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Locating and Timing Matters: Significance and agency of STS in emerging worlds

Platformisation of Scientific Knowledge:

affects and effects of public perceptions and strategies

CONCISE: Communication Role on Perceptions and Beliefs of EU Citizens about Science

- Funding: European Commission, H2020 – SwafS
- Duration: December 2018 – November 2020
- Coordinator: Carolina Moreno, University of Valencia
- Consortium:
  - 5 countries (Italy, Poland, Portugal, Slovakia and Spain)
  - 9 partners (five academic, two SME, one CSO)

CONCISE Objective

CONCISE aims at providing qualitative knowledge through citizen consultation on the means/channels (media and social networks, life experience, relatives, religion, political ideology, educational system...) by which EU citizens acquire their science-related science knowledge, and how this knowledge influences their beliefs, opinions and perceptions.

- OBJ1. To increase our understanding of how beliefs, perceptions and knowledge of science- and technology-related issues originate among European citizens.
- OBJ2. To review the existing structural obstacles that scientists and other R&I stakeholders, including policymakers, currently face when attempting to communicate science successfully.
- OBJ3. To evaluate the existing models for teaching science communication to communicators and scientists in Europe, and to analyse how to elaborate an action plan, including recommendations and the issues that should be explored.
- OBJ4. To enable active citizen participation in scientific research processes, in line with the concept of responsible research and innovation (RRI), by employing a public consultation methodology.
- OBJ5. To measure the positive or negative perception of citizens participating in the public consultation on a selection of stories related to science.

Methodology

- Consultations with 100 citizens in each participating country, diverse sample

- 4 topics: climate change, GMO, vaccines and complementary medicine

- Issues for debate:
  - How citizens are informed
  - Sources/channels reliability
  - Proposals to improve Science Communication

On-going, exploratory analysis about the perceptions and strategies citizen have regarding the role of digital platforms in their access to information about science related topics.

Emergent topic based on the Portuguese Consultations (48 group discussions).

How are media and information platformisation processes shaping the general public imaginations and cultural practices around the access to scientific information and science communication.

- How much citizens have come to rely on digital platforms to access information about scientific topics?
- What are their perceptions about the role these platforms in their access to this information?
- What are their strategies to deal with the perceived effects of platformization?

Internet Imaginaries and Science information

- Focus on the cultural dimension of **platformisation**: "platformisation leads to the (re)organization of cultural practices around platforms, while these practices simultaneously shape a platform's institutional dimensions."(Poell, Nieborg, van Dijck. 2019)

- We look at these platforms as a manifold integrated digital environment of affordances, through which people access science related information, dependending on their experiences and needs, and within a larger media context.

- We use the notion of **Internet imaginaries** to understand a set of practice-base perceptions about the role of digital platforms in science information dissemination and access [Platform Imaginaries (Van Es and Poell. 2020), Algorithmic Imaginary (Bucher, 2017)]

  We consider these experiences not as singular or personal, but as the result of shared collective understandings (imaginaries) of how these socio-technical platforms operate.

Channels and Sources of Science Information

Digital platforms through which people access Information about Scientific topics

Social Platforms
- **Facebook**
- Instagram
- Twitter
- Whatsapp

Search Engines
- **Google**
- Sapo
- Google scholar
- B-ON

Media platforms
- Youtube
- Netflix
- Podcasts hosting platforms

Knowledge Sharing platforms
- Wikipedia
- Blogs
- Science related websites
- Specialized Newsletters

Source of (all) Information

The Internet makes science information widely available for the general public

"*I think there has never been so much information available on the face of the planet. (...) today using a search engine I can collect scientific papers or anything else in minutes. I don't have to go looking for the items, I find them there, if I have internet, today everything is already partially chewed. We have many internet sites with a lot of information. (*M, 47, univ)

We can directly ask Facebook what we want. Facebook can be a way to access useful information with some value depending on what we search for (F, 53, univ)

Dr. Google is always the first ... it's true. When I have a question, the first thing, it's intuitive, is to go online. Then if I think it is something strange, that it is not reliable... If I still have doubts, I go to the family doctor or pediatrician (F, 46, univ)

"it's always the internet"

- General perception that the internet makes science-related information permanently available, making scientific knowledge, at least in theory, accessible to anyone.

- The Internet is seen as the repository of all science knowledge, one that it can be potentially accessed to explore topics, find or verify specific information or look for specialized sources. *"But if you go to the net, the net has everything, the net is an ocean"*.

- Digital platforms become the gateway to this knowledge either as source or channel of information: Search engines in particular, but also social platforms, media platforms, knowledge sharing platforms.

- People rely on their knowledge and perceptions on how digital platforms work to navigate this "ocean". Checking "*the first three pages of google"*, using specialized search engines, looking for specific sources, following the right people. Difficulties in finding the right information is sometimes attribute to people not knowing how to search for it.

