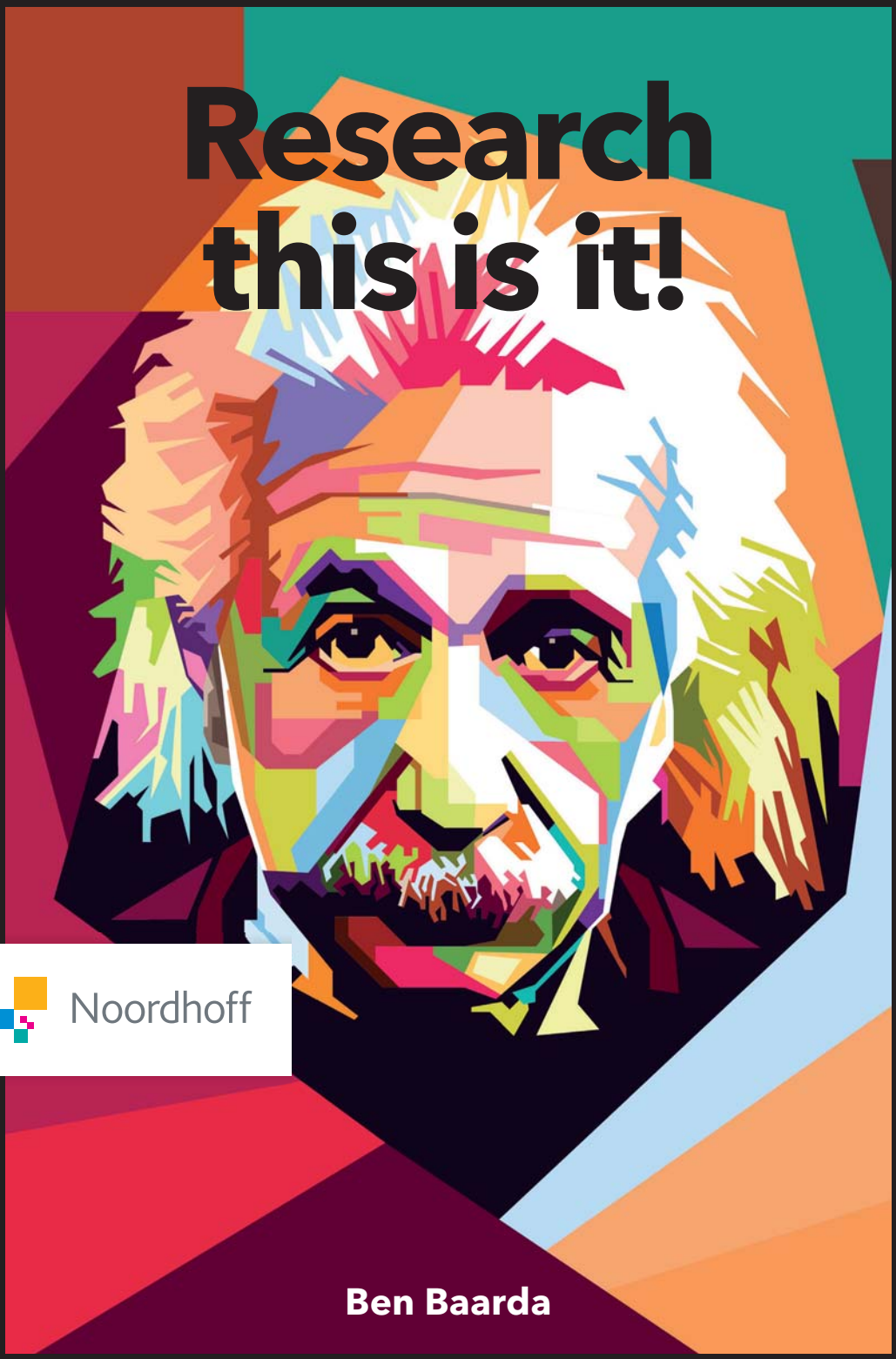
Research this is it!



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Ben Baarda

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Research this is it!

Guidelines for designing, performing, and evaluating quantitative and qualitative research

Ben Baarda

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Preface

A life without research is impossible

Research is part of life - it is not a dull hobby of greybeard scientists. If you have every found yourself without a cent to your name no less than a week after payday, you may stop and wonder what happened. Reviewing your incomes and expenses may lead you to conclude that a couple of hard nights on the town resulted in some considerable financial expenditure. You decide to put that theory to the test by moderating your spending. Research is nothing more than the search for information, usually used as a basis for resolving problems. You are conducting research every day - although generally not in a very systematic manner. Good research, however, is characterised by a verifiable and systematic process of gathering, analysing, and interpreting data. This book aims to explain that process.

Read a newspaper or online news resource, and you will find yourself face to face with research nearly every day.

www.nrc.nl

Hier moet je afspraken over maken om financiële heibel te voorkomen

Ruzie over geld - Stellen maken vaak ruzie over hun financiën. Het verschilt per persoon wat je van huis uit meekreeg op dat gebied en dat beïnvloedt vaak onbewust je gedrag. Goede afspraken maken over vijf heikele kwesties helpt heibel voorkomen.
We ruziën wat af over de financiën. Geen wonder: twee op de drie mensen vindt dat hij beter met geld kan omgaan dan zijn wederhelft, blijkt uit onderzoek van Wijzer in geldzaken, een initiatief van het Ministerie van Financiën. Ondertussen regelt binnen een relatie meestal één persoon de financiën en administratie. En over grote geldzaken, zoals hypotheek en verzekeringen, beslist in de meeste gevallen de man. Dat heeft vast de nodige mot opgeleverd toen de miljoenen financiële producten die zij afsloten geen gouden bergen bleken, maar woekerpolissen.
Niet verrassend, kortom, dat geld in de top vijf staat van onderwerpen waarover we binnenskamers herrie hebben. Veelvuldiger zelfs dan over de (opvoeding van) kinderen of het huishouden, volgens het Nationaal Instituut voor Budgetvoorlichting (Nibud). En óók vaker dan over seks, als we 'online bibliotheek' infonu.nl moeten geloven.

19 januari 2018

Research can help people in their daily lives, for example with getting to grips with their financial affairs. An example is the Dutch website Money Wise (https://www.wijzeringeldzaken.nl/english). An initiative of the Dutch Ministry of Finance, this website is a place where partners from the financial industry, the science community, the government, and educational and consumer organisations have joined forces to promote responsible financial behaviour in the Netherlands. Organisations coaching people through financial difficulties benefit from knowing not only how often these problems occur, but also how they arise and what their consequences are.

Research is essential for companies as well. Dutch statistics bureau CBS calculated that, in 2015, companies spent nearly 7.7 billion Euros on research & development. Decisions on how to market their products and services are research-based, but so are decisions on whether to invest, as well as their evaluations of services and trainings.

Evidence based

Whatever your (future) profession, you will definitely make use of research results, and possibly even engage in research yourself. And it is becoming increasingly common for managers, for example, to work in an *evidence based* fashion. This means their decisions should be based on facts instead of mere suspicions. There are certainly many misconceptions in the field of management. Engelfriet & Koch (2017), for example, question whether there is any evidence to support the strong appreciation for USPs (unique selling points). Many companies have USPs, but do not manage to be successful regardless of the fact. Evidence in the form of research results hinges on

those results being valid and reliable, ensuring that they can be trusted when using them as the foundation for business efforts.

Research – This is it! explains what makes research valid and reliable, and how to set up and implement good research. You start by formulating the problem that is the occasion for a study, and end by writing a report and offering a recommendation. Real life, practical examples found online illustrate the theory discussed. The idea behind this book is that research should be possible from the confines of a desk or table – it should not have to rely on the use of fancy software. An intern at a small company or at a company abroad should also be able to conduct research. Therefore, in addition to common analysis procedures like SPSS, I also discuss data collection methods and analytical techniques for PCs or laptops that are available at no costs and can be found online – including Microsoft Excel, which offers substantial statistical support. And there are also various programs for web-surveys, which are usually free.

Applied research

Research – This is it! focusses mainly on applied research: research intended to contribute to practical solutions. Both companies and organisations facing problems often ask students to dedicate their thesis studies to those problems. The Dutch municipality of Haarlemmermeer, for example, experienced the problem of having a Facebook page with very little response traffic. So they asked a student to provide them with a means of increasing the commitment of visitors to Facebook page (Bastiaans, 2018). To answer that problem, a research first needs to investigate what it is that visitors of the Facebook page expect, and whether and to what extent those expectations are met. Based on the outcomes of this investigation and the information you obtain on the workings of Facebook pages, you can compile an advisory report.

In addition to information on how to set up and perform a study, this book offers information on how to look for information. A particular feature of this book is that it addresses both quantitative and qualitative research.

Quantitative research

Quantitative research is used to determine something using numbers and figures you analyse, for example to determine the level of satisfaction about a Facebook page among its visitors. In other words: how big is the problem for visitors to the page. These types of studies often make use of questionnaires or observations, counting the number of time a certain characteristic or combination of characteristics occurs. This often involves the use of many statistics, such as averages.

Qualitative research

Qualitative research is used to explore and discover, for example to determine the nature of a problem. What do the visitors of a Facebook page expect from this page? What information do they consider to be irrelevant, and what information do they feel is missing? To answer those questions, you often conduct (open) interviews with relevant parties, asking open questions. In addition, you analyse mainly texts, such as the responses to the open questions, and the reports of interviews, for example with people who have a problem. Sometimes, you engage in observations in order to find out information. Suppose that the producer of a drug to manage rheumatism were to ask you to investigate a complaint made by predominantly elderly people, who struggle to remove the drug from its

packaging. By observing how the elderly remove the drug from its packaging, you may discover what is causing the problem – information that can then be used to develop new packaging.

www.nd.nl

Kort en Klein: Pillen lastig verpakt

Het is soms (te) moeilijk om pillen uit hun verpakking te krijgen. Wetenschapper Kim Notenboom van de Universiteit Utrecht heeft dat eens goed onderzocht. Pillen uit een strip drukken? Een tabletje doormidden breken? Of een verpakking van pillen gewoon open krijgen? Dat is soms best moeilijk. Vooral ouderen vinden het lastig, zegt de onderzoeker. En als ouderen daardoor hun pillen niet op tijd kunnen innemen, kan dat tot verslechtering van hun gezondheid leiden. Ze vindt dat de verpakkingen handiger moeten worden.

Vind je dat een goed idee? Heb je ook weleens geworsteld een pilletje uit de verpakking te krijgen?

