

Detecting the expert knowledge at stake

When mapping controversies, you need to analyse debates in which expert knowledge surrounding a specific theme is mobilized, challenged and disputed. This knowledge can stem from multiple disciplines, ranging from biology, medicine and statistics, to law, sociology, aesthetics, even theology, etc.

“Expertise” here refers not only to specialized and often institutionalized forms of knowledge such as technical and scientific knowledge, but also sometimes to tacit knowledge, for example linked to a particular practice, situation or place.



Questions to ask

- What are the different fields of knowledge mobilized (disciplines and specialities)?
- What are the arguments or themes of debate associated with this knowledge?
- Who are the actors that mobilize or hold expert knowledge?
- Can you identify diverse forms of expertise?
- In particular, do you note the appearance of “lay” collectives like patient or environmental organizations, who struggle to be recognized as experts?
- Can you identify the way in which this expert knowledge has been constructed and legitimated, and is now mobilized?





Methodology of the study

A simple search using Google, Google Scholar and Wikipedia (don't forget the discussion pages) can offer a selection of articles to read in order to identify the presence or absence of expertise(s), provided you formulate your query in a way that is relevant and consistent with the vocabulary – and language – of the experts.

Properly formulating a query in a search engine or database

- Remember to write your query not only in French, but also in English for more relevant results, as academic articles are published mainly in English. Use specialized dictionaries for help (TERMIUM Plus, TermSciences).
- Where possible, use words in lower case without accents.
- Use operators in your search equations (combined using brackets).

Query	The documents returned contain	Result example
“colony collapse disorder”	the exact expression	- the colony collapse disorder is...
bees + colonies bees AND colonies	all the words, in no particular order	- French colonies are beautiful during spring, when bees forage...
pollen OR nectar	at least one of the words	- bees are gathering nectar
bee*	at least one word with this radical	- bees are dying - I have been

N.B. You can also use search engines' advanced search parameters.

Also test these queries in academic databases (Scopus, Web of Science) offering access to specialized publications, where you can identify the distribution of the different disciplines covered by the articles of your corpus (in Scopus: *Analyse search results* function, *Subject area* tab).



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Measuring the activity of a controversy

A controversy does not necessarily unfold continuously and linearly over time, following a process leading from emergence to a climactic moment of dispute and then closure. It can involve stages of intensive dispute spread out over time; its issues, locations and themes can transform over time; it can experience sluggish stages during which discussions and conflicts fade; and the number of actors involved and their positions and configurations can change.

It is important to characterize the dynamics of the subject of study, to understand the origin and evolution of a debate, to identify an issue and, with the help of your supervisor, to define the period of time on which the study should primarily focus.

? Questions to ask

- What is the origin of the debate? When did it appear?
- Is the subject in a stage of intense debate? Have there been recent developments to the controversy? Do highly contrasted positions still exist, particularly in the academic literature?
- To what extent has an emerging problem been formalized? Have social groups concretely developed around it, and are their arguments discussed?
- How has the number of sources evolved over time? If there are peaks or troughs, try to find out why.
- Do the actors mobilized evolve over time (their number, location, arguments, alliances, etc.)? Does the debate remain active across all scenes and arenas?
- If a topic has been discussed for several decades, why is it still open? Conversely, sources that have remained silent for several years can signal that it has been forgotten or resolved (sometimes partially or temporarily).





Methodology of the study

The annual volume of publications associated with a query on different databases provides a sufficiently representative indicator of the activity of a controversy and of its temporal dynamics. Using the following platforms, you can visualize this trend as a graph (and export it):

- Google Trends measures and compares the relative trend in the volume of queries by Google users,
- Web of Science (*Create citation report* function) represents the trend in the volume of academic publications, as well as the trend in the number of citations for the exact sciences,
- Scopus (*Analyse search results* function) represents the trend in the volume of academic publications across all sciences,
- Factiva (discovery window, left of the results) represents the trend in the volume of press articles.

Also start recording key dates concerning actors, events, publications, positions and striking arguments in your own chronology.



Comments

- Depending on the educational choice made, the subject of study can be old or contemporary.
- New facts can disrupt the dynamics of a subject that has already been analysed, and therefore justify a new study.
- Remain vigilant, as there may be new developments to the subject during the study! It is strongly recommended that you set up a watch (on Google News for example).



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Identifying the different actors

A crucial task in your work consists in identifying all the actors of a controversy and the publics that are mobilized, often in diverse ways. This is not easy, as other stakeholders' recognition of an actor's status is itself an issue.

