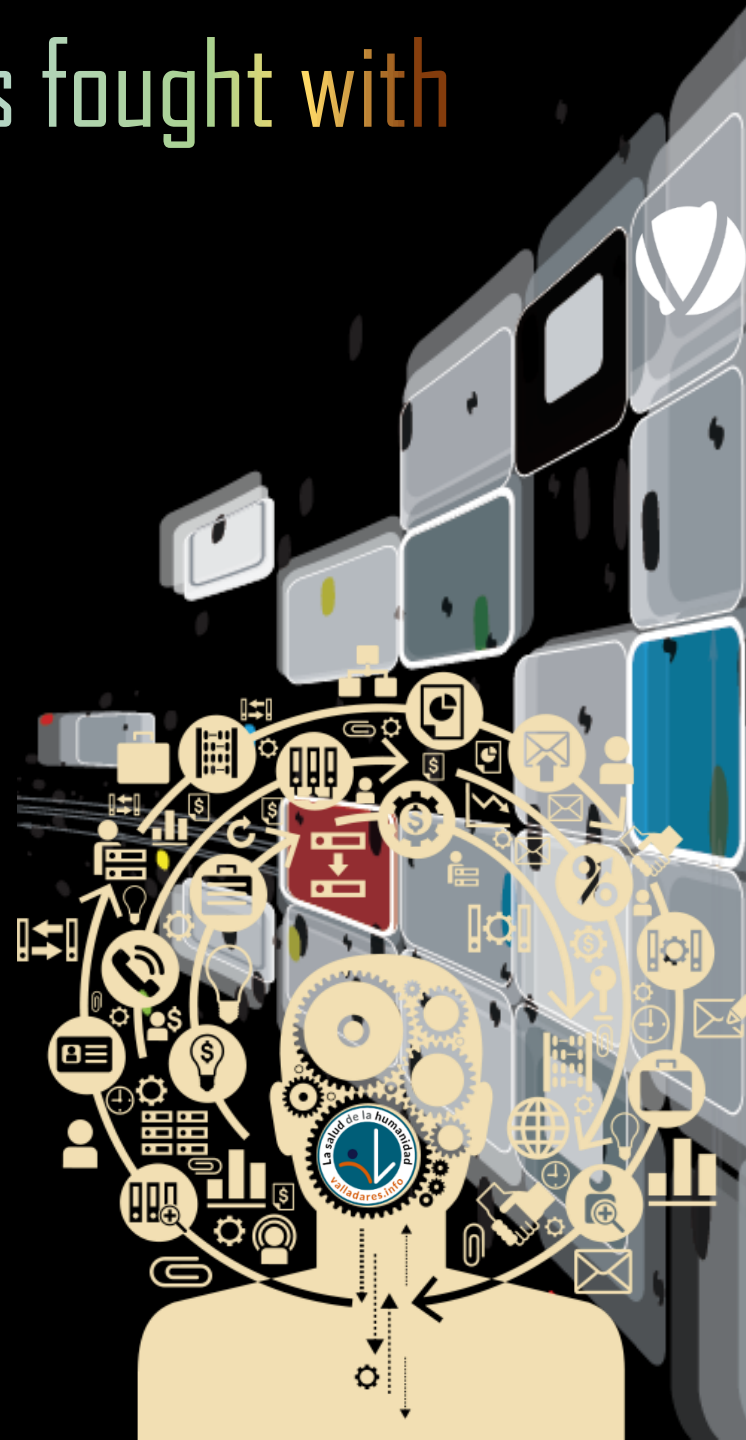
Seguridad de acertar

Radical thinking is associated with low metacognitive sensitivity, which is when you are equally confident of getting it right whether you are right or wrong (top graph). Rollwage et al (2018)

Climate change denial is fought with information

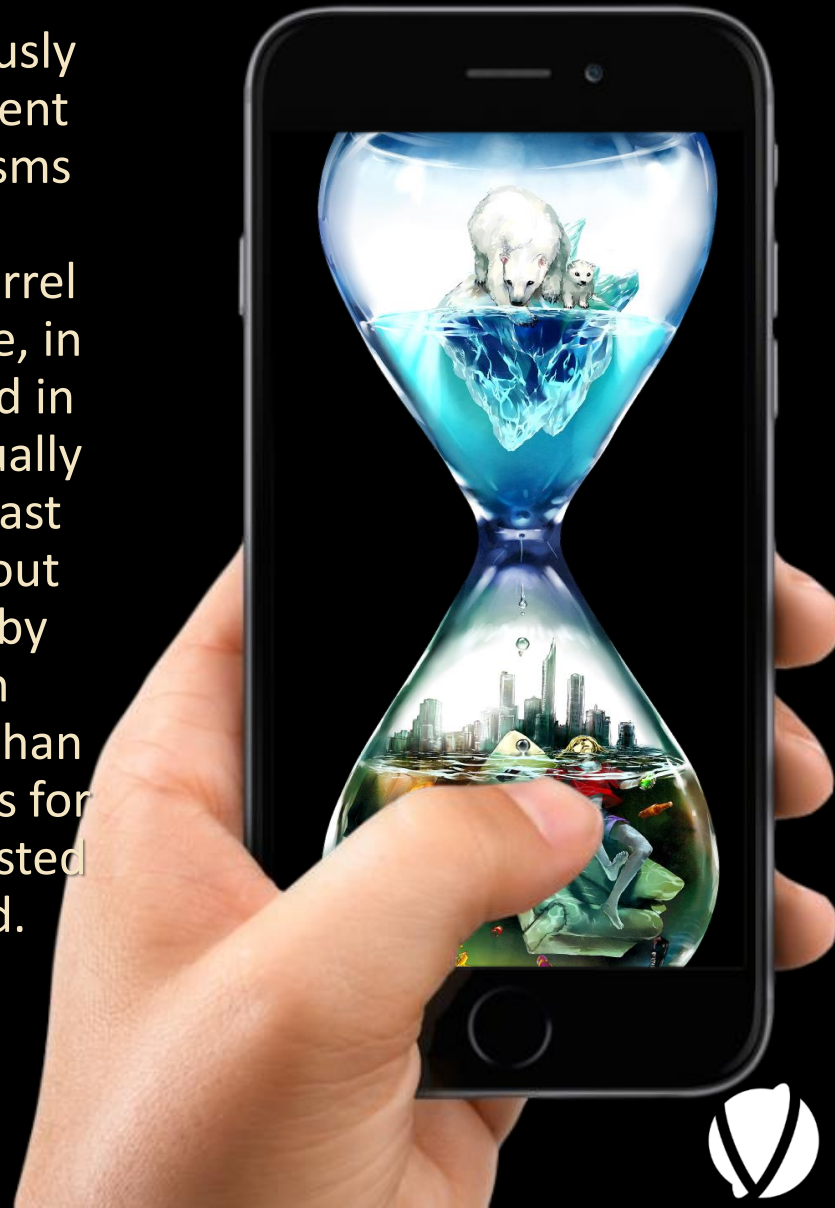
Any communication on climate change takes place in an adversarial environment given its serious economic and political implications.