28 september 2017

Most handbooks in the field of research are vast and sometimes rather inaccessible. This book tries to limit the information to its essential, but in such a way as to encourage you to perform research. It therefore aims to use research examples that are relatively simple to perform yourself, for example the students who investigated the amount of clothes people had in their wardrobes, and how often these clothes are put to use. You will find more extensive information – such as a manual on how to analyse gathered data using statistical software tools like SPSS or Excel – on the website companion to this book: www.research.noordhoff.nl. The website also provides tests, research examples, internet resources offering additional information, and an interactive program to help you draft your own research design.

The book is a one-on-one translation of the Dutch original, *Dit is Onderzoek!*, making it useful for students of either language working in tandem.

Lastly, I would like to thank the teachers whose excellent critical questions and remarks contributed to the continued improvement of *Research this is it!*

The Hague, Autumn of 2019

Ben Baarda

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Contents

Study guide

In a concise and practical manner, *Research - This is it!* addresses the theory and practice of quantitative and qualitative research. It is structured parallel to the implementation of an actual study, starting with the problem statement and ending on reporting. Four chapters are designed to teach you to set-up, outsource, evaluate and evaluate a study, as well as to create a research plan. This is shown schematically in the table below.

The four components of research design

Chapter 1	What the researcher wants to know, and why they want to know.
Chapter 2	Whether the researcher is using a research design that can answer the suggested research question, and whether they are collecting their research data from or about individuals, institutions, or objects that are representative of the persons, institutions, or objects that are the focus of the research question's answers.
Chapter 3	Whether the researcher is collecting the research data correctly: are they using the right data collection method, and has it been applied correctly?
Chapter 4	Whether the researcher has processed and analysed the research data correctly, whether they have drawn the right conclusion, and whether the manner of reporting on the research is correct.

Navigation per chapter
Each chapter starts by listing its sections, and the topics discussed. For example:

1 What do you want to know?

1.1 What are the problem statement, the research objective, and the research question?
1.2 Is the research question open or closed? Is the research qualitative or quantitative?
1.3 What are units of analysis and constructs?
1.4 What information about the research topic is already known?
1.5 Does the study aim to describe, to explore, or to test?
1.6 Is the study feasible?

Blue and green margins
Research - This is it! covers both quantitative and qualitative research.
- A blue margin indicates this section applies to quantitative research.
- A green margin indicates this section applies to qualitative research.
- No colour in the margin indicates this section applies to both quantitative and qualitative research.

This looks as follows

A study of the clothes in people's wardrobes is a closed-ended research question. A group of student researchers wants to establish how many clothes people own. Using an observation form, they start counting the trousers, sweaters and what have you, found in the cupboards and drawers of the people involved in the study. The researchers have some idea of what to expect. They also know that there are different types of clothes. Because the researchers already know what it is that they want to observe, they can take a targeted approach – in contrast to the researcher looking into people's motives for cancelling their bank accounts. The wardrobe researchers can therefore use a fixed observation scheme, with established scoring rubrics.

Closed-ended

In the medication example, the researcher concludes that it is mainly elderly people who sometimes struggle with opening medication packaging. A pharmaceutical company keen to develop new packaging that is easier to use for elderly people must first inquire after the specific problems that elderly people face in terms of medication packaging. Their research question would be: `What are the problems elderly people experience in opening medication packaging?' This is an example of an open-ended research question.

Open-ended

Examples
The examples in this book are from articles or research reports available online. Each example lists an abbreviated link to its origin. At the end of each chapter, you can find a list of sources which include the full online addresses. For example:

www.fnv.nl

Werkdruk en werkstress

Ongeveer 1 op de 3 werknemers heeft last van werkdruk. Als je een te hoge werkdruk hebt, is dat niet alleen vervelend, maar op den duur ook slecht voor je gezondheid. Werkstress, burn-outs en hart- en vaatziekten: allemaal voorbeelden van klachten die samenhangen met werkdruk.

Tips
Research - This is it! offers various tips. For example:

TIP
WHEN DOING RESEARCH, FIRST SET UP A DATA MATRIX
Designing a data matrix helps create a clear insight into the units of analysis and their constructs.

Decision tree and reading guide
At the end of each (sub)section, you will find a decision tree which summarises the contents of the (sub)section concerned. To illustrate with an example:

Open-ended research question →	Qualitative research →	Can it be verified
Closed-ended research question →	Qualitative research →	Can it reproduced?

Checklist
At the end of each section, you will find a checklist. For example:

CHECKLIST 1.1
What is the path from problem to research objective to research question?
- What is the problem on which the study is based?
- What does it look like as a mind map?
- Why is the study being performed?
- Is the study ethically responsible?
- What is the general research question and what are the sub-questions?
- What is the question you are ultimately going to investigate?

Suggested reading
At the end of each chapter, you will find a list of suggested reading in the form of books, articles, and websites, as well as online videos, all aimed at offering a more in-depth look at the topics addressed in the chapter. For example:

Problem analysis: a convenient tool for problem analysis is the Phoenix Checklist. This list of questions, originally developed by the CIA to assess the nature and size of a problem, can be found at hamelinterests.com/blog/best-practices-for-problem-solving-thephoenix-checklist/

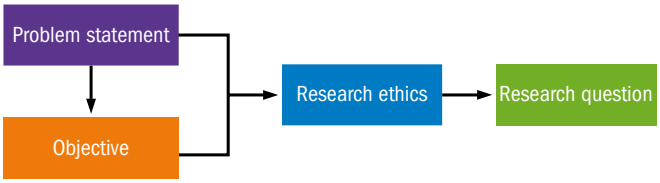
Website
At www.thisisresearch.noordhoff.nl (the website companion to this book) you will find:
- tests
- budgeting forms
- planning forms
- research design examples
- a model for creating a research design
- concise manuals for Excel and SPSS, including the data files used for the examples in *Research - This is it!*
- in-depth topic information
- links to useful websites


COMING UP
PROBLEM STATEMENT
OBJECTIVE
ETHICS
RESEARCH QUESTION
QUANTITATIVE/QUALITATIVE
UNITS OF ANALYSIS
CONSTRUCTS
LITERATURE STUDY
DESCRIBE/EXPLORE/TEST
FEASIBILITY
1

1 What do you want to know?

In this chapter, we discuss how to translate a practical problem into one or more research questions. Research questions rely on certain clearly established factors: is the question concerned an open one (qualitative research) or a closed one (quantitative research)? You also need to determine the subject of your study (units of analysis) and the aspects about which you want to draw a conclusion (constructs). It also makes sense to make use of existing information when trying to answer your research question. Furthermore, you need to verify whether or not your study poses any ethical problems. Research design depends on the nature of a study; whether it is to describe, to explore, or to test. And lastly, it is import to consider, in advance, whether the study can feasibly be performed.

1.1 What are the problem statement, the research objective, and the research question?



A research plan and a research report always start with an *introduction*. This introduction is used to discuss the context of the study. What is the reason for doing research, what exactly is the issue, and how has this resulted in the research question(s)? The starting point is usually a certain problem; this is particularly true of applied research. One example would be the Facebook page of a certain municipality having only very few followers responding to the content on that page. Based on an analysis of the problem, you formulate one or more definitive research questions. Generally speaking, the introduction follows a formula of narrowing down its subject matter: you start by broadly outlining the problem and its context, and end with a narrower, more specified research question you intend to answer.

Translating a problem into a research question requires you to consider the following issues in order:
1 problem statement
2 research objective(s)
3 research ethics
4 research question(s)

1.1.1 Problem statement

In general, you start with a problem that you do not know how to resolve. This problem may be of a personal nature (you), a professional nature (a business), or societal nature. Solving the problem requires information.

Problem statement

Your research proposal, as well as your research report following the completion of your study, starts with a problem statement.

> The problem statement is the context that gives rise to the research question.

Examples of possible studies:
- Could I improve my sales figures by branding my courgettes with a sticker?
- Which parts of domestic residences are the most susceptible to break-ins?
- Are container homes sustainable?
- Is offering speech therapy to children with language-development delay beneficial?

Information

In all of these cases, solving the problem requires information. The researcher's task is to ensure the information provided is good. Based on the information, others come up with, and implement, a solution.

www.nvrd.nl

Onderzoek statiegeld op kleine flesjes en blikjes maakt gevolgen duidelijk

In een onderzoek zijn de kosten en effecten van meerdere varianten van het invoeren van een statiegeldsysteem voor kleine flesjes en blikjes doorgerekend. Hierbij zijn de hoogte van het statiegeld (10 of 25 cent), het type inzamelpunten (alleen supermarkten of alle verkooppunten) en het soort verpakkingsmateriaal (blik, plastic en glas) als variabele meegenomen. De belangrijkste conclusies zijn:

- Uit de onderzoeksresultaten blijkt dat de invoering van statiegeld op kleine flesjes en blikjes het aandeel van deze verpakkingen in het zwerfafval met 70 tot 90% kan verminderen.
- De invoering van het systeem kost 10 tot 110 miljoen afhankelijk van de gekozen variant en de gehanteerde marges. Hiertegenover staat echter bekostiging van het systeem door niet ingeleverde verpakkingen en bonnetjes van 31 tot 121 miljoen en staat een mogelijke afname op de huidige systeemkosten voor P((M)D) van 5,5 tot 8 miljoen.
- De afname van zwerfafval van blikjes en flesjes zal volgens de onderzoekers leiden tot een reductie van kosten voor opruimen van zwerfafval en het ledigen van openbare afvalbakken. Het gaat hier om een mogelijke besparing van maximaal 90 miljoen per jaar. Dit is echter wel afhankelijk van de inzet van gemeenten.

1 september 2017

This study told the researchers that the introduction of a returnable deposit on cans and bottles would likely lead to a reduction in the amount of litter. This reduction is offset by the required investment of tens of millions of Euros needed to organise the collection, transport, and processing of the returned containers. There would, however, be a reduction in costs – from having to clean up less litter. If parliament was to decide on whether or not to implement a returnable deposit on bottles and cans, this research information would be of the utmost importance. These types of studies, aimed at sensitive policy decision, are often a cause of extensive debate. The Dutch Centraal Bureau Levensmiddelenhandel (CBL – Central Bureau for Food Trade) – the supermarket brand association in the Netherlands – which opposes a wider application of returnable deposits, for example, marks the study as incorrect. A study that does not result in the desired outcome is often dismissed as being unreliable.

It is important to properly represent the context of your study in your research report and research plan. What is the source of the idea for your study, what is it based on? In a study into the introduction of a returnable deposit, for example, you would explain the magnitude of the problem of litter on the one hand, paying particular attention to the contribution made by small bottles and cans. On the other hand, you would point out the issues and costs associated with processing this type of waste. Searching for information online would lead you to conclude that this is something that

other countries also deal with, and that there have been previous studies into this issue. Including the information about litter in your introduction clarifies that this is a serious issue that has not simply popped up out of the blue; it calls for investigation.

