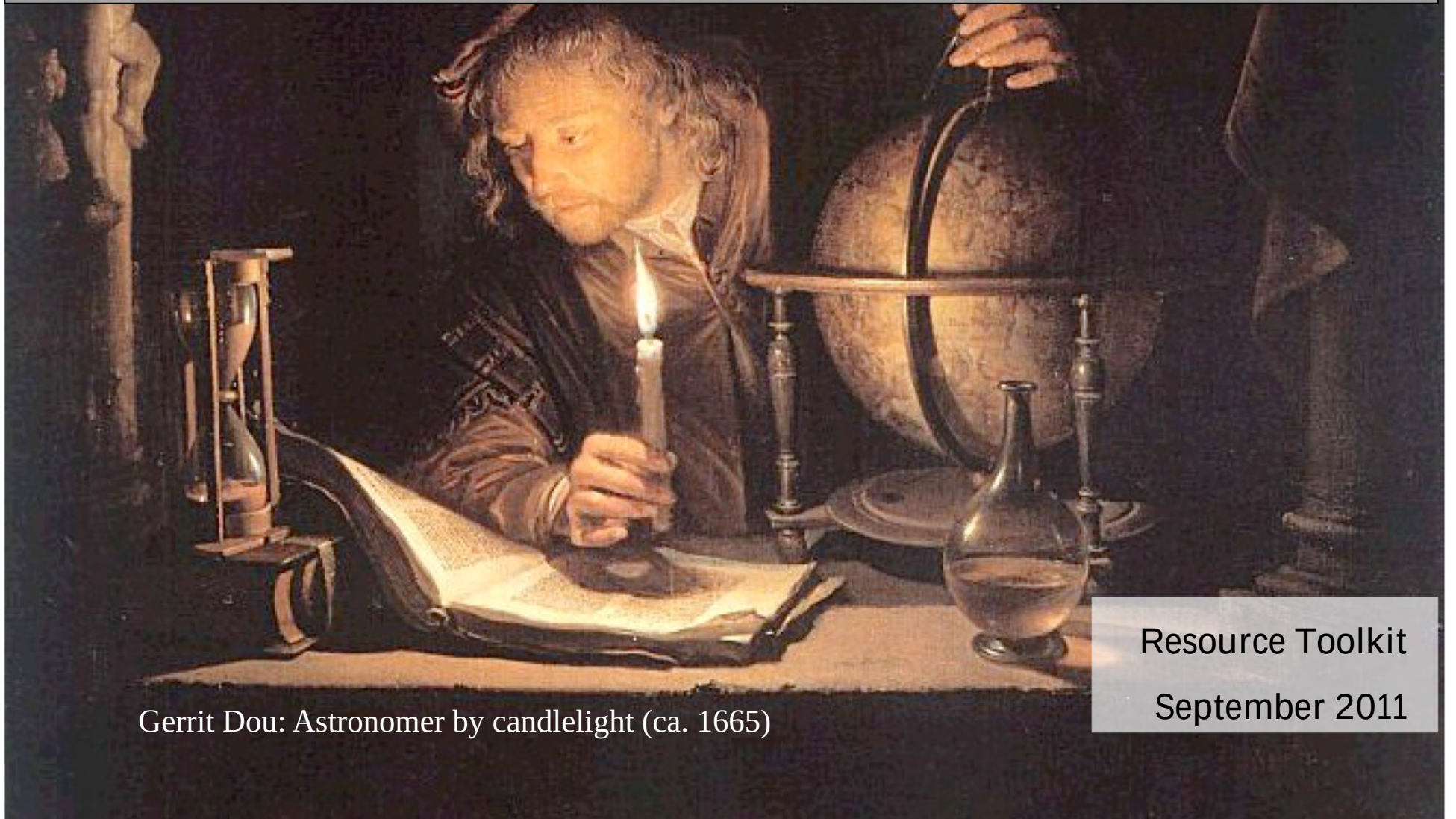


How to design a research project



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Gerrit Dou: Astronomer by candlelight (ca. 1665)

