

Information retrieval methodology

Knowing how to find the right information is a key skill for success at university. Research helps you **locate**, **evaluate**, and **use** the most relevant sources on any given topic.

By following a clear method, you'll save time and improve the quality of your work! Effective research starts with a **step-by-step approach** :

1. Define the topic
2. Identify knowledge
3. Gather information
4. Analyze search results
5. Cite sources

1. Define your topic

Before diving into the actual research, it's essential to define your objectives and identify the key concepts and questions related to your topic.

It all starts by asking yourself the right questions:

1. **Who?**
Who are the **key players** or **groups** involved in the topic?
2. **What?**
What **aspects** of the topic are most interesting? What are its main **components**? Which academic **fields** does it touch on?
3. **Where?**
What is the **geographical scope**? Which regions, countries, or specific **areas** are affected?

4. **When?**

What **time period** are you focusing on? Is the issue historical, current, or future-oriented?

5. **How?**

What **perspectives** should be considered—historical, sociological, economic, scientific, etc.? What **approach** will help you understand the topic best?

6. **Why?**

Why is this topic important? What are its **implications**? Why should others care? Does it raise political, ethical, or social debates?

Let's apply this to the topic of "*global warming*":

1. **Who** is involved?

Governments (national and local); international organizations (UN, IPCC, etc.); scientists (climatologists, oceanographers, etc.); companies (especially in the energy, transport, agriculture); NGOs (environmentalists, humanitarians) ; citizens (consumers, voters, activists), etc.

2. **What** is it about?

Causes: greenhouse gas emissions, deforestation, industrialization; Consequences: rising temperatures, rising sea levels; Impacts: on the environment (biodiversity), the economy (agriculture, insurance), human health; Solutions: renewable energies, reduction of greenhouse gas emissions, reforestation, local adaptation

3. **When?**

The phenomenon began at the start of the Industrial Revolution (19th century); it has intensified since the 1950s; it is particularly

critical today, with effects already visible and alarming forecasts for the decades to come.

4. **Where?**

Arctic zones: accelerated ice melt; Small island states risk of flooding; Tropical regions: increased drought and storms ; Developing countries: high vulnerability and low means of adaptation

5. **How** can we understand it?

The phenomenon is being studied and combated by scientific approaches: climatology, geology, modeling; economic analyses: energy transition, disaster costs; political measures: international agreements (e.g. : Paris Agreement); technological solutions: green energies, carbon capture; social strategies: behavior change, education, etc.

6. **Why** does it matter?

Global warming is a crucial issue because it leads to sea level rise; more frequent and intense natural disasters massive loss of biodiversity; threats to food and water security; forced climate migrations; increased risk of geopolitical conflict over resources

Tip: use a **mind map**! Creating a mind map (or **concept map**) can help you organize your ideas visually. It allows you to see the key concepts, subtopics, and relationships between them at a glance.

This can be a great way **structure your thinking, identify useful keywords, plan which types of sources to consult, decide on the best angles** to explore.

2. Identify knowledge

This stage involves identifying relevant **keywords** to guide your upcoming research. These include terms or expressions that define your topic, as well as synonyms, related ideas, spelling variations, and more.

To begin, you can rely on your existing knowledge, then expand it using a variety of tools available through the library and/or online resources, such as:

- **Dictionaries:** general, synonyms and antonyms, analogical (*thesaurus*), etymological, specialized, and bilingual.
- **(Online) encyclopedias:** *Encyclopædia Universalis*, *Larousse*, *Wikipedia*..

Let's continue exploring the topic of "*global warming*" by starting with a **commonly used reference**: the [Larousse online dictionary](#) defines *warming* as "to warm up" (especially in reference to the weather), and provides the example "the warming of the climate." It also includes the expression *global warming*, describing it as "a climatic modification of the Earth characterized by an increase in the average surface temperature."

In the [UNESCO Thesaurus](#), the **preferred term** is *global warming*, with **related terms** including *climate change*, *carbon dioxide*, *common heritage of mankind*, *pollution*, and *drought*. **Variant terms** such as *greenhouse effect* and *planetary warming* are also listed.

It's also important to conduct research in other languages to broaden your results. The **online translator** [DeepL](#) is a powerful tool for this purpose.

You can also identify useful keywords by browsing the **indexes** at the back of your university textbooks. Be sure to take note of the keywords you find—these may include key concepts, broad terms, specific terms, and related terms. They will be essential when searching for resources in library catalogs and online search engines.

To gain a more comprehensive understanding of your topic and to expand the scope of your research, consult **encyclopedias**. These provide an

overview of the subject and often include bibliographies at the end of each article for further reading.

3. Gather information

Now that you've laid the groundwork with some preliminary knowledge, it's time to dive into the core of documentary research.