Problem analysis

Analysing the problem is a difficult and complicated procedure. Clients often know what it is that they want, but sometimes find it hard to indicate what the problem is. For example, they may want to effect a cost decrease in production, allowing them to decrease their sales prices and improving their competitive position. But what, exactly, is the problem in this example: the costs of production, the sales price, or the competitive position? And what does the client expect you, the researcher, to come up with? In light of this, it is important to take ample time to analyse the problem. You can find a list of important considerations for a problem analysis at www.research.noordhoff.nl.

Government institutions and companies want their researchers to provide them with ready-made solutions. Your client may be looking for you, the researcher, to offer a solution to the issue of declining sales figures. The problem here is that while research can yield information, it cannot offer concrete solutions. One possibility, for example, would be to investigate the causes of the decline in sales. Based on the results of your study, you could formulate a recommended course of action. Usually, this is not a task someone performs in the role of researcher, but in that of expert or consultant – a business engineer, for example. You would base your advice on what you have learned in your study of business administration and literature on the topic. In this case, the study helps you to determine exactly what the problem is, possibly the fact that the customer service experience is poor. Your report should clearly indicate where the study ends, and where your consultancy begins.

Policy question

The same applies to market studies. A production company who hires a researcher to offer suggestions on how to improve their market share is not presenting the researcher with a research question, but with a *policy question*. The answer to a policy question usually takes the form of advice: advice on what an institution or company should do. This requires information and therefore often research. In order to answer a manufacturer's question – 'How do we increase our market share?' – you will need to know, for example, to what extent consumers are familiar with the product in question. A question about brand recognition *does* construe a research question. Table 1.1 offers examples of a policy question and a research question.

TABLE 1.1 Examples of policy question and research question

Type of question	Example	Requires a researcher
Policy question	How do we resolve the problem of relatively high rate of unemployment among older employees?	No
Research question	What are our employees' thoughts about employing or hiring older employees?	Yes

Formulating a problem demands the application of information that is already known. You will not help yourself by trying to reinvent the wheel, so look for information that already exists. Has the problem ever been previously identified? Was it studied at the time and, if so, what were the results of that study? Literature review plays a major role in the examination of a problem. There may be so much existing literature to warrant including a separate paragraph of literature discussion as part of your research report.

1.1.2 Research objective(s)

Research is always performed with a certain goal or objective in mind. The objective of the study into the effects of the introduction of a returnable deposit on bottles and cans is to use the results of the study as a basis for deciding whether or not to implement a new returnable deposit policy, thereby reducing the problem of litter. The ultimate objective, therefore, is the reduction of litter.

> The research objective is the answer to the question: for what reason and to what end are you performing the study?

Research objective

Basic scientific research

Applied research

The research objective also demonstrates the difference between basic scientific research and applied research. The objective of using research purely as a means of acquiring knowledge is a characteristic of *basic scientific research*, also known, simply, as basic, pure or fundamental research. Incidentally, this is not the same as performing a study in a scientifically sound manner. Scientifically sound research means research that is performed in a responsible and verifiable way.
Applied research also results in acquired knowledge, but this knowledge is subsequently applied. The knowledge you gather should contribute to the solution to a problem. Performing applied research also requires the application of scientifically sound principles. Table 1.2 offers an overview of the differences between basic and applied scientific research.

TABLE 1.2 Differences between basic and applied scientific research

Type of research	Description	Requirement
Applied research	A study that results in knowledge which is used to resolve a practical problem	Is performed in a scientifically sound manner
Basic scientific research	A study that results in scientific knowledge which is not necessarily used to resolve a problem	Is performed in a scientifically sound manner

Applied research in particular hinges on the fact that your research objective – the answer to what you hope to achieve with your study – is very clearly defined and discussed with your client at the beginning of your study. This will help you prevent engendering unrealistic expectations in your client, and avoid disappointment about the end results of your study.

1.1.3 Research ethics

Before beginning, you should ask yourself whether your study is ethically responsible. In some cases, you may even need to obtain written permission from the ethics committee of your educational institution or from the organisation on whose behalf you are performing the study.

But even if no written permission is required, you should still ask yourself whether your study is ethically responsible. Should you take part in market research aimed at gathering information to establish how to best sell a new type of sweets to pre-school children? The Dutch branch association of market researchers, MOA, has implemented clear ethical guidelines, being the guidelines of the European association for market researchers, ESOMAR. Therefore, when entering into an agreement with a client, carefully consider and take into account the ethical conditions that apply to your discipline.

In short, you should only take part in a research study if you can give a positive answer the following five questions:

- Is the respondent taking part voluntarily?
- Will there be no harmful consequences for the respondent as a result of the study?
- Has the researcher properly explained the goal and procedure of the study?
- Are the research results treated at least confidentially, but preferably anonymously?
- Is the study being performed in a reliable and sound manner?

If you are not performing the study yourself but outsourcing it to a research firm, then it is important that you verify the firm's reliability. Quality research firms are certified and recognised by MOA. You can find the prerequisite ISO-norms for MOA qualified research firms on the MOA website.

Performing an online study – particularly a social media study – means you will be unable to meet with some of the listed criteria (such as voluntary participation). Nevertheless, care should be taken: even online studies can yield results which are harmful to the participants. To that end, there are special ethical guidelines for internet studies, such as the internet guidelines by the British Psychological Society (2017).

1.1.4 Research question

You perform research with the intention of obtaining an answer to one or more research questions. The research question is the common theme of both a study's design and its actual implementation. Throughout every phase of a study, you must ask yourself: will this (help to) answer the research question(s)? Research questions are usually mentioned at the end of the introduction, by way of a conclusion. Keep in mind that research questions should be phrased *as actual questions*.

I The research question is the question a study is intended to answer.

Since a study must answer the research question, it is important to indicate what the research question is. By describing your research question clearly, you can prevent disappointment and misunderstanding. A clearly described research questions lets the client know what to expect.
Formulating a research question is an intensive process of trial and error. You should expect to review and discard several questions before landing on a final one. It is important to properly consult (with) your clients; they must be on board with the research question before you start researching.

Experience teaches us that most research questions are too broad. If there is more than one research question, then there are often too many to answer, making a study unfeasible. So, to repeat: it is important to take your time to consider how to formulate your research question. In some cases, a preliminary study may be advisable.

www.fnv.nl

Werkdruk en werkstress

Ongeveer 1 op de 3 werknemers heeft last van werkdruk. Als je een te hoge werkdruk hebt, is dat niet alleen vervelend, maar op den duur ook slecht voor je gezondheid. Werkstress, burn-outs en hart- en vaatziekten: allemaal voorbeelden van klachten die samenhangen met werkdruk.

This example indicates the existence of 'problems', but which problems are these? Most likely they are psychological complaints, but physical health complaints are also mentioned. What *is* clear is that these are all problems experienced by employees; but does excessive work-related pressure also affect employers, for example as a result of increased absenteeism? An additional question addresses the causes of why people experience high work-related pressure. This is most likely not restricted to work-related conditions, but also involves employees' personal characteristics. Some people have less difficulty coping with stress than others. It is both difficult and unwise to focus on all of these problems at the same time. An initially broadly formulated research question – such as: 'What is the scope of the problem of high work-related pressure?' – therefore tends to lead to sub-questions.

Sub-questions

In the example from the website of Dutch trade union FNV, you could formulate the following sub-questions:
- What are the consequences of high work-related pressure for employers?
- What are the consequences of high work-related pressure for employees?

The latter sub-question can be sub-divided into even more sub-questions:
- What are the psychological consequences of high work-related pressure for employees?
- What are the physical consequences of high work-related pressure for employees?
- What are the work-related consequences (such as work enjoyment or job satisfaction) of high work-related pressure for employees?

Clients often want you to answer all formulated questions, but that is not feasible in a thesis. In this case, your study and its results benefit from focussing on answering one or more sub-questions. It is better for a study to be narrow and good than to be broad and bad.

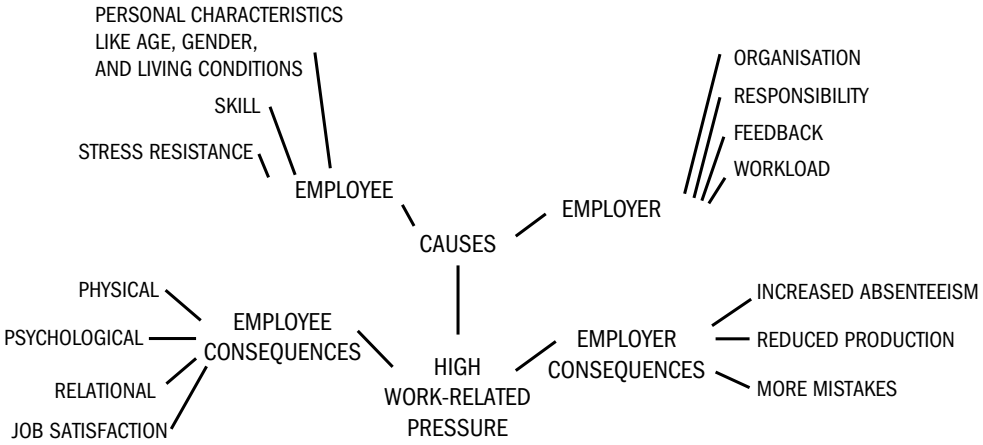
In order to inventory the problems, you can create a mind map (Figure 1.1), which is used to create an organised depiction of all of a problem's indicated components. Be sure to submit the mind map to the stakeholders and/or

Mind map

to experts in the field. Based on the mind map, you and your client(s) can make a decision on the focal research question.

1

FIGURE 1.1 Example of a mind map



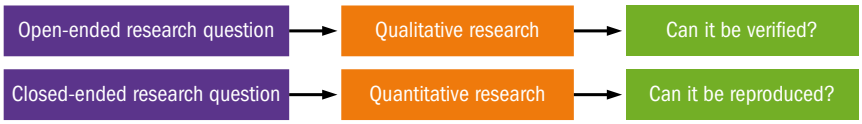
Be careful of research questions along the lines of 'How can I improve or increase …?' Essentially, these are not research questions; they are objectives. They indicate what the client wants to achieve, and in order for you to achieve *that*, you will need information you can gather using research. If, for example, an amusement park were interested in attracting more visitors, the first thing you would need to know is whether people know that the park exists. This means a study into brand awareness. If people are aware of the park, you will need to determine how they feel about it: image research. Possible research questions could be: 'What is the scope of the brand recognition for amusement park X' and 'What is the perceived image of amusement part X?'

CHECKLIST 1.1

What is the path from problem to research objective to research question?

