

How to write a PhD research proposal

Designing a PhD-project

In this section some ideas are presented about the process of designing a research proposal and the elements that a research proposal preferably contains. More details about designing are to be found in: Verschuren P. & J. Doorewaard. *Designing a Research Project*. Lemma, Utrecht 1999.

The proposal preferably contains the following six aspects or elements:

- The product of the research, i.e. the *research objective*.
- The *research questions* to be answered in order to achieve the research objective.
- The *research material* (e.g. data) needed to answer the questions.
- The *research strategy* and *methods* to be used.
- A *work plan* with an overview of *activities*, *products* of these activities and *time limits*.
- The *link with existing theory*.

These six elements should be linked in a logical and understandable way. That is, the task of a research designer is to formulate a clear and feasible objective, to derive research questions from this objective, to decide what data or research material is needed to answer the questions, how he or she plans to process and analyse this research material in order to find these answers, and finally a work plan that tells *what* activities are planned to do *when*, with what (aimed) *results*. All this should be steered and inspired as much as is possible by existing theory and the knowledge the researcher already has.

Objective → questions → material → strategy/methods → work plan

The designing process should be carried out in an *iterative* way. That is, during the designing

process the designer has to go continuously back and forth between the five elements of the design plus existing theory in order to see whether reflections on or a (provisional) decision as to one element have repercussions for the other elements. For instance, in thinking about the research questions (after the research objective has been provisionally formulated), the designer may perceive that he or she failed to notice something when formulating the research objective. Thus it should be reformulated. Make sure that, once you changed the objective, you have to check the rest of the design! This is where iterative designing is about. Or, in selecting the research material new ideas about research questions may arise or existing ones may change. If so, the designer has to check whether a change in the research questions asks for a fit of the rest of the design in the making. Designing research thus is a matter of trial and error before the researcher achieves a well-balanced design. *It is impossible to do this adequately in a linear-serial way.* You are strongly advised to *cooperate with your supervisor* in developing your research design in an iterative way. The reason for this is that you need some creativity and fantasy to make the design, and a critical eye as well. These are easier to realise by *brainstorming* with another person than doing this all by yourself, behind your desk and an empty paper! Below the six elements of a research design presented above are elaborated.

Links with theory

As already stated there should be a clear link between your project and existing theories or (body of) knowledge and/or with research on this subject matter that already has been done. Depending upon your discipline and the research tradition of your group or the particular research area, in fact the entire designing process may be guided by existing theory (if any).

For instance, the selection and exact formulation of the research objective may be derived from theory, from a generalisation of results, but also from new ideas. The same goes for deriving the research questions. This is especially the case if the research issue is not (only) built up of research questions, but (also) of hypotheses. This is called hypothesis testing research.

A very interesting way to present the research results at the end of your project is to ‘predict’ the answers to the research questions on the basis of a theory or a set of theories. The

researcher then presents the results by describing to what extent these ‘predictions’ appear to be right, i.e. fit reality, and to what extent they do not. As to the latter alternative he or she may formulate suggestions why the ‘predictions’ contradict reality. This is a much more interesting and fruitful way to write the latter part of a thesis than simply to sum up your findings. However, for obvious reasons you have to formulate these ‘predictions’ already at the beginning of your project. They even may make part of your design. In any case these ‘predictions’ should be taken into account in the iterative process of deriving your research questions. Theory may also be helpful in defining the main concepts, and thus in selecting the empirical data that are needed to cover these concepts and to make it possible to find an answer to the research questions.

The research objective

A research project in principle focuses on one of the three products below. Of course this main product may force the researcher first to produce one or both (of the) other products. The project may also generate one or both (of the) other products as a by product. But in principle the best thing to do is to decide at the beginning on which of the three possible objectives you will put an accent.

- a. The production of insights, knowledge or a theory. These may be descriptive (how exactly does the phenomenon look like or how is it built up exactly?) or explanatory (what are the causes or backgrounds of the phenomenon?). What is exactly the phenomenon that you want to describe or explain? What type of insights, knowledge or theory are you aiming at?
- b. To formulate and argument recommendations to improve something. What type of recommendations do you want to make? For *achieving what* exactly? And why is this valuable or useful?
- c. The development of a new object, a tool, an instrument, a policy, a plan or something like that. Describe *shortly* this object, tool, instrument, policy, plan to be developed. Give also a short description of what the tool, instrument et cetera is aiming at and what *functions, demands and side conditions* it exactly has to fulfil.

Warning: Defining the objective of your research only makes sense if you are as *clear, concrete and realistic* as possible! Please check these three criteria!

The research questions

The development of research questions is by far the most complicated and important part of the designing process. You are advised to do this in three steps, followed by checks:

- 1 Formulate *what type of information or knowledge* (about what exactly?) must be produced in order to achieve the research objective.
- 2 Then on the basis of (1) you tentatively formulate one or a few central research questions, the answers to which represent exactly the knowledge you just mentioned.
- 3 Finally you derive *two or more* sub questions from each question in (2). This should be done in such a way that the answers to these sub questions together are the answer to the central question from which they were derived, *neither less nor more*. This in fact means that you can leave out the central question once you formulated the sub questions. This may be a nice check on the adequacy of your sub questions. The reader should make clear that an iterative strategy means that this fit may be achieved by adapting either the sub questions, *or* the central question from which they are derived, *or* both. The sub questions form your final research questions.