Resource Toolkit

September 2011



1.
What is a
research project?

1. What is a research project? |

2.
Six steps to a
well-crafted
research project

2. Six steps to a well-crafted research project |



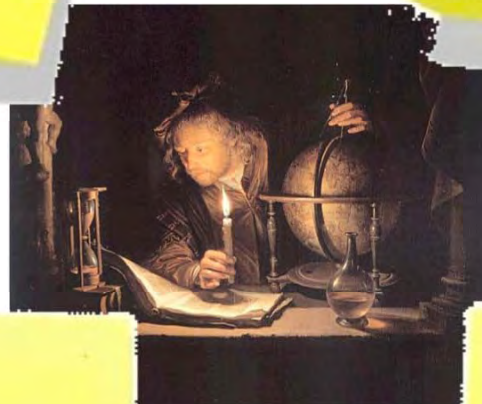
What is research project?

1.
What is a
research project?

2.
Six steps to a
well-crafted
research project

quest for new knowledge
and reflexivity

focused on a research
question



applies research
methods in a
transparent and
rigorous fashion

based on the collection
and analysis of
empirical material



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Elements of a research project

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What is a
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Six steps to a
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1) Review the literature



2) Formulate a research question



3) Design your methods and research strategy



4) Collect and process empirical material



5) Analyse empirical material



6) Write up results





1a) Review the literature



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- What has been written on the subject?

Don't be fooled: There is seldom a thought that has never been thought before! A thorough literature review is therefore essential to avoid duplication.

- ✓ Develop a list of keywords that describe your subject by looking at some initial literature, databases and catalogues
- ✓ Search for previous published research in
 - abstract databases (e.g. ISI Web of Knowledge, Scopus)
 - library catalogues
 - Google Scholar and Google Books
 - the reading list from your course
- ✓ Work your way backwards from newer literature using snowball technique



1b) Review the literature

Take care to ascertain the quality of the literature.

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Safe

- scientific journals
- academic monographs and edited collections

Check

- official reports
- think tank publications
- ...

Danger

- newspapers and magazines
- novels
- guide books
- ...

Possible criteria

- use of citations
- use of evidence to support argument
- transparent methods
- respected scientific publishing house
- affiliation of author(s)



1c) Review the literature



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If you are **unable to find literature**, chances are that you either:

- a) did not search thoroughly enough
solution: use different search engines and search in different places
- b) used the wrong keywords
solution: think of other keywords
- c) have chosen a topic of little academic relevance
solution: redefine topic



1d) Review the literature

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Note that if you do not find relevant literature, it is highly unlikely that you have discovered a new, exciting area that no-one else has bothered to explore.

Remember this anecdote:

An economics professor and a grad student are walking along the sidewalk and the grad student spots a one-hundred dollar bill on the ground. He bends down to pick it up. The professor says, "Leave it. This is counterfeit. If there was a genuine one-hundred dollar bill on the street, someone would have picked it up already."



Avoid duplication...

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1e) Review the literature

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How to read literature for a research project.

Consider the following questions:

- What are the topics of the text?
- What is the current state of the art as presented in the text?
- What methods does the text use to gather the material?
- What are the main findings?
- What school of thought does the text adhere to (e.g. positivist, critical realist, constructivist)?
- What interests you in the text? What aspects would you like to explore with your own research project?



2a) Formulate a research question



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On the basis of the literature review, come up with one research question.

Criteria

- feasible
- neither too broad nor too narrow
- clear concepts
- relevant

Choose a research question that grabs your interest.
Otherwise it can be hard to keep going in tough times.