Providing information on climate change, particularly on the scientific consensus and explanations of why it is occurring, improves acceptance of climate change and measures to mitigate or adapt to it. Stephan Lewandowsky (April 2021 Annual Review Public Health) indicates that through a process known as inoculation or prebunking (consisting of an explicit warning of an impending disinformation attempt), climate disinformation can be disarticulated before it occurs or refuted once it occurs with arguments that expose its fallacy.



The political and economic strategy of climate disinformation

Climate disinformation does not arise spontaneously but is actively and organizedly disseminated. Recent research has identified the sources and mechanisms underlying the organized dissemination of disinformation through well-funded networks (Farrel et al. 2019 Nature Climate Change 9). For example, in the US alone, the revenues of think tanks involved in climate disinformation reached \$900 million annually between 2003 and 2010. The publication in the last two decades of skeptical books and papers without external evaluation was 90% of the time driven by conservative think tanks. Funding by American philanthropists has been remarkable, with more than \$2 billion going to lobby groups in the US Congress for climate change legislation, which was mainly invested in legislators with an anti-environmental record.



The rhetorical and argumentative strategy of climate disinformation

The rhetorical strategies employed for climate disinformation have been developed by public relations professionals and are therefore highly effective. Dunlap and McCright (2011, Organized climate change denial, Oxford University Press) summarize them as follows:

1. Undermine and challenge scientific consensus.
2. Amplifying scientific uncertainty and demanding certainty as a condition of climate action
3. Attacking individual scientists to undermine their credibility
4. Undermining academic institutions and peer review of scientific papers
5. Project pseudoscientific alternatives on social media and through a network of blogs



Fear and climate change

Fear is a very powerful basic instinct that should not be abused in the climate change narrative. However terrible the most likely scientific scenarios may be. It should not be abused because it does not work. Moreover, fear does not favor free, mature or responsible behavior



The art of communicating climate change well

Society is increasingly exposed to a variety of messages about climate change, its importance and urgency. Many appeal to fear in the face of dire scenarios and almost all generate in the audience a sincere desire to take action.

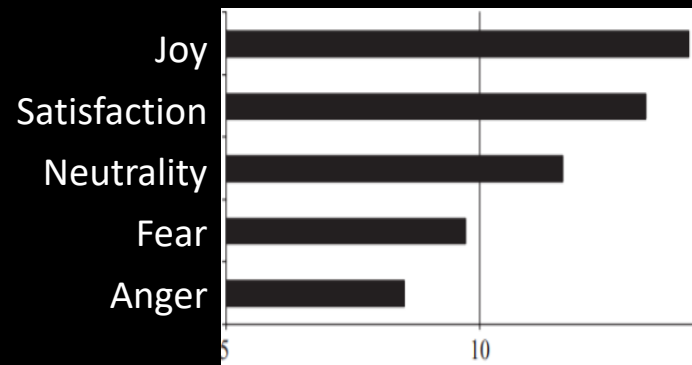
But a study by Biniek-Tobasco et al. (Climatic Change 154, 2019) points out that it is imperative to connect individual actions with achievable global change. Very explicit actions must be articulated and their benefits well explained to impact individual motivation, and hopeful approaches must be employed to change behaviors.

Engaging stories and evocative cinematic images are very effective for a general audience.



The power of positive emotions

We must harness the power of positive emotions to bring about the behavioral change we need in the face of the environmental crisis. It is a challenge for scientists, technicians and global change communicators, but it is worth the effort. Positive emotions according to Fredrickson (2004): a) expand people's attention and thinking, b) undo persistent negative emotional arousal, c) nurture psychological resilience, d) trigger upward spirals toward greater future well-being, and e) promote human flourishing. Just what we need in the face of major global crises!



Número de puntos recordados bajo distintas emociones



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Gracias Thank you

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