

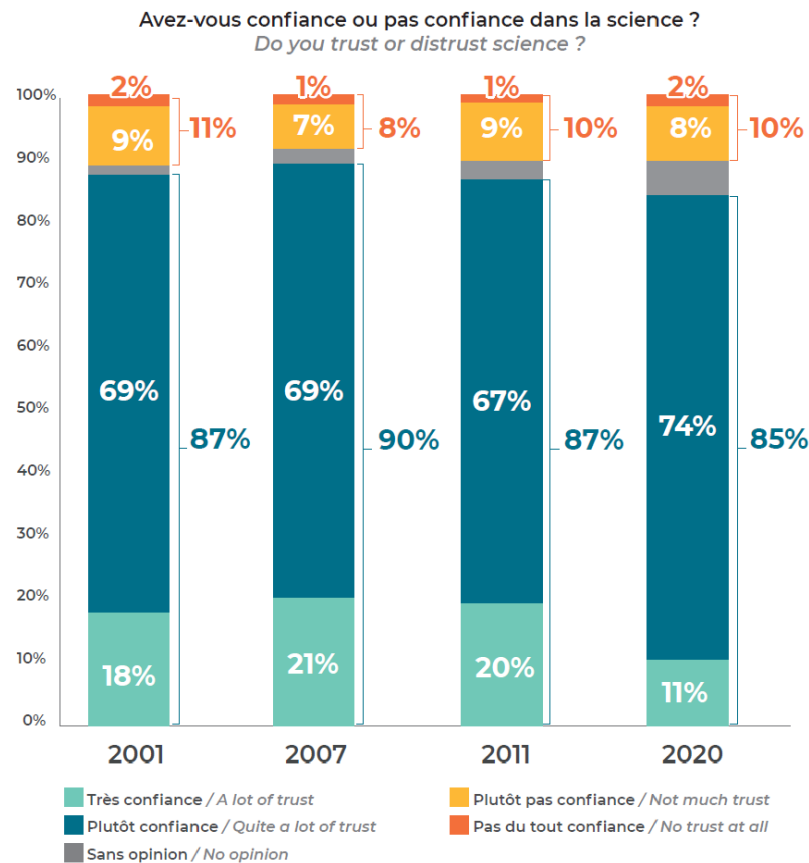
ERRIE2

Damien Belvèze

28-04-2022

JLB:

_Mrs Frédérique Vidal, the French Ministry of Higher Education and Research declared in April 2021: “communication between researchers and the French people is marred with confusion, relativism, and mistrust.” But how critical is the situation exactly? At the 2021 Science & You Conference, which brought together all kinds of academics, and among them many science communications and outreach professionals, we were presented with the latest edition of “The French and Science 2021”, a nationwide survey. As you can see, the majority of the general public still widely trusted the scientific community in



2020.

JJO: So it seems that the context isn't that worrying then? Let's hear what our panel has to say!

JJO - Questions to Damien Belveze: (ppt oui)

__Damien, as a University Librarian and User Trainer, you run Information Literacy training courses for students to help them source, and assess, accurate information.

What do you think about these figures?__

Three remarks there

- **confidence in science does not necessarily mean confidence in scientists.** the fact that there is a growing confidence in science among the public can hide another fact: for a large part of the public, there is an increasing scepticism about people who embody the scientific endeavour, as it appears in a previous study published in LSE

business[[@aksoyWhatEpidemicsTell2020]]

- **beware not believing in science as one may believe in a God or something supernatural. Science should be refutable and is a social construct has Bruno Latour demonstrated.** “Science is real” mimics the conservative slogan “God is real”. People trust in science sometimes as a religion because they do not know enough how science works and that prevents them from understanding science as a social construct and an ongoing process (= scientism). They do not always perceive the difference between research and knowledge. Knowledge is research whose outputs have stabilised and are less and less discussed (for instance, smoking can provoke lung cancer), while research is an ongoing process where the consensus can be still altered by new discoveries.

Let’s take the evolution theory initiated by Charles Darwin, when details of this theory are re-assessed through recent discoveries (like evolution times for a given species) some people question the theory itself, which by the way is no longer a “theory” (among other competing theories) but the resume of our knowledge about evolution.

- **Political opinion is a stronger predictor of accepting climate change as real than ordinary intelligence, curiosity or scientific education.** familiarity with scientific information is not always positively correlated with acceptance of scientific consensus on topics where values and lifestyles are challenged. Take for example Dan Kahan’s problem with scientific communication[[@KahanScienceCuriosityPolitical2017]]. see slide

Information literacy is your speciality! How would you define fake news in a general context and in an academic context? (debatable scientific expertise vs general fake news)

Information literacy is not only about spotting fake news, separating disinformation from reliable information, it is about reframing information. Since information comes to us in a very fragmented form (a bunch of tweets for instance), to be literate, when we speak about information literacy, is the ability to give context to the claims, to go upstream to the source and to be able to show how information is produced and how it is biased.

One of the problems that we face today is that people claim to trust nobody and prefer making their own research online without any human mediation. “Do your own research” is a mantra today among people who refuse vaccines against COVID-19 or the responsibility of Russia in the Ukraine invasion. If you do your own research, without questioning the words you use in your requests, you will get mainly conspiracy theories. Try for instance to use chemtrails instead of contrails or globalist instead of capitalist. Globalist is a trigger word for far-right wing and antisemitic movements in the USA.