Warnings:

- a You should not formulate a question of the type: *'how can* I find... (a solution for..., insight in..., an instrument for... and the like), as this does not help you any further and contains no new information for those people who are going to evaluate your design. Synonyms of a 'how can' formulation are: 'What is the best way to...', 'what possibility do we have to solve the problem' and the like. As the reader may check, in fact this how-can type of formulation (mostly) regards the research objective. For formulating research questions you have to derive from the research objective what *information, knowledge* and *insights* are needed or useful to achieve this objective.
- b Avoid to present desk-decisions as research questions. Examples are: What literature or theory do I need? How must the central concepts be operationalised? What is the optimal sample size? Et cetera. You have to answer these questions before you start with the research on the basis of your own (or your supervisor's) common sense or methodological expertise.

- c Do not formulate questions for an interview instead of research questions. The first ones are *afterwards* to be derived from the latter ones!
- d Do not formulate a question starting from scratch. Try to *start from as much knowledge as you have already* of your subject matter (see also below under the label ‘link with theory’).

Describe *for each* research question:

- 1 How an answer to it will contribute to your research objective. If this is not clear for *somebody else* and or asks for much explanation and elaboration, your research question is not yet clear enough. Continue the process of finding questions that have a clear contribution to achieving your research objective (and or adapt the research objective).
- 2 What data are needed for answering it? That is, it should be possible to answer for each question the questions (a) to (c) below under the heading of ‘The research material’. If these questions can not be answered in a straightforward way, either the question is not adequate (see warnings above) or answering them is not feasible. You then have to reformulate your question (and thus most probably also your research objective).

The research material

Answer the next three questions *for each research question!*

- a What sources of knowledge are you planning to consult (experts and literature).
- b What secondary empirical data do you need?
- c What empirical data (research material) do you have to gather or to generate yourself? Where will you find these data and or how are you going to gather or generate these data (observation, questioning, and content analysis of written and audio-visual documents)?

Describe shortly how from these data the answer to your research questions can be found.

Besides you have to answer the next question for the project as a whole, i.e. for the set of research questions.

- d How do you plan to *select* your data sources or data? This is a matter of sampling, either random sampling or strategic sampling. The first alternative regards a quantitative research with many data (sources), the second fits a qualitative research with only a few cases. To answer this question you must in any of the two cases define your *population of interest*, i.e. the domain about which you exactly want to produce knowledge. Describing carefully the boundaries of this population helps a lot in getting clear where your research exactly is about and what is the reach of it. Try to be realistic at this point! This forces you to reduce your project to a feasible size, which is a first condition for its success. Next you define *criteria* that will be used in the selection process.

The research strategy/methods

Please specify in this section how you think you are going to handle the research material in order to find answers to your research questions, and/or to test your hypotheses (if any).

If you plan to do a quantitative research you have to specify what type of quantitative research you plan to do (one shot survey, a panel research, a trend study, an experiment and the like). You also specify what type of data analysis you plan to do and what methods you are going to use (multivariate analysis techniques, optimisation methods, etc.; provide the detail that is useful to know for judging the research proposal).

In case of a qualitative research please specify what type of research it is (a comparative case study, a field research, interpretative research or so). And how do you plan to process and to analyse the research material in order to find an answer to your research questions?

Your research strategy may also consist of building and handling a computer model, gaming (simulation with people) or computer simulation.

Please try to make clear or plausible how your strategy and methods will contribute to answering your research questions and/or to test your hypotheses.

Work plan

A final aspect of a research design here to be mentioned is a work plan. The art of making a plan for your PhD project is to cut the whole job into pieces, and to do this in a reasonable and realistic way. This plan must make clear what activities should be done within certain time limits. It should also specify what is the product or what are the results of a given time period. There are several possibilities for this unravelling into pieces. One is: (a) making operation the research design, (b) gathering and/or generating the research material (data), (c) processing the data or the material, (d) analysing it and (e) to write the final report. However, this is a very linear way of proceeding. It often fits a quantitative type of research better. In case of a qualitative type of research you may prefer to carry out the research in a (more or less) iterative way. (So you not only do the *designing* in an iterative way as this was the advice above, but also the *carrying out* of the research!). In that case you might for instance prefer to split up the project in subprojects, each consisting of answering one of the research questions or one of the hypotheses to be tested.

Some general remarks

A PhD project can either lead to:

1. A number of published papers with an introduction, possibly one or more supportive chapters and a discussion and conclusions at the end.
2. An integrated thesis.

PhD research is non-repetitive: it should contain at least some new elements, either in theory, in methodology or in application. Still it is possible to test a theory, to estimate a model or to do a case study that has quite some similarities with previous research. For case studies, the estimation of models and the testing of theories or of the findings of previous research, it is important that the researcher links her or his results with all the available knowledge there is.

PhD research is intended to contribute to proceedings of conferences and other scientific meetings, to journals (preferably international scientific journals) or books published by

scientific publishers. Besides that, it is important to communicate results in professional journals or newspapers whenever these results raise interest. Graduate Schools encourage practice oriented research that has a clear link with actual problems in society and with other disciplines: working within a multidisciplinary framework is encouraged.

The PhD-researcher should finish as somebody who can do and organise scientific research independently.