Information overload

The Internet leads to the spread of too much information on science-related topics

I think that often the information [on social media] is diffused, there is too much at the same time, ... It's a bag of cats, as they say from where I come from, you have everything and then some more, and sometimes it is preferable to have just a little but good and to be able to select.
(M, 76, sec)

There is a lot of distraction. They are stealing our time. Today social networks are an absorber, a blotter of time. (...) There is a kind of torrential rain, which runs quickly, and underneath stays dry. The information does not reach people. So there is an excess of information.
(M, 70, sec)

There is also information that we don't want. (...) for example, a person buys a computer and it has thirty thousand partnerships and thirty thousand information and advertisements. And sometimes the person has no patience to discover how to turn it off and on, and receives a lot of information that they don't really want. (F, 42, univ)

Information overload

"This is almost like riding in the turbulent sea with only one paddle... sometimes we don't really know where we are going "

- Participants often complained that they are overwhelmed by the quantity of information they have and that overload makes finding specific or reliable information an arduous task, especially in the case os "hot topics" like CC.

- This particularly relevant in the case of social platforms, that are designed to keep a flow of information and incentivize interaction, or search engines interfaces. It is aggravated by the use of multiple platforms and the numerous notifications they get on their phones and computers.

- The overflow of information is seen as having a negative effect on the attention people can give to a scientific topic and requires specific strategies to overcome: adoption of specific news and media repertoires, the identification of specific sources to follow, etc.

- In some cases it means selectively ignoring information that arrives through this media, or the refusal to use these platforms altogether.

The Internet leads to the spreading of unreliable or misleading information about science

Because we know that the net... It's tragic side is like that painting by the Flemish painter who has the blind all behind each other. There are blind people all in line, clinging to each other, and the one who leads the way is also blind. And we imagine that that walk won't end well. I think it's Bruegel. And it is like that, I think a reliable space is missing.
(M, 55, univ)

In social networks, on Facebook, sometimes a person sees something and doubts if it is credible or fake.. and sometimes you have to do some checking, and be careful... but there are areas that sometimes ... .that are not to be believed, let's say. (M, 51, univ)

We have a problem with social networks, they share ideas that are not substantiated and that people use it to not vaccinated. Then, it spreads easily and people easily adhere to unconfirmed news. So our problem is not an anti-vaccine problem, it is a problem of bad information and, above all, of social networks where you put everything you want and there is no one to control it. (M, 70, sec)

Unreliable or Misleading Information

"The Internet, half of what is there is not true"

- The internet is often are seen as the reason why there is so much misinformation, namely on science-related topics.

- Digital platforms are seen are seen as channels of circulation to fake news, extreme positions, dubious sources. This is associated to the fact that anyone can post an opinion, dubious ideias are easily shared, that discussions are often polarized and that sources are very difficult to verify.

- Participants not only consider that the information they get through social networks or search engines lacks credibility, they often attribute direct responsibility to the internet for the spreading of conspiracy theories, false informations and anti-science ideas.

- To navigate these challenges, participants often engage in verification activities, like triangulating sources and debunking information. They also stress the need for critical sense, scientific and digital literacy from users, and ask for more control of the content shared on these platforms.

Filtered or curated Information

The Internet filters the scientific information people access and engage with online.

Google and Facebook communication, those who control all this, this has to be regulated. They study everything in detail, the news reaches each person according to what the person showed with their data. (...) Climate change or any other major theme of humanity included. We know, no matter how much information we look for, we are always being deceived.
(M, 76, sec)
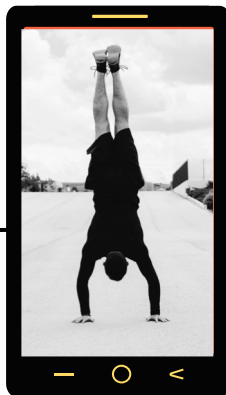
What appears to me on Google is not the same as what appears on Maria's Google. We both use the same expression, but Maria's research history and my history are different, so what appears to me first is not ... And, if I put the term in Portuguese, I find certain sources. If I use the expression in English, I will have access to other things because ... I have no answers. But I think that with the amount of information we are being bombarded with, to survive all this we all have to have mechanisms that does not leads us to say "I saw this and this has become true (F, 53, Univ)

But, since I like this topic in particular, I always end up sharing something, and I confess that I don't have to look anymore because I've modeled my social networks in such a way, that the information comes to me. But I am also aware that this information only comes to me because I showed interest at a certain time
(F, 29, univ)

Filtered and curated information

"*we can make our own algorithm by liking scientific magazines*"

- The general perception is that information about scientific topics accessed on the internet is not neutral and that one has always to question the reason why specific information is shown.

- Participants consider digital platforms promote certain sources, create bubbles where one only sees his own ideas validated, select the information you are able to see when you search for a specific topic using dubious or obscure criteria.

- They were conscious on how their own behaviour online influences the information they have access to. They blamed the algorithms for promoting the most extreme positions about controversial science topics, they expressed frustration at the results of their searches.

- They use the knowledge they have about these processes to try and condition the platforms. They ignore results that they consider questionable, they develop strategies to get the content they want, they condition their behaviour in order to influence the (imagined) algorithm.

Some insights

- Internet imaginaries refer to collective perceptions about the integrated environment of affordances that people use in their daily lives, but they include specific understandings on how different types of digital platforms and different platforms work and how their social technological characteristics (algorithms, interfaces, users practices, etc.) shape the access to and discussions around scientific topics.

- It is in this articulation between broader imaginaries about the internet and scientific knowledge and the role people attribute to digital platforms in this process that we can better understand how people's current relationship to science information is mediated by platformisation processes.

- The multiple, cumulative and sometimes contradictory perceptions about how digital platforms shape people's access to science information go often beyond the actual experience of accessing specific information, they permeate cultural practices and they affect the way people feel and relate to science knowledge.

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