2b) Formulate a research question

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Sample research questions:

- How will climate change affect vegetation in the circumpolar North?
Too broad plus problems with data availability.
- What can be done to mitigate the effect of climate change in the circumpolar North? **Too unspecific and applied plus not feasible for the time frame.**
- Was the Arctic summer in 2010 hotter than usual?
Too specific. Also unclear. What is the Arctic summer?
- How many native people live in the Northwest Territories?
Too simple. Can be answered with one number.
- How effective are protected areas against illegal logging of boreal forests in Russia? **Feasible. Clear. Relevant.**



2c) Formulate a research question.

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Many good research questions either start with

- „how“: identifies novel trends, developments or outcomes and attempts to explain social phenomena

or

- „why“: identifies the causes of a particular event or general trend

... and attempt to explain relationships between phenomena.

A good research question allows you to make an argument and not just assemble facts.



3a) Design your methods and research strategy



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Key question:

What evidence are you going to use to answer your research question and how are you going to collect it?

The choice of methods depends on the nature of your research question.

Imagine this like picking flowers: many of them will look nice, but only certain combinations will make for an attractive bouquet for certain occasions.

Remember: a research project is based on original research and analysis, as opposed to just collating information from other academic sources or pulling it off the internet.



3b) Design your methods and research strategy

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Empirical material

Quantitative (= numbers)

Secondary

- Statistics (e.g. from national statistics offices, international organisations, NGOs, companies and so on)

Primary

- Surveys (mail, personal, online)
- Experiments

Qualitative (= text)

Secondary

- Newspapers and magazines
- Documents
- Film, music, photographs

Primary

- Interviews
- Focus groups
- Participant observation



3c) Design your methods and research strategy

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Check:

- *Validity*: Will the methods yield data appropriate to answering the research question? Do the methods capture the phenomenon you want to capture?
- *Reliability*: Do the methods deliver consistent results and are free from random errors?
- *Feasibility*: Are the methods feasible given time and resource constraints?
- *Plan B*: Are there fall-back options if something does not work as planned?

Once you have decided on your method(s), consult an appropriate academic source to learn more about the minutiae of working with this method!



4a) Collect and process empirical material!



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Collecting empirical material might sound easier than it in fact is. Consider the following challenges of working the field:

- *Division of labour*: if working in a group, divide the work and make sure there are no overlaps.
- *Data availability*: Research subjects might not be available when you want to interview them or it takes time to get permissions for conducting research. When requesting data from organisations, it takes time to assemble them and send them back to you.
- *Avoid mission creep*: There is lots of interesting material out there. Keep focused on your research question, unless there is a cogent reason to branch out and include other things.

Time planning is crucial! Start collecting data early, do not leave things to the last minute and include some contingency.



4b) Collect and process empirical material

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After collection, data need to be processed:

Quantitative data

- transform analogue data into digital form
- code data into variables
- clean up dataset (outliers, missing values, incomplete or duplicate data)

Qualitative data

- transcribe interviews
- structure field notes
- group material into categories (coding)

Remember the flower metaphor: after picking flowers, you will need to prune and clean them: remove the soil, cut off some roots, discard withered leaves.





4c) Collect and process empirical material

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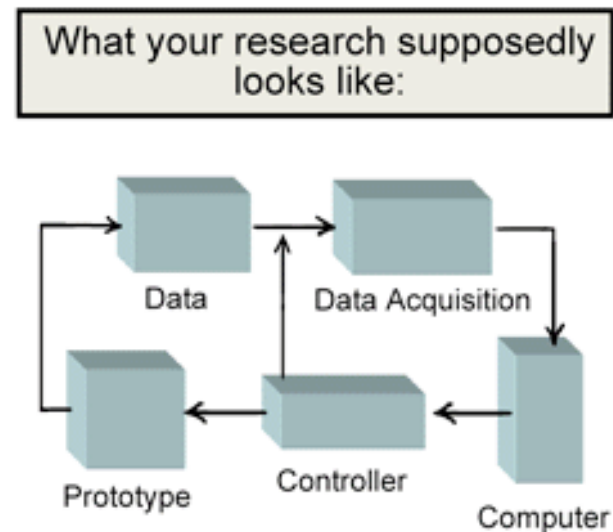


