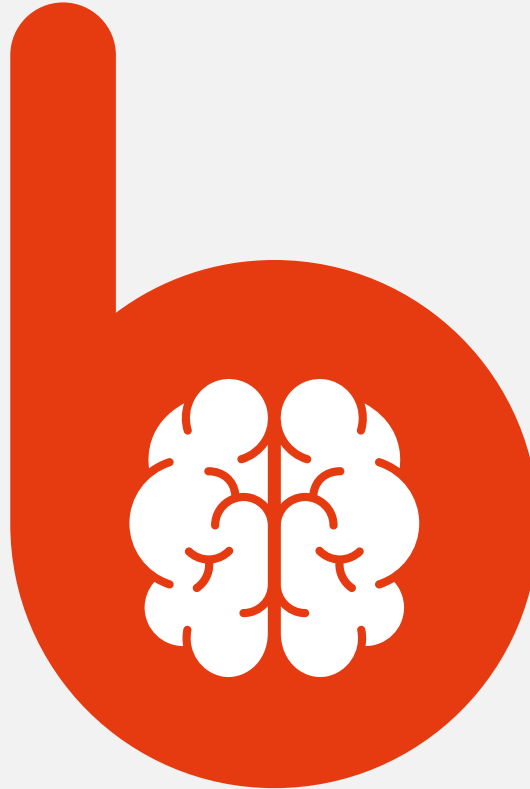


CRITICAL THINKING BAROMETER



In partnership with

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franceinfo:

How do our fellow citizens perceive and practice science? Which media do they use to stay informed? In terms of scientific subjects, do they trust researchers, religious leaders or influencers more? To form their opinions, do they rely on their own intuition or on other people's views?

To provide answers to these questions and gain an insight into the degree of critical thinking within the population, Universcience presents the second edition of its Critical Thinking Barometer, produced by Opinion Way.

Here are the main findings.

1

NO FRACTURE BETWEEN SCIENCE AND FRENCH PEOPLE, BUT RATHER GENERATIONAL, SOCIO-ECONOMIC AND GENDER-RELATED DISPARITIES



The results of the 2023 Barometer (online survey of 2048 individuals representing the French population aged 18+, carried out in January 2023) confirm those of its first edition:

→ science is part of the daily life of the French population.

- **23%** of respondents cite it as an area of interest – more than economic affairs or the fine arts, for example.

• For **81%** of them, it is part of the culture.

- **Two out of five** regard themselves as interested in science or as interested in science as they are in humanities and literary fields, and half of them have good memories of science class at school, especially biology (**58%**).

→ Such interest is reflected by in their actions and habits:

- **58%** have visited a science venue or museum at least once within the last three years.
- **38%** carry out scientific activities at least from time to time (16% carry out scientific experiments at home).
- **55%** read up on scientific subjects at least once a month, including watching documentaries or browsing the Internet. **As in 2022, a detailed analysis of how respondents obtain information confirms the almost equal importance of Internet** (the main source of information for **80%** of them) and television (**69%**). However, the hierarchy is changing when it comes to the trust that the respondents have in the media, with radio leading the way (**55%**), ahead of the Internet (**39%**) and social networks (**37%**).

→ Taken separately, however, sub-groups present contrasting pictures:

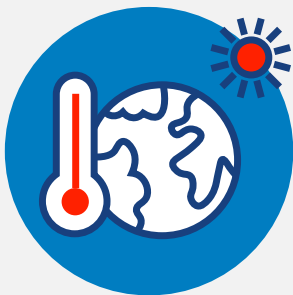
- on the one hand, science “**enthusiasts**” (**14%**) tend to be younger, have a higher education, and seek out information and scientific culture, and those who are simply “**interested**” (**35%**) in science tend to be male and older.
- on the other hand, the profile of “**irregular**” respondents (**40%**) who practice science less regularly than average, **tends to be female, working class, with few or no qualifications**, and the profile of the “**detached**” (**11%**) also tends to be female with few or no qualifications, who are more likely to reside in small towns and do not practice science at all.

→ These sub-groups help characterise respondents’ perceptions of science:

- **77%** of them think that a **statement has more value if it has been scientifically validated**, a proportion that falls by almost 10 points (**69%**) amongst the “detached”.
- Conversely, although **29%** of respondents think that a **scientific result is not open to discussion or debate**, the score rises to **52%** amongst the “enthusiasts”.
- **Ultimately a certain relativism emerges amongst the “detached”**, only **43%** of whom declare that science is the only reliable source of knowledge about the world (out of the panel as a whole, a slight majority – **51%** – were in favour of this statement; approval rose to **66%** amongst the enthusiasts). **39%** of the “detached” believed in the independence of the scientific community (against **48%** of the panel as a whole and **70%** of the enthusiasts).

2

THE MAJORITY CONVINCED ABOUT GLOBAL WARMING, BUT A SIGNIFICANT PROPORTION OF DOUBTFUL RESPONDENTS AND UNEVEN CONFIDENCE IN INSTITUTIONS



→ This 2023 edition of the Barometer specifically asked its French respondents about their understanding of the climate crisis.

- Although the majority of them link global warming to CO2 produced by human activities and think that scientists have reached a consensus (63%) about global warming itself,

over a third of respondents do not agree or do not have an opinion on such issues.

- Similarly, **22%** of respondents think that the recent cold wave in the United States belies global warming, and **12%** do not have an opinion.

→ Meanwhile, who do they trust to address climate change?

- Just like for the health crisis in the 2022 Barometer, **scientists are seen as the most credible**, with confidence in climatologists at **42%**, in other scientists and science centres and museums at **35%**, and science journalists at **30%**.
- On the other hand, there is a mistrust of companies (trust at **12%**) and policymakers (**10%**), to whom respondents accorded the same level of trust as for influencers and religious representatives.