To be literate is, rather, to be able to choose which source we can trust and also be able to remove this trust when we find reasons to do so. For example,

when a media which was serious is rebranded by a major infotainment group like Reworld Media.

In a scientific context, the corresponding concept to fake news would be fake science, but this concept is ambiguous. On the one hand, fake science is junk science, which means that a claim will be presented as “science-made” but without any of the processes which qualify a text as scientific: a hypothesis that will be tested by defining an experimentation protocol, collecting data, documenting what treatments will be made to those data and why, presenting conclusions and discussing limits or possible bias and finally submitting the study to a peer-reviewed journal.

For example, Susan J. Crockford is a real zoologist with a Ph.D in zoology. She published peer-reviewed articles in serious journals about the evolutionary history of dogs, but when she writes texts to explain why according to her there cannot be a thing such as polar bear extinction due to climate change, she publishes them in a book edited by a group of “experts” who have interests in fossil extraction or make them available as preprints, because the method is too sloppy and the partisan view too obvious to be published by an accountable zoology scientific journal. As Noemie Oreskes states “Their output looks like science, with footnotes and references but it does not take the usual channels”.

On the other hand, fake science can also be published in peer-reviewed journals, or journals which claim to have a serious peer-review process. But it is not difficult to be published in journals where you often review papers written by others and where you author or co-author one published paper out of four (as Didier Raoult did in what is often called “nepotic journals”). Bad science is also frequently published in predatory open access journals.

What are the hallmarks of a “scientific authority” or expertise in the scientific field? (authority as a problematic concept)

The notion of expertise is problematic. Sometimes the best experts in some fields (let’s think about heart surgery) almost never publish, they practice the art in which they are experts. In most academic fields, one must have published peer-reviewed articles to be called an expert on a topic. Authority is contextual means that your expertise is tied to a context to a quite limited field of knowledge. There might be a problem when you are asked questions that are outside this field (even if it is in the same discipline) or for other reasons when you use your academic authority on a topic to claim you are trustworthy on other subjects (see for instance the sociologist Laurent Mucchielli writing texts about innocuity of COVID-19). A hard-debated question in France is: should scientists allow themselves to take part in political struggles or become activists for a cause? I think that is a good thing to share the knowledge you contributed to build with activists, but on the condition that you should clearly distinguish for the audience what is your field of expertise and what is rather the expression of a personal point of view as we may all have one on any kind of political subject.

(precisely what Laurent Mucchielli did not and was blamed for by CNRS during

the pandemic crisis)

How can post-doctoral researchers know if they are reading a genuine source of information inside, and outside their field?

inside their field ; the risk to be abused by a fake report is minor when you really know the subject, but it occurs sometimes when predatory journals hide their true nature behind fake peer-reviewing boards or false metrics (such as metrics that try to impersonate Clarivate's impact factor)

outside their field ; the risk is more common. When exposed to a paper on a field about which I know very little, my first step is to assess the journal's reputation and the paper's authors on Wikipedia. Most of the time, if there is controversy about the journal, it will appear in the Wikipedia article or discussion webpage. Then you have to read a little and make further research to be sure what Wikipedia has spotted is really problematic or not.

What resources are available for post-doctoral researchers who want to publish their research in reliable reviews? Can they contact you for assistance or advice?

compass to publish is a tool designed to help scholars to assess reviews and avoid publishing in predatory open access journals.

How do you concretely train students to identify reliable information? (distinguishing between shades of science, then analysing tweets)

I teach students to use what Mike Caulfield, misinformation researcher, calls the four moves or SIFT method: social networks platforms amplify striking and upsetting messages to gain engagement and monetize user activity. So when we feel upset by a tweet, the first thing we have to do is stop (S), not share. Information literacy is not only about checking information but first about checking our emotions when we are confronted with emotional content. Then we have to investigate the source (I), by using lateral reading: what do websites I can rely on say about this source? Then students are invited to find (F) better coverage : is this event confirmed by other sources? Does it look like there is a consensus about the question? Finally they have to trace claims: who said or shared this piece of information? for what purpose? When was it published for the first time, in which context?

Sometimes I pick up interesting tweets about science and ask students to analyze them during the session with the SIFT method (except for the S, because they are aware that it's not as in real life of course). This activity often gives opportunities to introduce students with those different shades of science present in those tweets : opinion of experts, validated results, preprints, retracted papers, fake journals, etc.

JLB: Damien, when we met to prepare this round table you mentioned you had a question for Vincent and Julien Giry?

Damien: to Vincent Claveau:

__Do you think that fake labs (workshops in which students would try to forge fake pics or deep fakes) would be a good idea to make them aware of the fake news problem?__

__We've all seen journalists, academic advisors to the government or even politicians talk about conspiracy theories. These do exist, but there seems to be a danger in allowing the use of the term "conspiracy theory" to disqualify legitimate and relevant critics of the power system (as we see in Russia, where the concept of fake news and conspiracy seems to have been completely reversed). What are the safeguards in handling this concept?__

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