There are multiple actor statuses: individuals, companies, laboratories, civil society organizations, etc. When listing and describing each of these actors, you will be tempted to organize them into different "types". While attempting such a synthesis is laudable, beware not to get trapped in a pre-established and sterile categorization that would reflect a simplified and naïve vision of the world (industrial economic interests opposed to those of activist NGOs, distinguished by supposedly neutral academics, etc.).

Mapping your controversy means describing how, around a subject and its multiple issues, various actors interact, positions evolve, spokespersons are enrolled and sometimes unexpected alliances emerge.

Questions to ask

- Who, in particular, are the actors mobilized around your controversy? What is their status? Each individual or collective presents multiple facets and roles that need to be identified.
- What technical objects (laboratory instruments, infrastructure, laws, etc.) are central to the issues of your controversy? How do they evolve?
- Is there a sufficient variety of actors identified to qualify the debate as a controversy? Make sure that this debate is not of a private nature and is not restricted to a sphere that is too homogeneous and therefore limited.
- Some actors' areas of interest are only partially linked to the heart of your controversy. Consider whether they fit within your subject of study or, sometimes more wisely, whether the perimeter of your subject should not be redefined to encompass them?
 - Which actors pre-existed the problem raised, and which ones emerged through mobilization around a cause?





Methodology of the study

No tool exists to detect actors. Qualitative research (interviews and literature review) will help you to identify them.

- You can request an initial interview with an expert in the field present in your university, your school or your town, etc. Ask them who they mostly interact with, as a starting point to your map of relations between actors.
- Reading press articles, websites, (inter)governmental reports and reports by agencies, NGOs or special interest groups (lobbies, etc.), as well as social media, will allow you to identify key actors and whether they are the authors of these documents or are cited in them.
- Pay attention to bibliographies, particularly for academic texts.

Some specialized databases partially represent the main actors linked to your query:

- Factiva (Companies option in the discovery window, left of the results) lists the companies most cited in press articles,
- Scopus (*Analyse search results* option, *Author* tab) and Web of Science identify the most prolific academic authors and those who have been cited the most.



Describing arenas of debate

In what spaces of discussion does a controversy take shape? The arenas in which actors bring a debate to life can be concrete geographical places: confrontations organized around a project or territory, and forums or conferences facilitating meetings and discussions. They can also be publication and publicity spaces, like traditional or social media, which raise the awareness of and mobilize publics. Finally they can be symbolic spaces: by delimiting and overstepping boundaries, arenas legitimate actors' discourses, or not, as they provide them with a forum or sideline them. Informal forums thus sometimes emerge as a response to official circles of debate, when some endeavour to confine a problem to specialized arenas.

Making a space exist and existing in these spaces is therefore crucial for the stakeholders. Those that succeed are always easier to identify (in the main media, the most cited scientific articles, the first page of Google search results, etc.). Your preliminary study therefore does not represent your full controversy, only a few selective arenas where "legitimate" actors have managed to impose their definition of a problem. Your work will consist precisely in identifying all the arenas of discussion and debate, and in describing their characteristics.



Questions to ask

- Who is talking to whom? In which media or place(s) of debate? Describe these spaces and situate discussions, in order to understand the context in which they were made.
- Did these spaces already exist or are they specific to your controversy?
- Who can participate in each arena's debates? Who is excluded?
- In what circles of influence do the actors mobilize? Addressing which public(s)?
- Are the issues, debates, arguments and actors identical or different depending on the site?
- Identify the degree of formalization of your controversy in the media : can you identify publicising strategies (to convince); has mediatization itself become an actor of the controversy?





Methodology of the study

On Google, search for traces of past, recurrent or future events (conferences, forums). If you can access them during the course of the study, try now to enrol. Observing these spaces in situ will afford you the opportunity to listen to actors, to plan or hold interviews, and to analyse this arena.

Identify precisely the media and academic arenas concerned:

- Europresse (sort by source) and Factiva (*Sources* option in the discovery window, left of the results) list newspapers that have published the most articles related to your query. Distinguish the proportion of general or specialized, and of local, national or international publications.
- Likewise, with Scopus and Web of Science you can identify the main academic journals on your subject. Are the most emblematic articles (the most cited ones?) published in prestigious general journals (*Science*, *Nature*, *The Lancet*, etc.) or highly specific journals?

Try to follow the trajectory of statements reflecting a circulation of issues and the mobilization of actors within different arenas. Are the main academic authors cited in the general press? Is a specific social issue raised in the abstracts of an academic article? Clarify the translation work needed (change of vocabulary, etc.) from one arena to another.



