UNIVERSITAT POMPEU FABRA

Research Methodology

Information sources

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Content

- Discussion: “the importance of references”
- Managing references
- Types of information sources
- Information and knowledge
- Access to articles

(Complementary material by CRAI)

- References

Discussion

- How important is the "*list of references*" in a research report (e.g., your master thesis)?

- Why references are useful?

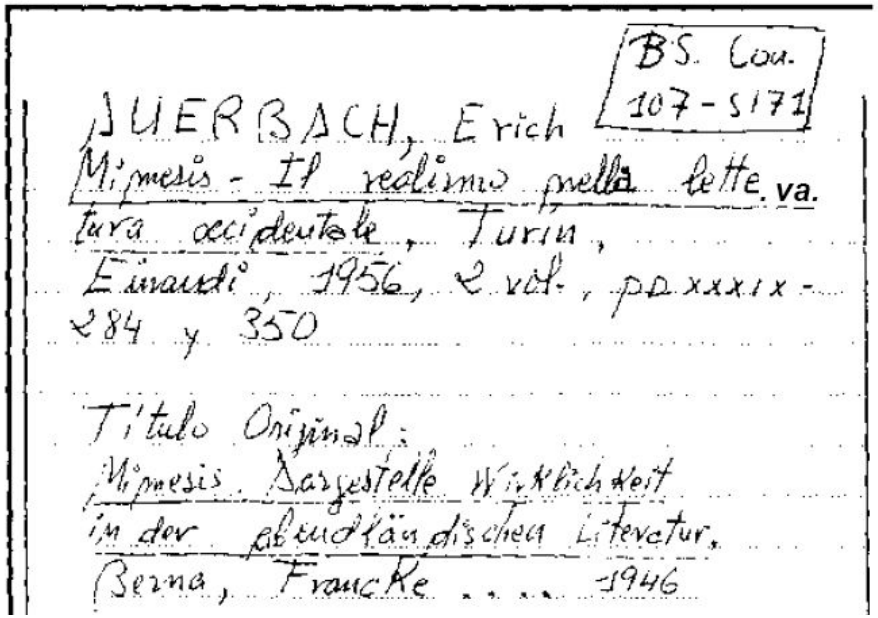
… soon the problem is how to deal with the many references found…

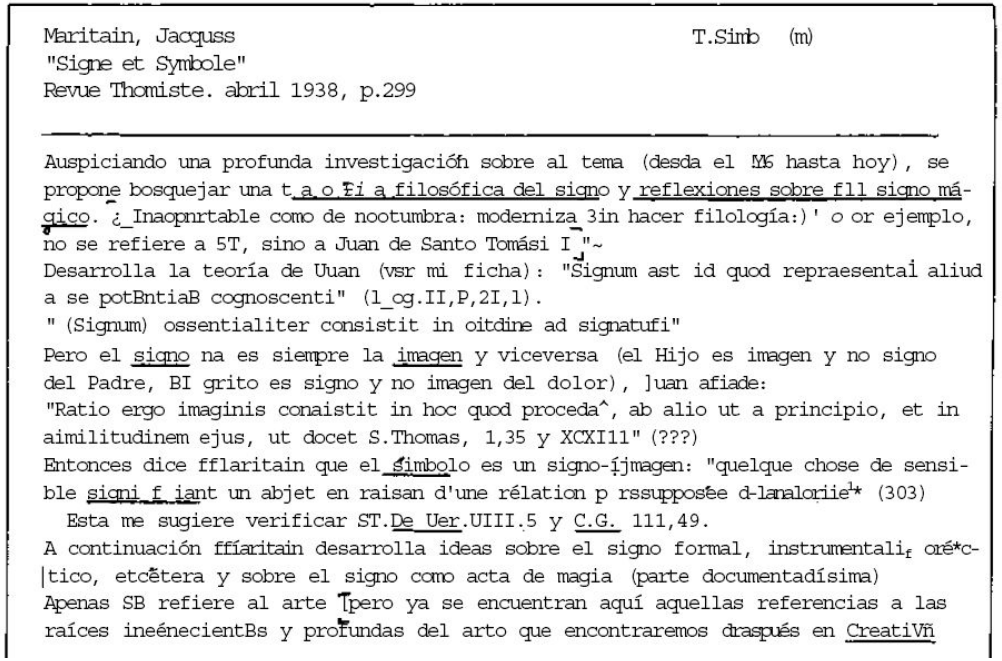
What to record

- Typically, you should keep note of:
  - A brief summary of the content
  - A brief summary of your evaluation
  - Bibliographic details of the literature source (so that readers can find the original text again!)

