Intellectual Output

Guidance to

research steps





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This guidance provides an overview of the basic steps of a scientific process in social sciences. Therefore, the criteria which constitute scientific research are examined briefly by discussing important steps in a research process such as how a research topic can be chosen, how a research question is formulated, how the research process itself is structured (developing a research design, collecting data, choosing methodology, analysing and summarising the findings) and how a research report is written.

Overall, this manual outlines the process of scientific research in social sciences to provide a theoretical foundation for inquiry-based learning and problem-based learning processes. This guidance along with the methods presented in the separate method manuals for teachers and students as well as the DETECT impulses to start the research process, make it possible to successfully implement a DETECT-studio. However, this manual is meant to provide general guidelines and it is not necessarily mandatory to conduct each step.

Inquiry-based learning and problem-based learning

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Inquiry-based learning (IBL) requires students to work on a certain topic, guided by lecturers who function as facilitators. The work on a specific topic stretches from the development of a research question, to the theorization and to the empirical studies. According to Detjen, IBL is an open learning process (of beliefs, issues, problems etc.). It is dependent on methodology communication within the group, and selection of subjects. It is an exploration and expansion of knowledge and an experimental and self-directed learning. (cf. Detjen 2014: 493-501)

Problem-based learning (PBL) is a part of IBL, whereby teachers lead students to social conflicts/problems and students find solutions on their own. According to Goll, PBL occurs when a certain problem is at the centre of a learning process and learning evolves through the experience of solving it. In this process, competences like the ability to judge and communicate, think critically and conduct self-directed learning develop (cf. Goll 2014: 258-266).

To reflect on the methodological approaches of IBL and PBL, the understanding of the general research process in social sciences is helpful.



Research in social sciences

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What do we mean by investigating or doing research? A simple explanation could be to look for an answer to a question. The search for answers in a scientific investigation has to fulfil certain criteria and should be:

- Systematic: the investigation must have a methodological strategy formed of several stages or phases.
- Controlled: the conditions in which the research is conducted in (who to investigate, how, where and when to investigate) should be planned.
- Stable: research is a process, which develops/unfolds over time.
- Generating: research seeks to increase scientific knowledge.
- Empirical: the researcher carries out field work to check the possible response to the research problem.
- Self-critical: researchers should not fall into complacency but should question and review the decisions they make during the investigation, as well as the possible answers and results of the study.

Any search for answers that does not present any of these characteristics may be an inquiry, but not a scientific research process. However, what can be considered systematic, controlled, stable, etc. depends on your research question and the methods the investigation this question requires. It is not at all easy to develop a viable research question, and you should dedicate enough time to this step. A precise research question is your compass through the research process. It will guide your research plan and the selection of your methods and help you to keep on track. A research is evaluated (and marked) with regard to this research question and your capacity to answer it.

Starting the research



To get an image of the different steps of a research process and how they could be implemented in the classroom, please also have a look at the framework for conducting a DETECT-Studio.

## 3,1, Finding a topic

A research topic can be the result of bibliographic research, public discussions, or practical problems. Based on the public and polarized discussions in your country the research topic is chosen as appropriate. You are then requested to elaborate a response to such discussions based on research and reliable data.

## 3,2, Formulating the research question

Your ideas about an appropriate research question most probably do not derive out of extensive literature research but are most probably intimately related to your experiences, presumptions, prejudice and theoretical approach – whether you are conscious about them or not. It is important that you are aware of these presumptions so that you can critically reflect how they influence your research. A research question should be clear and concise, and answerable with the research tools of social sciences. Research questions do not contain value judgements. Research questions should meet the following necessary criteria:

- be open and not able to be directly answered,
- be answerable within the framework of the research,
- research can be structured and guided through it,
- be answered in the conclusion.

As we can see the research question is very important for the whole research process. Therefore, it also should motivate the researcher.

## 3,3, Using research methods

Once the question has been formulated, it is necessary to find a way how to answer it. The research methods depend on your research question. When you make your research plan, you need to consider all the necessary steps for your data collection. Consider that you will also need time to interpret your data and write the final report. How much time will you need to revise your final text, etc.? How you proceed now depends on your research question. In case you only have time to make a bibliographic research, you should still be able to apply criteria for evaluating the research design, the empirical data and the research undertaken by the authors you are reading. As a reader of a research paper, you should be able to identify the research question and the research approach, the design chosen by the author, and you should reflect on its coherency.

#### 3,3,1, Collecting data

How you carry out your study and which decisions you make depend on your research question. How many people will participate in your research; how you choose them – i.e., what characteristics should they have and how do you select them; which information do you need to obtain; which techniques and tools will you use for obtaining the information; how will you analyse the information obtained? In order to answer these questions, you need to know various sampling techniques, research designs, data collection techniques and tools, and data analysis techniques as well as instruments and techniques to collect data. When you read a research paper, you should be able to identify all these aspects of the research. In order to undertake the research necessary for answering the research question, you have to select the adequate instruments and techniques. The guiding question for this selection is what information you need to obtain. Several sub questions derive from this guiding question:

- Which instruments or techniques should you use?
- Have these instruments been used in other investigations?
- Do you have to adapt them, or do you have to design specific instruments or techniques in order to obtain the necessary data?

Techniques and instruments could be:

- a questionnaire,
- a media analysis,
- measuring with scales,
- different forms of interviews of individuals,
- group interviews, network analysis and different forms of observation.