- What is the problem on which the study is based?
- What does it look like as a mind map?
- Why is the study being performed?
- Is the study ethically responsible?
- What is the general research question and what are the sub-questions?
- What is the question you are ultimately going to investigate?

1.2 Qualitative or quantitative; an open or closed-ended research question



To explain the differences between possible types of research questions and research, the following subsections address:

- the differences between open-ended and closed-ended research questions
- the differences between qualitative and quantitative research

1.2.1 Open-ended and closed-ended research questions

In order, this subsection looks at examples of:

- an open-ended research question
- a closed-ended research question

Open-ended research question

A certain bank is facing an issue of customer retention: many of their clients are leaving for reasons that are unclear. In order to better cater to their clients, and to ensure that fewer of them cancel their accounts, the bank has asked a student to investigate the motives of former customers for leaving as part of her graduation thesis (Van Duijn, 2017). This is an example of an open-ended research question.

Open-ended research question

The study's objective for investigating why clients are leaving is clear, namely: to gain insight into the motives of clients for leaving, so that the bank can better address the issue. Here, the researcher tackles the issue as open-mindedly as possible. She poses open-ended questions to former clients in order to ascertain their motives. The reason for asking open-ended questions is that the student does not know what motives the clients are going to offer in response. It is important that she approaches the open-ended interviews and the analyses of the resulting materials without preconceptions. The bank, after all, will want to use its former clients to learn about existing problems and to learn how those problems may be prevented.

Closed-ended research question

A study of the clothes in people's wardrobes is a closed-ended research question. A group of student researchers wants to establish how many clothes people own. Using an observation form, they start counting the trousers, sweaters – what have you – found in the cupboards and drawers of the people involved in the study. The researchers have some idea of what to expect. They also know that there are different types of clothes. Because the researchers already know what it is that they want to observe, they can take a targeted approach – in contrast to the researcher looking into people's motives for cancelling their bank accounts. The wardrobe researchers can therefore use a fixed observation scheme, with established scoring rubrics.

Closed-ended research question

1

www.trouw.nl

Onze kledingkast puilt uit, mag het ietsjes minder?

Ze hebben alle kleren meegeteld, ook die in dozen onder het bed liggen, of op zolder. Maar dan nog. De vijftig mannen en vrouwen die hun kledingkast lieten onderzoeken door studenten van de Hogeschool van Amsterdam hadden gemiddeld maar liefst 173 kledingstukken in huis.

20 september 2017

It is important to distinguish between these two types of research questions, because they each demand a different method of research – as discussed in the next subsection.

1.2.2 Qualitative or quantitative research?

This subsection focusses on the answers to the following questions:

- What is qualitative research?
- What is quantitative research?
- What are the differences between qualitative and quantitative research?

Qualitative research

Qualitative research

When dealing with an open-ended research question, you perform qualitative research. In general, the research question is broad in scope, and the amount of available prior knowledge is relatively small. As a consequence, you tend *not* to work with a fixed list of questions or observations. Respondents can trigger new ideas or insights, leading you to pose questions or take notice of things you had not previously considered. Qualitative research is mainly about gaining *insight*, and less about hard, numerically supported data. A qualitative research report, therefore, offers mostly descriptions and virtually no numerical tables or graphs. In qualitative research, it is the detailed conversational or observational reports that form the basis of the analyses. Pictures and videos can also be an important source of data.

> Qualitative research is research that describes and interprets problems involving situations, events, and persons using data that is qualitative in nature, such as perception, experience, or interpretation, gathered using open interviews and/or participant observation and/or the use of existing documentation.

Open mind

There are various theories with regard to qualitative research, thus leading to various different forms of qualitative research. The most commonly held theory of qualitative research is that you should keep an open mind to whatever you come across over the course of your study. When researching issues with medication packaging, for example, you should observe without bias.

A fully open mind to whatever crosses your path allows you to learn from your research. Let yourself be surprised by what you encounter. There is always the justified criticism that no individual is entirely unbiased. A researcher investigating medication packaging may have personally had some issues opening a bottle of pills in the past. This creates the risk of selective observation. As a researcher engaged in qualitative research, you are your own most important research instrument – and no human being is ever completely free of preconceptions.

The research data for analysis in qualitative research usually comes in the form of text – such as transcribed interviews, observational reports, even diary fragments. In general, the research data is first reduced by labelling it, with the labels subsequently ordered into rubrics and categorised. This way, you try to establish some pattern in the data.

Quantitative research

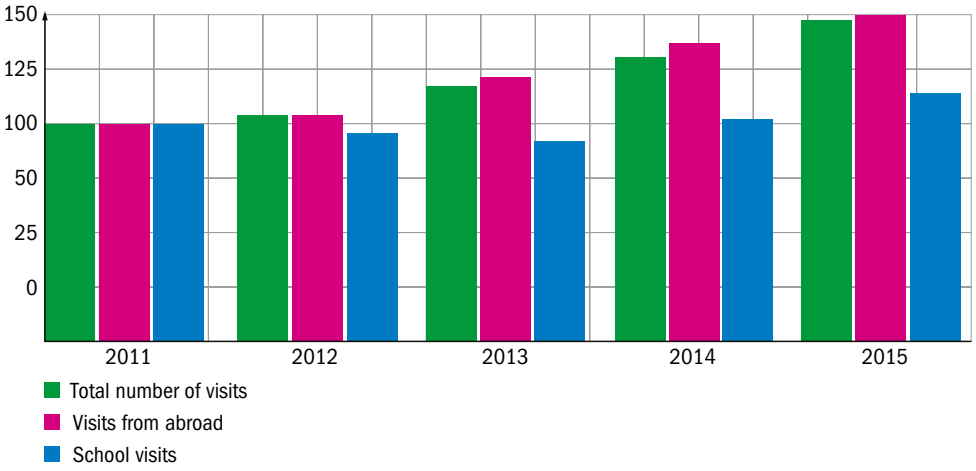
If the research question is narrow and you know what you should expect in terms of the contents of your interviews or observations, you are most likely conducting quantitative research. For example, studying wardrobe contents is a rather narrow topic: based on personal experience, you have some idea of what types of clothes to expect. Being a researcher, you might check your own cupboards to make sure. In some cases, your study may have been preceded by many others of the same kind – for example, if you were looking into the number of visitors to museums in the Netherlands. You could make use of the experiences of earlier researchers, sometimes even applying (adjusted versions of) their questionnaires or observation schemes. Knowing what to expect leads you to perform quantitative research.

Quantitative research

Quantitative research means submitting the same questions to each of your subjects, and observing the same types of behaviour according to fixed guidelines. This means that, prior to gathering data, you first establish your questions or categories of observation. Quantitative researchers often already know in advance the answers people are likely to give. As evidenced by its name, quantitative research focusses on numerical research data, generally in the form of a data matrix (Table 1.4 in subsection 1.3.3). These matrices are usually analysed using statistical software like Excel or SPSS. A study into developments in numbers or visitors of museums in the Netherlands could present the numbers in the form of a bar chart (Figure 1.2).

Same questions

FIGURE 1.2 Trends in visitor numbers 2011–2015



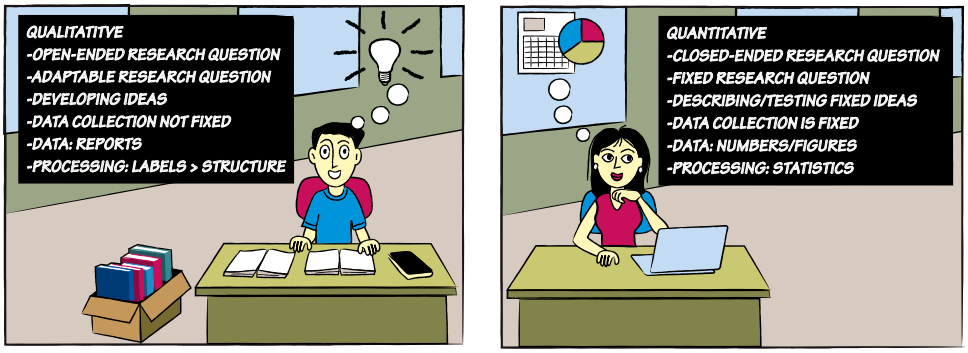
Source: Museumvereniging

> Quantitative research is research whose research material is comprised of numerical data subjected to statistical analysis in order to answer a research question.

You may be wondering about the relevance of quantitative research, given the fact that you can sort of predict its outcome in advance. But quantitative research does not solely revolve around the question of the existence of a relationship in the data – for example between RSI-related complaints and the amount of time people work in front of a screen – but also *the strength* of that relationship is. If 80% of RSI-related complaints can be explained by the amount of time spent working at a monitor, then this underscores the importance of focussing on monitor-centric work as a starting point for reducing RSI-related complaints. If, however, only 30% of the aforementioned complaints is explained by the amount of time spent working in front of a screen, then you will need to look for other factors to explain the occurence of RSI-related complaints.

Differences between qualitative and quantitative research

The differences between qualitative and quantitative research are summarised in Figure 1.3. You can see that the choice for either qualitative or quantitative research is determined largely by the research question.



Incidentally, the use of a combination of quantitative and qualitative research method is also quite common. An example of this mixed methods approach is frequently seen in evaluative studies, where subjects are asked to use a scale of 1 to 5 to indicate their satisfaction with a product or service (qualitative), followed by the request to illustrate the answer in one's own words (qualitative). Figure 1.4 is an example of this approach.

Mixed methods

FIGURE 1.4 Example of using mixed methods in a questionnaire

www.surveymonkey.com

No matter whether research is quantitative or qualitative, it must be possible to verify the researcher's conclusions.

Quantitative research is subject to the reproducibility requirement: your research report must be constructed in such a way as to enable someone else to replicate your study. For example, it must be clear how you obtained your subjects, and which research instruments you used.

Reproducibility requirement

This is somewhat trickier for qualitative research, particularly in the case of open observations and interviews: no interview or observation will be the same as the next. Nevertheless, a qualitative researcher must also clarify *how* they came to their conclusions – conclusions which must be *plausible*, and obtained through a work method that is *transparent*. This is known as the verifiability requirement. Often, qualitative researchers list their interview and observation reports in appendices to their overall report, and use in-text examples of how these interviews and observations were analysed.

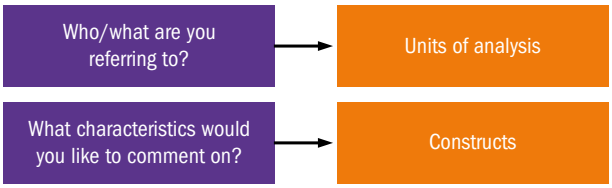
Verifiability requirement

CHECKLIST 1.2

Is the research question open-ended or closed-ended?
And is the research qualitative or quantitative?