How to record

- Researchers use(d) index cards to record and summarize bibliographic information





Maritain, Jacquss T.Simb (m)
"Signe et Symbole"
Revue Thomiste. abril 1938, p.299

Auspiciando una profunda investigación sobre al tema (desda el M6 hasta hoy), se propone bosquejar una t a o Ei a filosófica del signo y reflexiones sobre fll signo mágico. ¿ Inaopnrtable como de nootumbra: moderniza 3in hacer filología:)' o or ejemplo, no se refiere a 5T, sino a Juan de Santo Tomási I "~
Desarrolla la teoría de Uuan (vsr mi ficha): "Signum ast id quod repraesentai aliud a se potBntiaB cognoscenti" (1 og.II,P,2I,1).
" (Signum) ossentialiter consistit in oitdine ad signatufi"
Pero el signo na es siempre la imagen y viceversa (el Hijo es imagen y no signo del Padre, BI grito es signo y no imagen del dolor),]uan afiade:
"Ratio ergo imaginis conaistit in hoc quod proceda^, ab alio ut a principio, et in aimilitudinem ejus, ut docet S.Thomas, 1,35 y XCXI11" (???)
Entonces dice fflaritain que el simbolo es un signo-íjmagen: "quelque chose de sensible signi f iant un abjet en raisan d'une rélation p rssupposée d-lanaloriie* (303)
Esta me sugiere verificar ST.De Uer.UIII.5 y C.G. 111,49.
A continuación ffíaritain desarrolla ideas sobre el signo formal, instrumentali$_{f}$ oré*c-tico, etcétera y sobre el signo como acta de magia (parte documentadísima)
Apenas SB refiere al arte Tpero ya se encuentran aquí aquellas referencias a las raíces ineénecientBs y profundas del arto que encontraremos draspués en CreatiVñ

Eco, U. Cómo se hace una tesis. Editorial Gedisa, Buenos Aires, 1982 (in Spanish)

How to record

- Software packages
  - Allow you to maintain an electronic record of both the bibliographic information and your notes. The records can be easily searched by authors, date of publication or using keywords
  - Often provide a link to commonly used word processing packages, so that when writing a report you can automatically insert the bibliographic details of each source without having to type them out again

(you might not be always with your computer, so you might still need to note the details manually and transfer them later to you database…)

Referencing when writing…

- Focus on your research topics and its objectives, relating the critical review of literature to them (and citing relevant references…)
- One way is starting at a general level by explaining key ideas in the domain before narrowing down to explain your specific research questions
- Preference for writing … structured around concepts than around authors (but both are used…):
  - PersonX (yearX) found X, personY (yearY) foundY, perxonZ (yearZ) found X and Y and proposed Z, though (s)he offered no empirical evidence for Z.

  Vs.

  - Evidence for X has been found in (pensonX, yearX; personZ, yearZ), and for Y (personY, yearY; personZ, yearZ), and more recently Z has been proposed, but without any empirical evidence (personZ, yearZ) (this is preferred…)

Referencing

- Two main types of referencing styles:
  - author(s) and publication date appear in the text, and full bibliographic details are then given alphabetically by author in a list of references at the end of the text
  - numbers in the text that refer to a list of references at the end of the text, that are sorted by number
  - The ordering of the bibliographic details within each reference is decided by each publication forum *(many particular different styles)*

Type of information sources

According to scope, expected audience and publishing process:

1. Newspaper articles
2. Magazine articles
3. Books
4. Manuals
5. Reports
6. Preprints
7. Conference proceeding
8. Refereed journals
9. Refereed reviews
10. People….

Type of information sources

- **1.- Newspaper articles**
  - Is: CURRENT
  - Advantage: BROAD IN SCOPE
  - Disadvantage: NON-SUBSTANTIVE (without in-deep coverage)
  - Sources:
    - Science and Technology sections of major newspapers, such as

    El País, Público, La Vanguardia, New York Times, Financial Times
  - Where: subscriptions, libraries, Internet

check the author!

Type of information sources

- **2.- Magazine articles**
  - Is: POPULAR (trendy)
  - Advantage: FOCUSED
  - Disadvantage: LIMITED COVERAGE
  - Sources:
    - Science and Technology sections of major magazines such as
      Times, Business Week, Business 2.0, Wired, CNET news.com, …
    - Science and technology magazines such as
      Nature, Science, New Scientist, Scientific American, La Recherche…
      check the editorial board!
  - Where: subscriptions, libraries, Internet

Type of information sources

- **3.- Books (author)**
  - Is: COMPREHENSIVE
  - Advantage: SUBSTANTIVE
  - Disadvantage: A TIME, A PLACE, AN AUTHOR (OR SEVERAL)
  - Sources:
    - Scientist and engineers that wish to describe with detail the state of the art they have achieved, or the methodology they have developed, or the opinion, or provide a suitable material for teaching the discipline.

    check the author!

  - Where: libraries, bookstores, internet

Type of information sources

- **4.- Manuals**
  - Is: USEFUL
  - Advantage: DETAILED DESCRIPTION
  - Disadvantage: NOT REFEREED
  - Sources:
    - Scientist and engineers that wish to describe with detail the state a methodology they have developed with a practical perspective

      Check for errors!