In data collection, the role of the researcher is always crucial. The researcher therefore has to reflect about his or her role during data collection and should document relevant observations.

#### 3,3,2, Considering methodological plurality in social research

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Obviously, most research designs include several methods. For example, if you want to understand specific dynamics in a refugee camp, you might wish to consult the statistical information available e.g., how many people live there, for how long, or their distribution according to age and gender. You visit or research the camp, consider certain criteria for observation and make the corresponding notes. You opt for interviews but also do participating observation during a gathering. A qualitative research is a good starting point for developing the scales and items you wish to include in a questionnaire. This means that research methods are interdependent, and the most appropriate combination depends on your research question.

The different approaches to social science research depend on the problems that an investigator wishes to analyse and his or her theoretical and methodological preferences. The research question guides the research process that leads us to an answer and the selection of the adequate research methods. The research perspective of a researcher determines which questions he or she will ask and which research methods he or she will use. These different approaches are legitimate and fruitful in their complexity and complement each other. Each method has its advantages and limitations. Therefore, the combination of different research methods provides us with deeper insights than using a single method.

# 3,4, Analysing the data

The research process most probably provides you with plenty of data you have to structure, analyse and interpret. In fact, studies often accumulate much more information than necessary for answering the research question. In order to make best use of your data you have to develop your own system of organising them. You need to develop your own system of how you name and organise your files, how you document your research data, how you manage bibliographic references, and how you organise the relevant correspondence. You should develop a consistent system for organising your data as soon as possible to avoid unnecessary time loss while searching for your files and feelings of frustration. The University of Cambridge offers an online data management guide with a comprehensive chapter on organising your data (see: https://www.data.cam.ac.uk/data-management-guide/organising-your-data).

## 3,5, Drawing conclusions

In order to draw appropriate conclusions, you have to (a) know your data very well, (b) analyse it carefully, and (c) document this process adequately. Based on your research process and your analysis, you are now prepared for the last step - the conclusions. Conclusions are much more than just a summary of your results and analysis. Be aware that the conclusions are not the place where to include new material. They should be based entirely on the material you present in your research report.

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In your conclusions, you explain what can be learned from your research. This gives you the opportunity to elaborate on successes as well as on difficulties. Here you can elaborate on the reasons why, for example, a hypothesis you formulated proved wrong, or why a specific insight is new and important. In your conclusions, you also give suggestions on how to improve research design, methodology or data interpretation, and you point out the limitations of your research and highlight new research questions.

## 3,6, Composing a research report

A research report informs the reader about the research question and how you developed it, the research design and its characteristics, the process of your research, the results and the conclusions of your research. With the publication of the report, you make your research available to the academic community and beyond and help to increase the body of knowledge on a certain topic. This also implies that it allows other researchers to evaluate your work and discuss the strengths and weaknesses of the research as well as the scope and limitations of its conclusions. A research report should be clear, concise and comprehensive. It should allow another researcher to replicate the study or engage in similar research and thereby reconfirm, amplify or contradict your results.

Your research report starts with the title of the report, the name of the authors and their affiliation. The title must reflect the content of the investigation as faithfully as possible. It should be as long as necessary and as short as possible, and reflect the seriousness of your work. You will be asked to provide keywords and a summary of your report. Well-chosen keywords increase the possibility that your report will be found by other researchers who are interested in your work. Readers will decide based on the summary whether they continue reading your report or not, so pay attention to it. Stick to the specification of the contracting authority, i.e. the number of keywords and the number of words or characters you can use for the summary. Every academic work is situated within a theoretic framework. Your report has to make it clear that you know the theories that have been developed with regard to your research topic, and that you know where your report is positioned in the corresponding debates. It also implies that you have to know which studies have been conducted on the topic, their results and conclusions, which questions derive from their work, and how your work relates to them. The theoretical framework must be a well-organised synthesis of the information gathered about the research problem. It has to be well-structured and logical and coherent in its composition.

The section about your empirical research has to specify your general topic, your research question and the objectives related to both. According to your approach, you have to explain your hypothesis, your well-informed presumptions about the context or your assumptions about the possibilities of joined and accompanied action. You have to explain the methods you applied and their suitability for the study of the problem. This includes the number of participants, the criteria for selecting them, sample techniques, relevant characteristics (age, income, etc.), the techniques and instruments for the data collection and how they were designed as well as their validity and reliability. You have to describe the procedure of the research, i.e. when, where and how it was carried out, who participated, etc. Your data analysis and interpretation have to be comprehensible for the reader. Therefore, you may visualise them in tables or figures, or you can add paragraphs of transcribed interview sequences etc. in your final report.

You finish your report with the conclusions as discussed above. All the literature you use has to be documented in your bibliographic references at the end of the document. Always respect the guidelines given by the publisher and stick to them meticulously.

### 3.7. Conclusion

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While this manual can only give you a short and superficial introduction into the research process, it should, however, have become clear that research is a complex, time consuming and work intensive endeavour. Research requires patience, self-reflection, the capacity to develop and follow a work plan, and the openness to have one's methods and results revised and criticised by others. In fact, sound social science research is the very opposite of simplified, easy-at-hand solutions: social science research makes you understand that there are many more questions than the answers, more uncertainties than certainties, more tentative answers than closed answers. In these times of polarisation, researchers should adopt an open and authentic human dialogue that facilitates understanding among people from different ways of life (Castells, 1998).

References & reading recommendations Chapter

N. Call

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