- Is the research question and open-ended or a close-ended research question?
- Is the selected research strategy (either qualitative or quantitative) appropriate for the nature of the research question?

1.3 What are units of analysis and constructs/ characteristics?



It is important that a study clearly indicates the identity of its subject(s). Most studies refer to companies, situations, or employees, for example. If your research question is: 'How often is there an issue with mortgage repayments?', then your question refers to people with mortgage debts. Is your research question: 'Is absenteeism in public companies greater than in private companies?', then your question refers to companies. The units your research question refers to are your *units of analysis*.

Population

All units of analysis combined form a study's population. The following subsections aim to answer the following questions:

1 What are units of analysis?
2 What are constructs/characteristics?
3 What is the connection between the units of analysis and constructs in a study?

1.3.1 Units of analysis

Units of analysis
Generalisation

It is important to take the time to consider the identity of the subject(s) of your study. Choosing units of analysis establishes the generalisation pretention of your research. To whom does the outcome of your study apply? Researchers are often sloppy when defining their units of analysis – this makes it unclear to whom or what the research outcome applies.

www.cbs.nl

Nederlanders geven meer uit bij Europese webwinkels

Nederlandse consumenten kochten in de eerste helft van 2017 voor ruim 600 miljoen euro aan producten bij buitenlandse webwinkels binnen de EU. Dit is een groei van 19 procent ten opzichte van de eerste helft van 2016. Dit meldt het CBS op basis van lopend big data onderzoek naar de online uitgaven van Nederlanders bij buitenlandse webwinkels.
Het gaat hier om online aankopen van goederen door Nederlandse consumenten bij bedrijven die binnen de Europese Unie, maar niet in Nederland gevestigd zijn. Buitenlandse webwinkels die per jaar meer dan 100 duizend euro verkopen aan Nederlandse consumenten zijn verplicht om

BTW-aangifte te doen. Deze aangiften zijn gebruikt als bron. De cijfers zijn berekend op basis van een nieuwe methode die nog in ontwikkeling is, en zijn dus voorlopig. De foutmarge op de totale omzet is ongeveer 5 procent.
24 november 2017

This article by Dutch central bureau of statistics CBS states that Dutch citizens are spending more money at European webstores. The researchers are probably referring to mature residents: children are, after all, not legally able to place orders at these types of stores. In addition, a portion of elderly Dutch citizens is unlikely to place their orders online as they lack the relevant skills. And not all European webstores address their clients in Dutch – some are only available in German or English, thus posing a barrier for part of the Dutch population. It is clear, therefore, that the group of Dutch citizens is a select one.
This example illustrates the inherent difficulties in demarcating your units of analysis, including your population. Stating that you are studying 'Dutch citizens', for example, does not automatically make it clear to which units of analysis your study refers. Are you restricting your study to mature residents of the Netherlands, and are you taking into account the approximately 12% functionally illiterate people who experience difficulties completing a questionnaire?

> Units of analysis are the people, companies, agencies, or situations that are the subject of the conclusions you intend to draw based on your study.

Sometimes, the *units of analysis are concealed in the research question*. In the research question 'Are girls between 15 and 18 years old bullied online more frequently than boys?', the units of analysis are not 'girls' and 'boys'. Instead, the units of analysis are 'adolescents between 15 and 18 years old who spend time online'. In addition to the extent of cyberbullying, gender is a characteristic or the units of analysis, of the online adolescents.

1.3.2 Constructs or characteristics

It is not only important to clearly indicate the subjects of your study, but also what you are saying *about* those units of analysis. The example of cyberbullying clarifies that, in addition to units of analysis, you also distinguish between characteristics or constructs. The research question on cyberbullying – as indicated in the previous subsection – refers to the constructs of gender and the extent of bullying. A study into the difference in the use of electricity between computers with and without an energy-saving application uses computers as its units of analysis. The constructs of the computer that the researcher is interested in are: 1) whether they are equipped with an energy-saving application, and 2) their levels of energy consumption.

Constructs

> Constructs are the characteristics of the units of analysis to which the conclusions of your research refer.

1.3.3 Relationship between units of analysis and constructs

Table 1.3 shows examples of units of analysis and characteristics in a schematic overview, in relation to the research question.

TABLE 1.3 Examples of units of analysis/population and constructs/characteristics

Research question	How big is the problem of payment delays among Dutch mortgage holders?	Are girls between 15 and 18 years old bullied online more frequently than boys?	Do computers with energy-saving software use less energy?
Units of analysis/ population	Dutch mortgage holders	adolescents between 15 and 18 years old who spend time online	computers
Constructs/ characteristics	– the mortgaged amount – the monthly payments – the amount in delayed payments – age – education	– gender – cyberbullying	– whether or not energy-saving software is used – use of energy

TIP
WHEN DOING RESEARCH, FIRST SET UP A DATA MATRIX
Designing a data matrix helps create a clear insight into the units of analysis and their constructs.

Data matrix

A data matrix is a table that displays information in an organised and accessible manner. The study into delayed mortgage payments could, for example be structured into a data matrix like the one in Table 1.4.

TABLE 1.4 Example of a data matrix

	Mortgage amount	**Monthly payments**	**Amount in delayed payments**	**Year of birth**	**Education**
Client 1	210.000	700	2100	1971	lower vocational
Client 2	450.000	1125	0	1968	higher vocational
Client 3	...				
...					

The rows of this table display the units of analysis. In this case: the clients of a bank who own a mortgage. The columns list the constructs vertically. In this case: the mortgaged amount, the monthly payments, the amount in delayed payments, year of birth, and level of education.

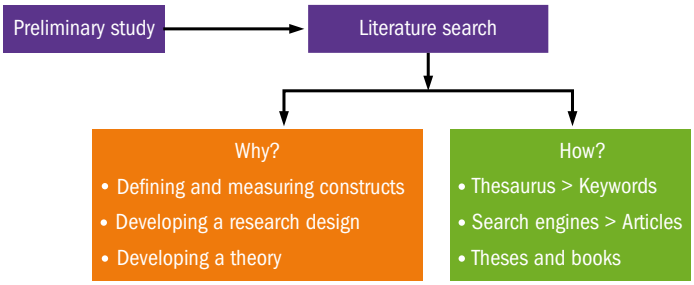
Sometimes, the constructs do not apply to the same units of analysis. A study into the differences in the level of absenteeism between public and private companies, for example, suffers from this issue. Here, the companies are the units; the constructs are 'public or private' and 'absenteeism'. The absenteeism is, in actuality, a construct of the employees in the companies. By looking at average levels of absenteeism, absenteeism becomes a construct of the company, thus resolving the issue. You often only find out about these issues and their solutions once you design a data matrix – thus, it is recommended you design one before commencing your study.

The units of analysis and constructs are often less clear-cut in qualitative research than in quantitative research. Sometime, research is the only way to find out what the most important characteristics are. Nevertheless, you never start entirely from scratch. As part of a study into customers' motives for leaving their bank, customers you talked to may have informed you of their initial opinion on those motives. If the bank should indicate that the majority of customers leaving are affluent ones, it may be sensible to initially target those clients.
A clear statement on the nature of the units of analysis is also important for qualitative research. A difference with quantitative research, however, is that the researcher can adjust their pretention over the course of the study. If, for example, the researcher should find that the complaints from former clients mainly concern an unsatisfactorily low rate of interest on their savings accounts, they will refocus on that issue over the course of the interviews.

TIP
LIMIT YOUR SCOPE IN QUALITATIVE RESEARCH
Try to avoid the problem of an overly complex problem and/or overly heterogenous research group. If you want to know about high work-related pressure among employees and intend to interview employees facing high work-related pressure, the sensible thing to do is to limit your study. Say a police organisation assigns you a study into the issue of work-related pressure; you would be smart to start with a small, selected group, for example police officers working the streets. Once you have clearly mapped their issues, you can start reviewing whether other police functionaries, like detectives, experience similar – or different – problems. This avoids the risk of gathering such a wealth of data as to complicate finding a common thread.

CHECKLIST 1.3
What are units of analysis and constructs/characteristics?
- What are the units of analysis? Who or what is the subject of the researcher's study?
- What are the constructs or characteristics of the units of analysis? What does the researcher want to comment on?

1.4 What is already known about the research subject?



Formulating a good research question is often preceded by a lengthy process of contemplation. Most studies are born from a vague and global notion that becomes increasingly specific and detailed along the way. Continuing to concretise an idea improves its feasibility. If you were approached to mount a study based on a certain problem, you would generally start with an initial process of *orientation*. You would confer with colleagues and your client, and search the internet and relevant literature on the subject concerned. Only then would you, more of less definitively, formulate your research question. You will often find yourself modifying your wording more than once before settling on a definitive research question. But even then, the research question still does not tend to be entirely final.

Orientation

Even an apparently simple question usually turns out to be more complicated than you had originally thought. Many managerial handbooks state that managers should be equipped with good communicative skills or qualities. You might, by extension, be wondering whether the communicative skills of highly valued managers are better than those of less highly valued managers. But how do you define 'communicative qualities'? Is it only about sending messages, or also about receiving them, meaning listening? Which is more important? And does it matter whether the information involved is spoken or written?

There are two ways of preparing for a study:

- conducting a preliminary study
- conducting a literature search

1.4.1 Preliminary study

Qualitative preliminary study

Occasionally, it makes sense to start with a qualitative preliminary study. The example of the communicative skills of managers, for example, could involve you, the researcher, first setting out to temporarily join a department with a manager who is the cause of many complaints, and one with a manager who is the cause of frequent praise. What do you notice? You could then setup a quantitative study to test the differences you perceived in both managers' communicative skills among larger employee groups. Is there, in fact, a positive relationship between the appreciation of a manager and their perceived communicative qualities?

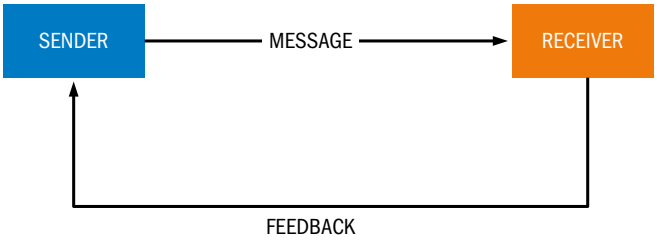
1.4.2 Literature search

In addition to a preliminary study, it is recommended that you perform a literature search before implementing your definitive research design. The study you intend to perform may actually already have been performed by someone else. There is nothing more painfully awkward than finding out another researcher has already beaten you to the punch only after you just finish writing your acknowledgements. Even if no *comparable study* presents itself, you should probably first search relevant literature and online research to make sure whether any related studies exist.
This subsection deals with the issue of the benefits of a literature search, and how a literature search should be conducted.