To find reliable sources suited to your academic level, start with your **university's library catalog**.

At Paris 1, the main search tool is **Mikado**. It allows you to locate physical documents in the university libraries and access a wide range of digital resources, such as e-books and academic articles.

To help you get started, tutorials are available in the BOB section under "Mikado, le catalogue."

Basic search principles :

Library catalogs, including Mikado, follow a few standard search techniques:

You can conduct a **simple search** by title, author, or keyword.

For more precise results, use the **advanced search** to combine search terms using **boolean operators**:

AND – narrows your search by requiring all terms (e.g. *climate AND policy*)

OR – broadens your search by including either term (e.g. *pollution OR emissions*)

NOT – excludes unwanted terms (e.g. *energy NOT nuclear*)

A few helpful tips :

- Check for **typos**: catalogs usually don't autocorrect spelling mistakes.
- Use **quotation marks** to search for an exact phrase (e.g. "*global warming*").

- Use an **asterisk** (*) to search for word variants (e.g. *clima** will find *climate*, *climatic*, *climatology*, etc.).
- Skip **stop words**: articles, prepositions, and pronouns are typically unnecessary in catalog searches.

Too many results? Try using the advanced search, adding filters, or narrowing your terms.

Not enough results? Double-check spelling, try alternative keywords, or search in other languages (like English).

Understanding your search results :

Each item in the catalog comes with a **bibliographic record**, which provides key information to help you evaluate the source:

- **Title** and **author**
- **Summary** or **description**, offering a quick overview of the content
- **Keywords** or **subject headings**, added by librarians to reflect the main topics.
Pro tip: If a book looks promising, click on one of its subject headings to find similar materials!
- **Bibliographic details**: publisher, publication year, page count, etc.
- **Call number**, used to locate the book in the library (usually found on the spine)
- **Availability status**: whether the book can be borrowed or is for on-site consultation only
- **Additional references**: sometimes, you'll find links to related resources or documents

Not all books are stored in the open-access reading rooms. Some are kept in **storage areas** not directly accessible to the public. In these cases, you'll need to ask a librarian to retrieve the item for you.

Once again, the catalog is your best friend—it tells you where the book is and how to access it.

4. Analyze search results

Once you've defined your topic, it's important to identify the most appropriate types of documents for your research needs:

- For **definitions**: refer to *dictionaries* and *encyclopedias*.
- For **in-depth information** on a specific subject: consult *books*, *textbooks*, *course materials*, and *scholarly articles*.
- For **very specific or niche topics**: look for *unpublished reports*, *studies*, and *dissertations*.
- For **current events**: use *newspapers* and *magazines*.
- For **visual materials**: explore *image or media databases*.

Below are a few examples of each type of resource:

- **Dictionaries** and **encyclopedias**: See section 2. *Identify knowledge*.
- **Books** and **manuals**: these include short educational works such as the “*Que sais-je?*”, “*Repères*,” and “*128*” series; university-level textbooks like Armand Colin’s “*U*” and “*Cursus*” collections, Nathan’s “*Fac*,” Dunod’s “*Dunod Université*,” PUF’s “*Quadrige*,” among others. Also included are essays, published theses, collected volumes, and conference proceedings.
- **Unpublished reports, studies, and dissertations**: often referred to as *grey literature*, this category includes research reports, conference proceedings, doctoral theses, patents, and similar documents not formally published.

- **Newspapers and journals:** general press: daily and weekly publications that cover a broad range of topics (e.g., *Le Monde*, *Libération*, *Courrier International*..); specialized press and academic journals: publications focused on specific disciplines and research (e.g., *Actes de la recherche en sciences sociales*, *Paléo*, *Cités*..).
- **Online Image Databases:** resources for iconographic and visual materials, such as *Jstor*, *Gallica*, *Wikimedia Commons*...

Once you've located a document, it's crucial to assess the quality of the information it contains. To help guide your evaluation, refer to the following six criteria:

1) Relevance of content:

Does the document align with the requirements of your assignment?

Does the content directly address the topic? Is it at an appropriate academic level? Does the vocabulary match your current understanding?

2) Reliability of the source:

Who is the publisher? Is there an editorial board that reviews the content before publication? Is the document aimed at a general audience or an academic one?

3) Author credibility:

Who is the author? What are their qualifications? What is their level of expertise? Is biographical information available (such as institutional affiliation, education, and professional experience)?

4) Objectivity of the information:

What seems to be the author's main goal (to educate, explain, inform, offer personal opinions, persuade, sell, etc.)? Are multiple perspectives presented, or is the information biased?

5) Accuracy of the information:

Are original sources cited? Is the information factually correct and supported by evidence?