3

TRAINING AND EXERCISE IN CRITICAL THINKING PRIMARILY OCCURS IN THE PRIVATE AND ACADEMIC SPHERE



→ How do respondents define critical thinking?

Three responses came top of the list:

- using **logical and rational reasoning** (**48%**)
- **obtaining information before taking up a stance** (**48%**)
- being capable of **having discussions with people who do not share their views** (**43%**).

Conversely and as was the case last year, “questioning one’s intuition” was at the bottom of the list (**18%**), revealing widespread ignorance of cognitive biases and their associated risks.

→ Amongst whom did respondents develop their critical thinking?

- Respondents first mentioned their parents (**72%**) and then, at the same level, their teachers and friends (**68%**), way ahead of leading scientists (**47%**) and journalists (**40%**) – therefore **predominantly pointing at the private and academic sphere**.
- At the same time, although the great majority (**74%**) think that scientific activities develop critical thinking, humanities come top of the list, ahead of hard sciences. They appear to use their critical thinking skills, since **80%** of them say they are willing to change their mind based on convincing reasons and **75%** consider that it is important to challenge traditional beliefs on the basis of logical and rational evidence.
- **They may develop and use their critical thinking abilities by debating social and scientific issues**, a widespread practice amongst friends for **65%** of them, and during family meals for **61%**, but not at work (**32%**) or on social networks (only **23%** of all respondents).

→ Which standard profiles stand out?

- The “**analysts**” (**57%**), older and with qualifications and degrees, consumers of traditional media, more scientific, and liable to be convinced by reasoning or to challenge beliefs.
- The “**trusting**” (**20%**), younger, city-dwellers, who trust science and the media.
- The “**distrustful**” (**13%**), younger, with less education, prefer the Internet and social media to traditional media, they are more sceptical about climate change and have a less-than-average inclination to be open to other opinions (than their own).
- Lastly the “**isolated**” (**10%**), mostly female and rural members of the population, less educated and less well-informed, with both a poor commitment to science and, in terms of critical thinking, issues with positioning themselves.

4

WHAT YOUNG PEOPLE? THE 18–24 YEAR OLDS: CURIOUS, CONNECTED AND COMMITTED TO CLIMATE ISSUES



→ How do young people position themselves on these issues compared to the rest of the population?

This question has frequently been asked in recent public debate, and the Barometer provides new insights.

• The 18-24s

appear to have more regular contact with science than their elders, whether through visiting science venues or museums (**78%** against **58%**), regularly seeking information on scientific subjects (**74%** against **55%**) or the carrying out of scientific activities (**61%** as against **38%**).

- **The channels of information mark another generational difference:** for access to news, top of the list are their entourage (**69%**), the Internet (**67%**) and social media (**54%**), way ahead of the “old” media (the first of these, television, for only **33%**). Their trust towards these media is also different, granting more credibility to social media than their elders (**42%** against **29%**) and less to television (**25%** against **37%**).

- **The extent to which the climate crisis is important to them also emerges from the study.** They are more liable than the average French person to state that scientists have reached a consensus regarding global warming (**65%** against **63%**), and that it is mainly caused by CO₂ produced by human activities (**67%** against **63%**). Another – noticeable - difference is their perception of the benefits of abandoning fossil fuels in order to reduce our impact on the environment (**64%** against **57%**). In addition, this age group has greater confidence in science centres and museums (**51%** against **35%**), climatologists (**48%** against **42%**), NGOs (**46%** against **28%**), YouTube scientists (**38%** against **13%**) ... and even political representatives, although the latter remain at the bottom of the list (**25%** against **10%**).

- **However, a few discrepancies also emerge.**

The 18-24s are more likely than other French age groups to have doubts about global warming as regards the cold wave in the United States (**37%** against **22%**). Similarly, and more generally, they are less likely to agree with the idea that a statement has more value if it has been scientifically validated (**70%** as against **77%**) or that science should question anything that has not been proven (**68%** as against **81%**). Lastly, more than half of young people do not define themselves as critical thinkers, and **57%** of them prefer to converse with individuals who share their opinions (against **42%** of all respondents).



5

FRANCE AND THE UNITED KINGDOM: NO CULTURAL BREXIT AS REGARDS SCIENCE AND CRITICAL THINKING

For this second edition and with a view to Europeanisation, the Barometer also questioned British citizens.

- **Initially, what emerges is the similarity between the two populations:**

the same level of interest in science, the same (good) memories of science at school, information on science is obtained at the same rate, and scientific venues are visited just as often...

- **Several differences can be observed nonetheless:**

for example when it comes to using the Internet to obtain information and the conviction that abandoning fossil fuels will allow us to reduce our impact on the environment (these two items are more significant in the United Kingdom). The Barometer's subsequent extension to other neighbouring countries will make it possible to verify whether there is indeed a form of "European consciousness" regarding such issues.

COMING SOON

Conference organised by the ReMédís network

November 2023

In November 2023, the ReMédís* Scientific Demonstration Research Network will be presenting a conference during which various surveys concerning our fellow citizens and science will be compared, their complementarity will be explored, and their differences will be questioned. This conference will include a session devoted to professional science educators: how might research into the public perception of science be of use when designing and facilitating scientific demonstration initiatives?

*ReMédís is the first network to be devoted to scientific education through demonstration, and is led by Universcience and six partners; its mission is to make scientific demonstration a subject of research, to promote the production, confrontation and circulation of multidisciplinary knowledge, to create an inclusive reference system within France and to provide it with a European and international audience.

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