What is the purpose of a literature search?
A literature search provides you with information about:
- defining and measuring constructs
- developing a research design
- developing a theory

Defining and measuring constructs
A literature search teaches you how others *define* and, in particular, *measure* the constructs in which you are taking an interest. Research into the communicative qualities of managers, for example, is helped by the knowledge that there has been a great deal of research in the field of communication. There are many handbooks on the subject. In general, communication is seen as a reciprocal process of information-exchange, which always includes a sender, a receiver, and a message (Figure 1.5).
In a communicative process, a sender attempts to convey information to a receiver using a message.

FIGURE 1.5 Schematic overview of the communications process



Study the literature, and you will soon find out that communication is not a particularly simple concept. Which part of the communicative process should be the focus of your study: the role of the sender, the role of the receiver, or the feedback qualities of the managers? In addition, your study may distinguish between the means (spoken or written) and the goal of the conversation. You will likely need to make decisions, and choose between possibilities, because it is difficult to focus on all aspects of communication at the same time. As you can tell, there is good sense in first combing through relevant literature before starting your actual study.

Developing a research design
Once it is clear how you are going to define 'communicative skills' and have decided on which aspect of communication to focus your study, the next obvious question is: how you are going to measure that aspect? This involves developing a research design. Communication is a form of behaviour that has to be factually observed, which is difficult to do. It is easier to use a questionnaire, but the problem with that is that some managers sorely overestimate themselves where their communicative skills are concerned. It may be better, therefore, to ask their employees. It is helpful to read about how other researchers have approached these issues, and to investigate their findings. Make sure, however, that you look at more than just the definitions and instruments in the relevant publications you find; you should also pay attention to the research designs used. Of particular note is the discussion section found towards the end of these articles: it generally offers an evaluation of the research method, as well as suggestions for additional successive studies.

Developing a theory
Another reason for a careful examination of relevant sources is your search for a *theory* to explain the phenomena you intend to investigate. Say you want to find out why communicatively skilled managers are better appreciated by the employees under their responsibility than managers who are less communicatively skilled. Schmidt (2018) indicates that the ability to listen is an important managerial skill. Your theory could be that listening to an employee conveys the idea that the manager is taking an interest. If an employee notices that their manager displays an interest, they will appreciate this fact. This would make listening an important focal point in your study into the communicative skills of managers.

How do you perform a literature search?
Finding relevant literature depends on the following steps:
- finding the right search terms using a thesaurus
- looking for relevant articles using search engines
- searching for theses and books

Finding the right search terms using a thesaurus

Search term

Performing a literature search begins with using the right search terms. Do not pin yourself down on a single phrase or concept, but use alternatives. When looking into the communication skills of managers, also use the search terms of 'conversational abilities' or 'listening skills'. Make sure to check *related terms* in dictionaries and thesauruses, many of which can be consulted online. A thesaurus is a kind of reference work for terms and concepts. Each term lists an overview of more or less similar concepts. There are also *specialist dictionaries*, such as the Dictionary of Business and Management (2016; www.oxfordreference.com). The website www.alphadictionary.com offers an overview of these types of international specialist dictionaries.

Thesaurus

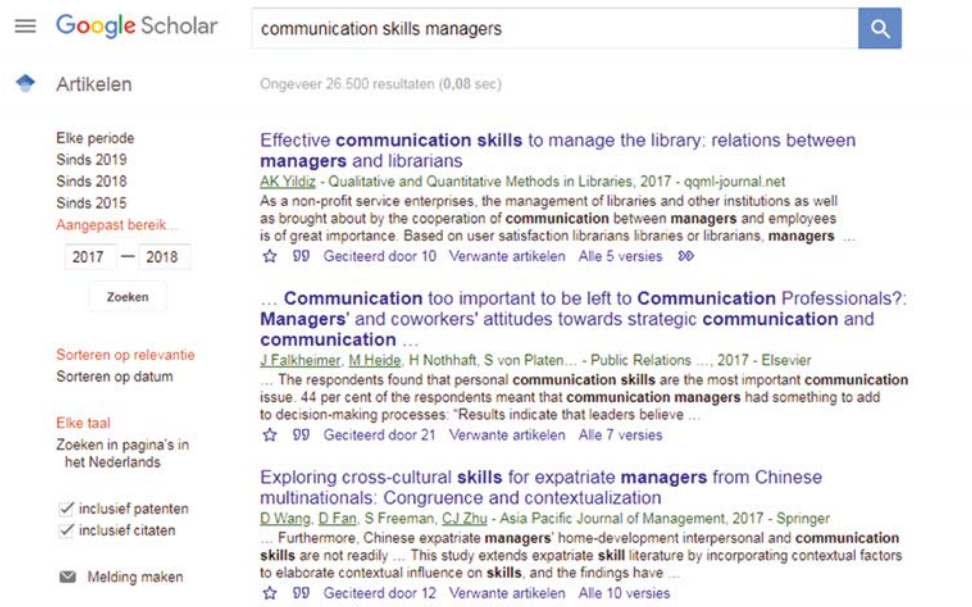
Also pay attention to the proper translation of your search terms (or search queries); the translation of communication skills in Dutch, for example, is *communicatievaardigheden*. Once you feel you have found the correct search term, use it in various online search engines.

Looking for relevant articles using search engines

Articles
Search engine

Perhaps the most logical way to start searching for relevant articles online is through large general search engines such as Google or Yahoo! Entering the search term 'communication skills managers' yields many irrelevant references (or 'hits'), for example linking to firms offering courses in this area. The better option is to use search engines that mainly refer you to scientific literature, like *Google Scholar*. If (like in Figure 1.6) you indicate your preference for articles from a more recent period (in our case: from 2017 to 2018), Google Scholar restricts its findings to recent publications which you can use as a basis for your continued search. This search query yields many relevant publications.

FIGURE 1.6 A Google Scholar screen



Source: scholar.google.com

Google Scholar often shows not just articles that match your query, but also documents *related* to those articles, and indicates whether the articles exist as a downloadable PDF-file. PDF-files are usually extensive reports – so you may consider adding PDF as a search term.

TIP
USE THE ADDITIONAL SEARCH TERMS OF 'RESEARCH' AND 'REVIEW'
As mentioned: limiting your search query to 'communication skills managers' means Google will refer you to all sorts of hits that are not relevant to your study. But add the term 'research', and your search yields mainly references to studies. Add the term 'review', and you are presented with review articles discussing various studies. Here is how to restrict the number of hits:

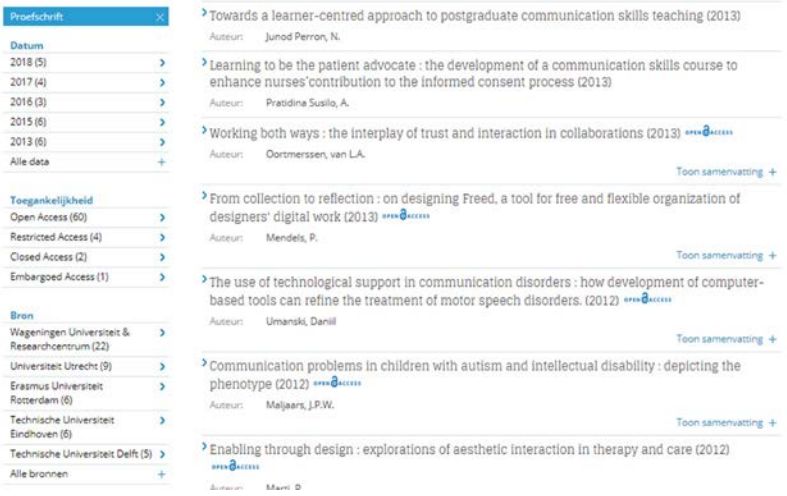
- The search term "communication skills managers" resulted in about 59,000 hits in Google.
- Adding "research" reduced that number to 34,000
- Using the advanced options and limiting the search to sites updated over the past year reduced the number even further, to 343, leaving a significant number of relevant recent results.

Searching for theses and books

Theses

Of all the relevant literature, theses are the most interesting in your search for existing information. A thesis generally offers a good overview of the literature on its subject. For example, theses from the Netherlands are found on the *NARCIS* website, where you will also find many other scientific publications. The theses are often freely available to view and download. The example (Figure 1.7) shows that, out of sixty theses directly or indirectly discussing communication skills, only three are unavailable for download. Note that the search query used is in English instead of Dutch, for even though NARCIS describes itself as 'the gateway to scholarly information in the Netherlands', many theses in the Netherlands are, in fact, written in English. In other words: it is important not to restrict yourself to any particular language if you can avoid it.

FIGURE 1.7 Titles of theses on the NARCIS website

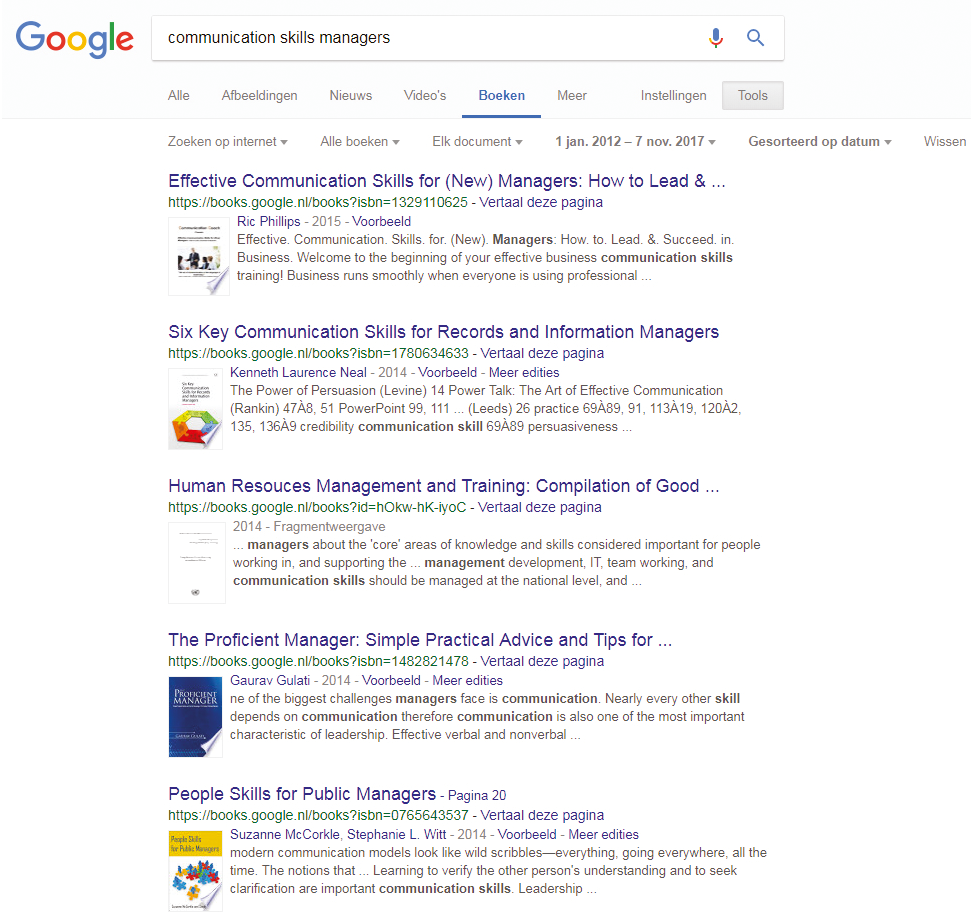


Source: www.narcis.nl

A website specifically aimed at searching for information in the form of books is *Google Books* (Figure 1.8). Incidentally, you can also use Google's standard search menu to indicate that you are looking for books. The website offers you the possibility to browse parts of books, helping you to assess whether the book in question may be relevant to your study.