Figure 1. Experimental Diagram

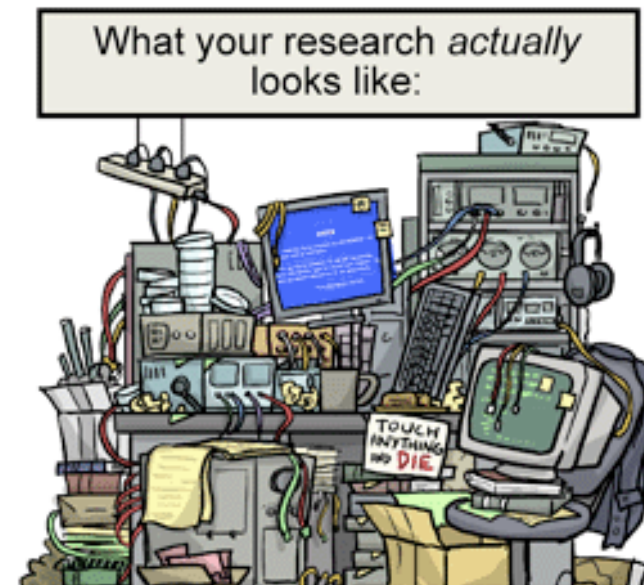


Figure 2. Experimental Mess

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... but (experimental) mess can sometimes be useful in its own right, see Law, J. 2004. *After method: Mess in social science research*. London: Routledge.



5a) Analyse the empirical material



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After collecting the flowers you will have to arrange them in a meaningful way.

For the research project this involves:

- *Select the strongest bits and pieces*: There will be plenty of material: cut it down to what you think helps you make your argument best.
- *Order the material into a coherent argument*: What is the story behind your research? How does the empirical material link up? What aspects are there?
- *Interpret the material*: do not just summarise or collate things, but go one step further and interpret.

Flowers can be arranged in different ways to make an attractive bouquet. The same applies to the interpretation of data: through selection and interpretation you can tell different stories.





5b) Analyse the empirical material

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Interpretation is the hardest step in working with the empirical material. It is essentially what you make of the data and means adding value in a number of possible ways:

- *Highlighting patterns*: Can we see any regularities or perhaps contradictions?
- *Explaining findings*: Why have you found what you have found? What might be the reasons?
- *Qualify and contextualise*: What might be the limits of your findings? Against what context do they have to be understood?

Results are meaningless without the researcher's interpretation!



6a) Write up results



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Writing up the results involves creating a condensed version of the research project and its major findings.

The major sections of such a paper comprise:

- ✓ a review of the pertinent literature
- ✓ a description of your methods and data collection
- ✓ the interpretation of the material with the most important findings
- ✓ a discussion of the findings against the literature

If you have followed the steps for the design of a research project, writing up is a straight-forward process, because it includes most of the steps.



6b) Write up results

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- ✓ Construct a coherent narrative. The introduction and conclusion need to frame the other sections.
- ✓ Do not start writing until you have figured out the story board.

“Perhaps a great deal of your hard-won knowledge and material will end up, as film people used to say, on the cuttingroom floor” (Becker 2007: 31).

- ✓ Make sure your evidence and your claims align.
- ✓ Be careful with implications. All implications need to flow logically from the empirical material and your interpretation.
- ✓ Situate your paper against the literature.

For a more detailed guide on how to write a research paper, see the separate document in my skills toolkit.



Further reading

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Creswell, J. (2003): *Research design: qualitative, quantitative, and mixed methods approaches*. Sage: London.

Law, J. 2004. *After method: Mess in social science research*. London: Routledge.

Polonsky, M. and D. Waller (2011): *Designing and managing a research project*. Sage: London.

Silverman, D. (ed.) (2004 and later editions): *Qualitative research: theory, method and practice*. Sage: London.

Tabachnik, B. and L. Fidell (2001 and later editions): *Using multivariate statistics*. Pearson: Needham Heights.