6) Timeliness of the content:

Is the document's publication date relevant to the current state of knowledge on the topic? Is the information up-to-date?

While you may still choose to use a source that does not meet all of these criteria, it's important to be aware of its limitations when doing so.

5. Cite your sources

It's essential to always cite and reference the sources you use in your research.

- *For you*: citing sources strengthens the **credibility** and **validity** of your work and helps you avoid **plagiarism**.
- *For the authors*: it respects their **moral and intellectual property rights**, contributing to the **academic integrity** of the scholarly community.
- *For the readers*: it allows them to **trace** your sources and **verify** your findings.

There are various methods for citing sources within your text:

Depending on the bibliographic style, the method of citation may vary.

There are three main citation styles:

- **Classic method (Footnotes)**: in this style, citations are indicated by a superscript number placed just before the quotation marks at the end of the cited passage. This number refers to a corresponding reference at the bottom of the page or at the end of the document. Footnotes typically provide an abbreviated version of the bibliographic reference, rather than a full citation, which will appear in the bibliography. The Chicago style, for example, uses this classic method.

Example:

In the text: Yves Michaud concludes, "Art ceases to be in crisis the day

we need it again¹.”

Footnote: ¹MICHAUD, Yves. La crise de l'art contemporain. Paris: Presses Universitaires de France, 2011. p. 268 (Quadrige).

- **Author-Date method:** in this style, the citation appears directly within the text, with the author's last name and the publication year in parentheses. This is the format used in APA style.

Example:

Yves Michaud concludes, “Art ceases to be in crisis the day we really need it” (Michaud, 2011, p. 268).

- **Numerical method:** in this system, a number is placed at the end of the quotation or sentence (often in brackets) that corresponds directly to a numbered reference in the bibliography. All entries in the bibliography are numbered sequentially. This method is commonly used in Vancouver style.

Example:

In the text: Yves Michaud concludes, “Art ceases to be in crisis the day we really need it” [1].

Bibliography: [1] MICHAUD, Y. (2011). The Crisis of Contemporary Art, p. 268.

Depending on the type of document and the format (physical or digital) of your sources, specific citation rules apply:

Monograph:

LAST NAME, First name, *Title*, edition (if not the first), place of publication: publisher, year of publication, number of pages, series (if applicable).

→ DANGLADE, Nicolas, SARZIER, Miguel, *Travail et emploi au XIXe siècle*, Levallois-Perret: Bréal, 2018. 203 p.

Article:

LAST NAME, First name, "Article title," *Periodical title*, Day Month Year, Issue No., article pages.

→ DETROY, Florent, "Le Brésil malade de Petrobras," *Alternatives économiques*, April 2015, No. 345, pp. 46-47.

Thesis or dissertation:

LAST NAME, First name, *Title of thesis or dissertation*, supervised by First Name LAST NAME, type of degree, Discipline, University, Laboratory, year of defense.

→ CARATTI, Michel, *Vers une professionnalisation raisonnée des ressources humaines*, supervised by Patrick Gilbert, professional master's thesis, 2nd year, Management of Associations, Paris 1 IAE, 2012.

Digital book:

LAST NAME, First name, *Title* [online], place of publication: publisher, year of publication, [accessed on dd/mm/yyyy], series (if applicable), available at: [URL].

→ KALIKA, Michel, *Le mémoire de master* [online], 2nd ed., Paris: Dunod, 2008, [consulted on October 30, 2021], (Méthodo), available at: https://www.numilog.com/bibliothèque/univ-paris1/fiche_livre.asp?idprod=72813.

Website:

AUTHOR / ORGANIZATION, *Home page title* [online], date updated, [accessed on dd/mm/yyyy], available at: [URL].

→ CNRS, *Laboratoire de mécanique et d'acoustique* [online], last modified on February 6, 2008, [accessed on July 30, 2019], available at: <http://www.lma.cnrs-mrs.fr/>.

Online article:

LAST NAME, First name, "Title of page or article," in *Title of website* [online], [accessed on 30 March 2021]. URL: <http://address.of.article>.

Example:

TOURAINÉ, Alain, REMOND, René, GRUSON, Pascale, DUMERY, Henry, "Université," in *Encyclopædia Universalis* [online], [accessed on 30 October 2019]. URL: <http://www.universalis-edu.com/encyclopedie/universite/>.

To streamline your referencing process, consider using **bibliographic management software** such as Zotero, EndNote, or Mendeley.

Bibliographic management software helps you organize, manage, and cite your references. It simplifies the process of inserting citations into your documents, creating bibliographies in various citation styles, syncing references across devices, managing PDF files, and collaborating with others.

Choose the software that best fits your research needs and preferences!