Google Books

FIGURE 1.8 A Google Books screen



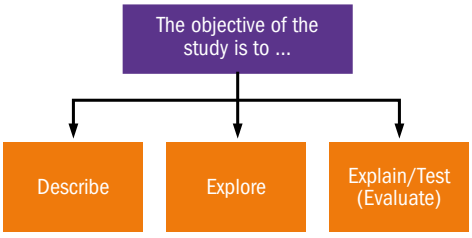
Source: books.google.com

Make sure not to restrict yourself to the internet, but also turn to specialist libraries and book dealerships. These offer surprising and relevant books and magazines – usually ordered by subject – that may benefit your study.

TIP
KEEP A LOG
A sensible course of action is to keep a log of everything you do for your study. You use your log to write down various decisions, appointments, activities that still need to be scheduled, file names, and the like. Keeping a separate log is a particularly sensible idea where information gathering is concerned. You can use a Word file, for example, to make a note every time you find something relevant, both in terms of content and exact referral data, but also with respect to the relevant subject or portion of your research. If you fail to be specific, your many entries may leave you unable to see the wood for the trees. Moreover, keeping track of your relevant findings in this way makes it possible to automatically generate a list of references in accordance with the rules of your specific field. Visit www.research.noordhoff.nl, where we show you more about creating a reference list.

CHECKLIST 1.4
- Is it necessary to do preliminary research?
- Has recent, relevant literature been used to determine:
  - whether others have already conducted this research?
  - how other researchers designed comparable studies?
  - how other researchers defined and measured comparable constructs?
  - how other researchers applied existing theories to explain comparable phenomena?
- Have the right search terms been used?
- Have the right sources and files been consulted (not just Google, the Oxford Dictionary, and Wikipedia)?
- Have books, reports, and magazines been used in addition to websites?
- Have the sources been referenced correctly?

1.5 Does the study aim to describe, explore, or test?



The various examples have already begun to demonstrate that no two studies are necessarily the same in terms of their objectives. It is important to determine the nature of a study before actually embarking, because this nature influences the choice of research design and data analysis. Generally speaking, we distinguish between:

- descriptive research
- exploratory research
- explanatory research (testing)

1.5.1 Descriptive research

Quantitative descriptive research

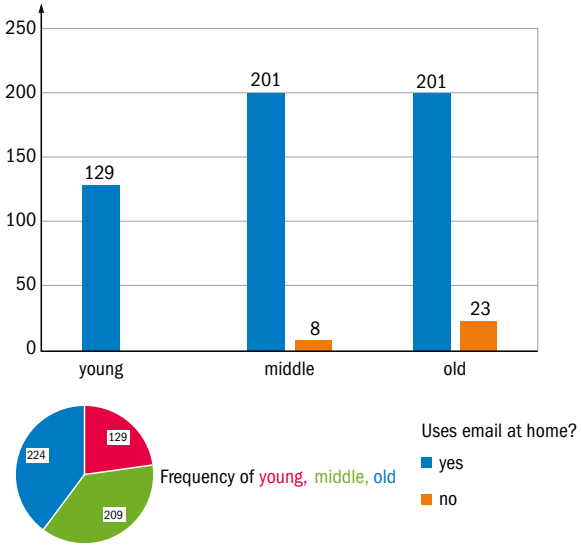
Questions of frequency

The nature of *quantitative descriptive research* is that it generally deals with *questions of frequency*. For example: with regards to its mailings, a wildlife preservation society wants to know how many of its members make use of the internet, and whether they do so using a desktop, laptop, or tablet PC, or (also) their smartphones. In case of the latter, sending long texts files would not seem to be the best idea. The organisation is also wondering whether or not the members using online resources only constitute a select group. At a major national convention, visitors were asked to fill in a questionnaire about the subject. A total of 500 members did so. As mentioned, descriptive research is mainly concerned with counting numbers. Using the information gathered, a researcher drafts a frequency distribution of the number of members using the internet as well as the number using their smartphone to do so. The research result is often presented as a table (such as Table 1.5) or a circle (Figure 1.9 bottom) or bar diagram (Figure 1.9 top).

TABLE 1.5 The communicative behaviour of members of a charity organisation, broken down by age (n = 562)

Age category	Number	Owns pc/ laptop/tablet	Uses email at home	Owns a mobile phone	Uses texting/ messaging functionality	Uses email on mobile phone
Young	129	100%	100%	99%	99%	85%
Middle	209	96%	96%	98%	98%	77%
Elderly	224	91%	90%	85%	83%	64%

FIGURE 1.9 Circle and bar charts of email use (broken down by age)



Descriptive research is research that involves registering and systematically ordering that which presents itself in a certain field, without striving to develop a theory or to formulate a hypothesis.

The wildlife preservation society uses information provided by its membership administration department to determine a decline in the number of members. This decline particularly involves younger members. The study based on the information from the administrative department says something about *the severity or the scope* but very little about *the contents and the meaning* of the problem. Meaning is best investigated using qualitative research, in which you conduct open interviews with the members who have cancelled their membership, asking them about their reasons for doing so. Your questions are most likely aimed at the causes of whatever issue made former members decide to withdraw their support. Interviews can be conducted by phone, for example.
Note that a researcher who sends or emails their subjects a questionnaire runs a substantial risk of people failing to respond or of being provided with only socially acceptable answers. Asking questions in person or over the phone allows you a greater opportunity for follow-up questions. In addition, your interviews may result in gaining new perspectives, notions you had not considered in advance – which is the real strength of qualitative research. The stories told by the former members should result in a clear insight into the contents and meaning of their motives for cancelling their membership – which is information not readily visible in a table.

1.5.2 Exploratory research

A knowledge centre for technology was asked to review the possibilities of processing such materials as organic waste, waste from pruning and trimming, catering leftovers, and crop residue on site at urban agricultural sites in the Amsterdam area. This is an example of an open question. The recommended course of action in this case would be qualitative exploratory research. Part of the actual study was a session of interviews with interested business owners and stakeholders (Van den Akker et al., 2017).

Qualitative exploratory research

You use the materials you gather as a source of inspiration. Once suitably inspired, you assess your ideas for their validity by talking to people in a different setting, to make sure your idea or theory is accurate. You repeat this process until you arrive at a suitable explanation or theory, making this type of research a process of trial and error and of incremental improvement.

Exploratory research is research that explores frequencies, relationships, and differences, with the goal of establishing a theory.

Quantitative or exploratory research

Exploratory research

Naturally, in the case of *quantitative or exploratory research* you will have some idea as to potential influencing factors as you set out on your investigation – after all, you ask specific questions. In contrast to an open interview, a structured questionnaire (for example about recycling residual materials) uses fixed questions which you know you are going to pose in advance. You could, for example, direct your questions to companies and ask them specifically whether they make use of recycled materials in their production processes. A structured observation is one where you know which behaviours and behavioural traits you are going to look for in advance. A researcher interested in the communication skills of managers, for example, should know to look for eye contact, among other things.

Quantitative exploratory research establishes:
- whether the relevant factors are of influence,
- what the extent of their influence is, and
- whether there is a relationship between those factors and others.

This does mean that you will need to compile a questionnaire or observation scheme, or use existing data where everything is determined beforehand. Changing questions partway through your study is not possible, unlike in qualitative research. Quantitative exploratory research uses answers and scores as research material to test your ideas, for example about why women working for a bank are often in a lower position than their male colleagues – a possible explanation you may find is that women are less likely to work fulltime. Once you have gathered all of your data, you use statistical techniques to uncover any connections and/or differences, particularly the strengths of those connections and the extents of those differences.

TABLE 1.6 Average position with a bank, broken down by gender and position

Average position (full-time = 1.00)	
Male = 0.98	High = 1.00
Female = 0.77	Middle = 0.95
	Low = 0.87

Table 1.6 shows you that women do tend to work part-time slightly more frequently than men. But it also shows you that, in terms of contracted hours, there is not a whole lot of difference between employees of a high, middle, or low position. So even if a person's position as fulltime or part-time does have any influence, that influence is limited. You can calculate the strength of a relationship using various statistical techniques.

1.5.3 Explanatory research (testing)

If you have an idea that you want to verify, you engage in explanatory research.

Explanatory research

> Explanatory research is research used to test or find support for a previously formulated expectation, usually a hypothesis based on a theory.

Assume that, based on a qualitative preliminary study at a department store, a researcher concludes that the employees of a department with relatively low turnover complain about their managers the most frequently. The researcher's impression is that employee motivation dwindles as a result of management's authoritarian leadership style, and of low levels of commitment among employees. The researcher's theory is essentially the one depicted in Table 1.7.

Theory

TABLE 1.7 Example of a theory

Theory	authoritarian leadership reduced staff commitment reduced motivation	→ → →	reduced staff commitment reduced motivation reduced effort
	reduced effort	→	reduced turnover
Expectation (hypothesis)	authoritarian leadership	→	reduced turnover

Existing theories

It is also possible to apply *existing theories*. There are many theories on the effects of management similar in vein as the theory described above. Being a researcher does not mean having to reinvent the wheel every time you engage in a study. The advantage of using existing theories is that they are often based on earlier research, meaning they have frequently already been put to the test. The researcher then tests whether the theory also holds true for the situation they are investigating; in this case: the case of the department store.

Hypothesis

A theory always results in an *expectation*, or *hypothesis*. You *test* your hypothesis as part of your research. If you find your hypothesis is supported by your findings, the theory is supposedly correct.