Verifying the feasibility of the study

All the training sheets help to determine the controversial nature of a subject of study: whether the debates concern expert knowledge or not, what the timeframe is, the types of actors are involved, and the arenas concerned). It is nevertheless crucial for you to be able to address it adequately within your own research context. Some “good” controversies are unfortunately difficult to access, as they relate to sensitive strategic industries, or to worlds that are too confined. Other highly localized controversies perhaps require geographical proximity to the place of dispute. Conversely, a member of your group – or your supervisor – may know a key actor who, without introducing bias into your study, will allow you to explore otherwise invisible dimensions of your subject.

? Questions to ask

- Can you already identify sufficient sources to trace the evolution of the subject with a relevant level of detail?
- Are there not too many of these sources for you to read, process and analyse them within the duration of your course? If so, can you define a new perimeter of study around a representative or singular case study, by restricting the conceptual, geographical and/or temporal frameworks used?
- Which types of sources are available? The multiple spaces of the Web (personal and institutional websites, academic or media databases, social networks, etc.) are often your starting point in a controversy, but other types of sources like interviews or participant observations will often offer more precise answers to your questions.
- Are these sources accessible? Can you identify, contact, speak the same language as and meet the actors concerned? While interviews can be held remotely, using Skype, always prioritize direct interaction, and if possible visits to laboratories and attendance of expert talks and conferences, on disputed projects and public debates. This will give your study its materiality, and therefore its richness and originality.





Methodology of the study

Draw up your list of sources, specifying their type and accessibility. Do not forget to include future qualitative research (visits to sites, conferences or public debates, interviews with actors, etc.).

Many academic articles published on paid platforms can be found on *open access*, often disciplinary or national platforms:

- Arxiv.org, as well as PLOS, for the hard sciences: physics, mathematics, informatics, biology, medicine, genetics, finance and statistics (in English),
- HAL for published and unpublished academic articles and theses, from higher education and research institutions in France and abroad, but mainly in French. Likewise, HAL-SHS hosts humanities and social sciences publications,
- PubMed for publications in the field of biomedical sciences from MEDLINE: journals from the life sciences and e-books (in English).

You can build your corpus and tag it into different corpuses using free bibliographic data referencing software like Zotero and Mendeley.



Which controversy for which students?

The experience of mapping a controversy does not depend only on the methods used to describe and analyse it; it is intrinsically linked to the subject studied. Whether it was formulated by the supervisor or by their students, it is therefore important to assess its relevance in a specific learning context. The composition and dynamics of a group, as well as the interests and initial positions of its members, all need to be taken into account to carry out this long-term project.



Relevance in a learning context

Historically, the controversy mapping method came about in an engineering school, with the aim of providing its students with both a scientific and a sociological perspective on the technical objects and issues with which they were familiar. It has also allowed students in the humanities and social sciences to expand their field of study by including these same objects in their reflection.

It is important to grasp the twofold opportunity offered by this learning method: a new perspective on themes already encountered within university curricula, and the chance to explore original research subjects related to the singular interests of a group of students.



Interest in the subject of study

Motivation within a group is often driven by the interest that a subject can generate, especially since studying it is a long process and involves significant work outside of classes. It is therefore wise to offer students the opportunity to define it, even though this is time-consuming. The supervisor can also provide a pre-established list of viable controversies, but in this case it is important to vary the themes and to give the students a choice.



The only limit to the interest generated by a subject should be the capacity to suspend one's judgement regarding that subject for the duration of the exercise.

Position: engagement and suspending judgement

Are one or several of the team members personally affected by elements linked to the subject of study? Were they once or are they still involved in the controversy? Individuals should not shy away from subjects that concern them directly, but they do need to be able to explain their position and to take methodological precautions to accurately represent the positions expressed. You will have to navigate between attachment to and detachment from the issues that you will study.

Group dynamics

For the abovementioned reasons, it is preferable for groups to form around a common interest rather than on the basis of affinity. However the collective nature of this project requires good management of the different team members' degree of investment, character, and competences, which by definition are heterogeneous. Leaders will naturally emerge over the course of the study, but it may be wise to entrust this role to a specific member of the group. Bearing in mind that divergent opinions and discord can be productive.

Within a class or a year, make sure to balance students' competences (in social sciences, possibly IT, drawing, or even web design, etc.). While the roles assigned to each student can be based on this knowhow, students wishing to acquire new skills should not be limited to those roles.