  - Where: libraries, bookstores, internet

Type of information sources

- **5.- Reports**
  - Is: APPEALING
  - Advantage: MORE PROBLEMS THAN SOLUTIONS
  - Disadvantage: NO OBJECTIVITY
  - Sources:
    - Market research, consultancy groups, government reports

      Check for conceptual errors!
  - Where: libraries, subscriptions, internet

Type of information sources

- **6.- Preprints and progress reports**
  - Is: CURRENT
  - Advantage: ON TIME WITH OWN RESEARCH
  - Disadvantage: UNRELIABLE
  - Sources:
    - researchers

Check for errors of all kind!

  - Where: personal, project or institutional web pages, mail, editorial archives (science direct), large repositories as arxiv.org (http://xxx.unizar.es/), repositori.upf.edu/.

Type of information sources

- **7.- Conference proceedings**
  - Is: MIRRORING THE PRESENT STATUS OF THE FIELD
  - Advantage: VARIETY
  - Disadvantage: HETEROGENOUS QUALITY
  - Sources:
    - Associations of researchers (IEEE, ACM, etc.)

      Check for quality!

  - Where: libraries, subscriptions, internet

Type of information sources

- **8.- Refereed journals**
  - Is: SCHOLAR
  - Advantage: AUTHORITATIVE
  - Disadvantage: ONE OR TWO YEARS RETARD
  - Sources:
    - Associations of researchers (IEEE, ACM, etc.), publishing houses.
  - Where: libraries, subscriptions, internet

Type of information sources

- **9.- Refereed reviews**
  - Is: SCHOLAR
  - Advantage: AUTHORITATIVE AND BROAD
  - Disadvantage: PARTIAL SCOPE
  - Sources:
    - Associations of researchers (IEEE, ACM, etc.), publishing houses.
  - Where: libraries, subscriptions, internet

Type of information sources

- **10.- People**
  - Is: ALL
  - Advantage: DEEP KNOWLEDGE HARDLY CAPTURED BY TEXT AND FIGURES
  - Disadvantage: DIFFICULT TO FIND
  - Sources:
    - Universities, research centers, R&D Departments in industry,…
  - Where: seminars, conferences, congresses, meetings, parties….. and sitting besides you

Information and knowledge

- How to use information to improve knowledge and produce high quality research is only mastered with time, when criterion is developed
- Different types of sources have a particular role in the process:
  - Articles in newspapers and magazines to be aware of major changes in related disciplines that can have impact in your research
  - Reports to be aware of problems and demands coming from the industry or the society in general
  - Books to learn and follow appealing points of view
  - Congress proceedings to follow the trends in your research community
  - Refereed journals as foundations for your own research
  - Manuals to help in the everyday tasks
  - Reviews to start a new line of work….

Information and knowledge

When looking for information,

a) ask yourself some questions before to start:

- What kind of information are you looking for?

  Do you want facts? Opinions? News reports? Research studies? Analyses? Personal reflections? History?

- Where would be a likely place to look?

  Which sources are likely to be most useful to you? Libraries? The Internet? Academic periodicals? Newspapers? Government records?

Information and knowledge

b) Evaluate the content in the source

- Read the abstract

  What does the author want to accomplish? Is the kind of information are you looking for?

- Browse through the table of contents and the index.

  This will give you an overview of the source. Is your topic covered in enough depth to be helpful? If you don't find your topic discussed, try searching for some synonyms in the index.

- Check for a list of references or other citations that look as if they will lead you to related material that would be good sources.

- Determine the intended audience. Are you the intended audience?

See http://www.library.cornell.edu/olinuris/ref/research/skill26.htm#LinkAuthor

Information and knowledge

- Refereed journals should be your first choice when learning to do research and until you have enough criterion to explore no refereed sources

- Libraries the place to go, and
- the librarian and your supervisor or tutor the persons to ask: the librarian is not somebody keeping the books ordered! They have been trained to help you to find information!

- Internet: the dangerous source where "everything" can be found (very good, good, bad,… and very bad!)

- And READ, READ, READ… and where you find yourself lost during researching… go to the library… and READ, READ, READ!

Access to articles

- Library
- IEEE IeeeXplore
- ScienceDirect Elsevier
- Springer
- Wiley Interscience Search
- ACM

- Google scholar, citeseer, scirus…

Ranking the journals: Journal Impact Factor

- The impact factor is provided by the Journal Citation Report (JCR), a product of Thomson ISI (Institute for Scientific Information).
- The impact factor is a measure of the frequency with which the "average article" in a journal has been cited in a given period of time.
- It is the average number of times published papers are cited up to two years after publication. For example, the impact factor 2020 for a journal would be calculated as follows:

  A = the number of times articles published in 2018-19 were cited in indexed journals during 2020

  B = the number of articles, reviews, proceedings or notes published in 2018-19

  impact factor 2020 = A/B

Ranking/impact

Ranking the articles and scientist

It is common that 80% of citations of a journal come from 20% of articles

Also it highly depends on the discipline and the size of the community working in a field

An article impact is usually measured by the number of citations (usually excluding self-citations)

upf.

Research Methods