> A hypothesis is often a theory-based answer to the research question you are testing in a study.

> A theory is a number of logically connected, plausible statements that provide an explanation for a specific phenomenon.

Evaluation research

Evaluation research

Evaluation research is a specific type of explanatory research. In the example below, Chinese researchers are teaching farmers with small holdings to more effectively use fertilisers, thereby reducing their ecological impact without affecting their yield. Here, the core question is, of course, whether the researchers' intervention paid off. In order to measure the effect of an intervention, you need to perform evaluation research. Your hypothesis might be that the education provided led to a reduction in the use of fertilisers without affecting production. Market research also frequently relies on evaluation research, for example to establish the effects of an advertising campaign

● www.nd.nl

Adviezen maken kleine boerderijen efficiënter

Peking – Ongeveer 60 procent van alle landbouwgrond in de wereld is in handen van kleine boeren, die maximaal een paar hectare grond bezitten. In China zijn naar schatting 200 tot 300 miljoen van dit soort keuterboertjes. Onderzoekers van de landbouwuniversiteit van Peking hebben in een zeer grootschalig experiment een aantal veranderingen getest die de opbrengst van maïs, rijst en tarwe met 10 procent doet toenemen, terwijl de milieuvervuiling daalt.

8 maart 2018

Qualitative explanatory research

Qualitative explanatory research

Qualitative explanatory research is exceedingly rare, particularly from the perspective of establishing *causality*: whether one thing causes another. When measuring the beneficial effects of a medicinal herb on sleeping behaviour, one possibility is to ask users of the herb whether they feel it is effective. Their answers, however, would not constitute adequate proof. The study may, in some way, be leading. Since the herb is being used expressly by people to combat their sleeping problems, users may become convinced it works, potentially triggering a (false) positive response. Only a quantitative, unbiased experiment can be used to determine whether or not the herb is actually effective.

Causality

An example of an explanatory approach to qualitative research is the *template approach*, in which you test whether a previously developed theory also holds in another (new) situation.
There are many theories about the qualities of a good manager. These theories are mainly based on interviews with experts and the managers themselves. The question is: do these theories hold up for employees? What is the average employee's idea of a good manager? Do the qualities described by employees correspond to those mentioned in the literature, or do employees also attach importance to other qualities?

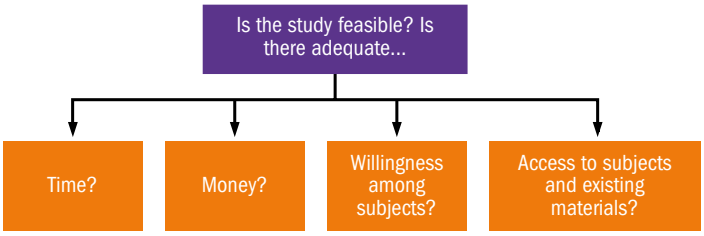
Template approach

Another form of qualitative research that involves a more or less explanatory approach is *action research*. Conducting action research involves joining a group or groups to come up with actions to reduce a problem affecting them. For example, you might join the mechanics at an automobile repair shop to research possible ways of improving work efficiency, thus lowering costs and increasing profits. You would then test these methods action to gauge their practical effectiveness.

Action research

CHECKLIST 1.5
Does the research aim to describe, explore, or test?
- Is the nature of the study descriptive, exploratory, or explanatory?
- In the case of explanatory research: what are the theory and hypothesis/hypotheses used?
- In the case of causality: has it been researched correctly?

1.6 Is the study feasible?



Before performing a study, it is important to carefully consider whether it can, in fact, be performed at all. There are five factors that determine a study's feasibility:

1 time
2 money
3 subject willingness
4 availability of subjects and existing materials
5 one's own skill as a researcher

1.6.1 Time

Time table

When intending to perform a study, it makes sense to set up a time table. Planning for time is helpful, whether you are writing a thesis, a paper, or an assignment. The easiest way to plan is to start at the date of the deadline (graduation date, for example), and then *work backwards*. It is important to draft a feasible time budget to prevent time constraints hindering the completion of your research – which can be a source of frustration for both you *and* your client.

Time budget

1.6.2 Money

Money

Draft a global *materials and personnel budget* to investigate the feasibility of the study. If, before you even get started, it turns out your study is *not feasible*, then continuing along the path you are on is a waste of time and effort. The fact that you should update your budget once you are in possession of a final research plan should go without saying. Usually, a researcher explores their possibilities based on a global idea for a study, which should serve as the basis for a preliminary budget.

1.6.3 Subject willingness

Subject willingness

Time and money are not the only possible sources of impediment. The *willingness* of one's subjects and the possibility for gathering the required materials are both factors that are absolutely critical to the success of research.

People's willingness to participate in a study depends on:

- the *agency* performing the study (is it a commercial firm, or a college or university?)
- the *method* used to *approach* people for the study
- the *time* the study is projected to take
- the *appeal* of the research subject
- the *usefulness* of the study

Incentive

- a *(material) token of appreciation* (*incentive*) for the participants in the study

Refusal

Use this checklist to assess the potential (lack of) ease of recruiting subjects for the study you intend to perform. Ask yourself if there is a sufficient number of people willing to take part. If too many people refuse, there is little point in conducting the study. Say you are conducting a customer satisfaction study for a webstore. The rate of non-responders is high: 90% of clients do not respond to your request to participate. Given the high rate of non-responders, the group that *did* respond may be (overly) select. They are likely to be those clients who are either extremely dissatisfied or extremely satisfied. What you lack is a middle ground; a group that is satisfied with some aspects, and less satisfied with others. The results of your research will not be representative of all of the webstore's clients. For the purpose of

generalisation of your research results, it is important for your sample to be representative. Better to have a small, representative group than a very large group with a high rate of non-response.

Non-response

1.6.4 Availability of subjects and existing materials

Subject availability

It is not just willingness but also the *availability* of subjects that may pose a problem. Many target groups will not be represented in a file for you to sample. Where to find, for example, people who purchased Bitcoins over the past year, or companies who have illegally dumped their waste products or, even more 'difficult', people who have committed fraud when filing for damages with their insurance company? You are likely to underestimate the time it will take to find enough people in your demarcated population to create a representative sample. If there is no file of names and (email) addresses available, then your first order of business should be to estimate the time and effort it would take to sufficiently fill up your sample group. When using existing materials (such as annual reports, medical files, or mortgage debt lists), you should also make sure to find out in advance whether you can and may make use of that information. Companies both public and, particularly, private will prove reticent when it comes to making their data available. In addition, there are various rules, laws, and regulations protecting civilians from the unauthorised use of their personal data. As a researcher, you have to take these issues into consideration. Another thing to consider is that some government institutions (such as municipalities) will charge a fee for finding, retrieving, and providing the materials you request.

1.6.5 Personal research skills

If you intend to perform a study, you should naturally make sure you are personally capable of doing so. Analyse your strengths and weaknesses in terms of your research talents. If language is not your strong suit and a source of frequent error, then make sure to recruit someone willing to read and correct your texts with a critical eye for your use of language. If statistics are not your forte, take a (refresher) course or get a consultant. Do not make the mistake of choosing to perform qualitative research if you feel you are bad at statistics.

Lastly, take stock and decide whether to proceed with your study. Visit www.research.noordhoff.nl for examples of budgets and forms you can use to draft your own budget and timetable. When drafting your research plan, take into account the fact that your educational institution, and possibly an external client, will need to consent to your proposal. Make sure you schedule regular meetings and confer with both parties.

CHECKLIST 1.6

Is the study feasible?

- Is there enough time to perform the study?
- Is there enough money to perform the study?
- Can you find enough people willing to take part in your study?
- Should you expect a high rate of non-response?
- In case you want to use existing materials: are those materials available and can they be used freely?
- Are you lacking certain skills or qualities that you may need help with?

Literature

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Books and other publications

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www.alphadictionary.com

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www.esomar.org
www.fnv.nl/themas/veilig-en-gezond-werken/werkdruk-en-werkstress/
www.museumvereniging.nl
www.narcis.nl
https://scholar.google.com
www.wijzeringeldzaken.nl

Suggested reading

Books and other publications

An extensive handbook for setting up applied social scientific research in the broadest sense of the word, paying a great deal of attention to qualitative research:
Robson, C. & McCartan, K. (2016). *Real World Research: A Resource for Users of Social Research Methods in Applied Settings*. Chichester: John Wiley & Sons Ltd.

A recently published, very extensive book on research for business students:
Saunders, M.N., Lewis, P. & Thornhill, A. (2016). *Research Methods for Business Students*. Harlow, Essex, England: Pearson Education Limited.

A great deal of information on problem analysis and formulating a research question, applied to market research:
Malhotra, N., Birks, D. & Wills, P. (2012). *Marketing Research: An Applied Approach*. Harlow, Essex, England: Pearson Education Limited.

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A recent manual on setting up and performing a research project:
Leary, Z. (2017). *The Essential Guide to Doing Your Research Project*. London Thousand Oaks, CA: SAGE Publications Ltd.

Internet

Ethics: the internet offers a great deal of information on ethics, such as the University of Leicester's Ethics checklist.
Find out how ethical you are at http://ori.hhs.gov/TheLab/
Rules related to ethics are found at
www.slideshare.net/Rambitious/4-research-ethics and www.vsnu.nl/wetenschappelijke_integriteit.html
https://en.wikipedia.org/wiki/Business_ethics
www.bps.org.uk/system/files/Public%20files/inf206-guidelines-for-internet-mediated-research.pdf
Qualitative research: an overview of the types of qualitative research can be found at https://qualpage.com
The Dutch website for qualitative researchers is found at www.kwalon.nl

Problem analysis: a convenient tool for problem analysis is the Phoenix Checklist. This list of questions, originally developed by the CIA to assess the nature and size of a problem, can be found at hamelinterests.com/blog/best-practices-for-problem-solving-the-phoenix-checklist/

Specialty dictionaries: an overview of specialty dictionaries arranged by subject matter can be found at www.alphadictionary.com/specialty.html

Video

An interesting TEDTalk on creative thinking, particularly relevant for research designers: www.youtube.com/watch?v=bEusrD8g-dM

This video, entitled 'Does Smoking Reduce your Risk of Alzheimer's?', illustrates the problem with researchers who are not independent: www.youtube.com/watch?v=taYjdWDcnTE

A cartoon debate between Albert Einstein and Queen Elizabeth on the difference between quantitative and qualitative research: www.youtube.com/watch?v=MlU22hTyIs4

A fun cartoon about the difference between quantitative and qualitative research: www.youtube.com/watch?v=vmulkCjHqqw