

5. LECTURE

QUALITATIVE PROJECTS

Having covered the theoretical principles for the interpretation of qualitative data in the first four lectures, we will now turn to *working with qualitative data*. In this lecture, I discuss general aspects of qualitative projects: *project planning* and the traditional *workspace for hermeneutic textual analysis* as a blueprint for software systems such as ATLAS.ti. The second part discusses *grounded theory* as a comprehensive strategy for the discovery of new theories.

Where appropriate, I will include passages in italics explaining how individual steps are implemented in ATLAS.ti. I will provide links to ATLAS.ti tutorials, which give clear demonstrations of the process.

1. PROJECTS

Projects based on qualitative data analysis can be found in the humanities, cultural studies, the social sciences, journalistic and artistic research, but also in management tasks in business and politics – so essentially in all areas of work where ‘soft’, non-numerical data are important.

The proximity between the methods of qualitative research and those of journalistic research has historical roots: qualitative social research evolved from journalistic reporting on social problems in the Chicago School of urban sociology. The founder of the *Chicago School*, *Robert Ezra Park (1864-1944)* had a background in journalism, not academia (*Lindner 2007*).

Park had the following message for his students:

‘[...] one more thing is needed: direct observation. Go and sit in the lobbies of luxury hotels and at the entrance to the lodging houses; sit on the golden-bank sofas and in improvised beds in the slums [...] go and get your pants dirty in a real study’ (*Burgess 1982, S.6*).

Two generations later, building on the urban sociology field studies encouraged by *Park*, *Anselm Strauss (1916-1996)* and *Barney Glaser (1930-2022)* developed the *grounded theory method*, which I will discuss in detail at the end of this lecture.

The source data for qualitative data analysis projects consist of text and multimedia documents which relate to social reality in some way.¹ The hermeneutic task involves *analyzing* the structures of meaning in the documents and then *synthesizing* the results; this eventually leads to research reports or journalistic features or essays.

¹ We use a broad concept of text: when we speak of the interpretation of texts, this also refers to multimedia and other non-verbal documents (for the definition of “text” see sixth lecture: *Texts as qualitative data*)

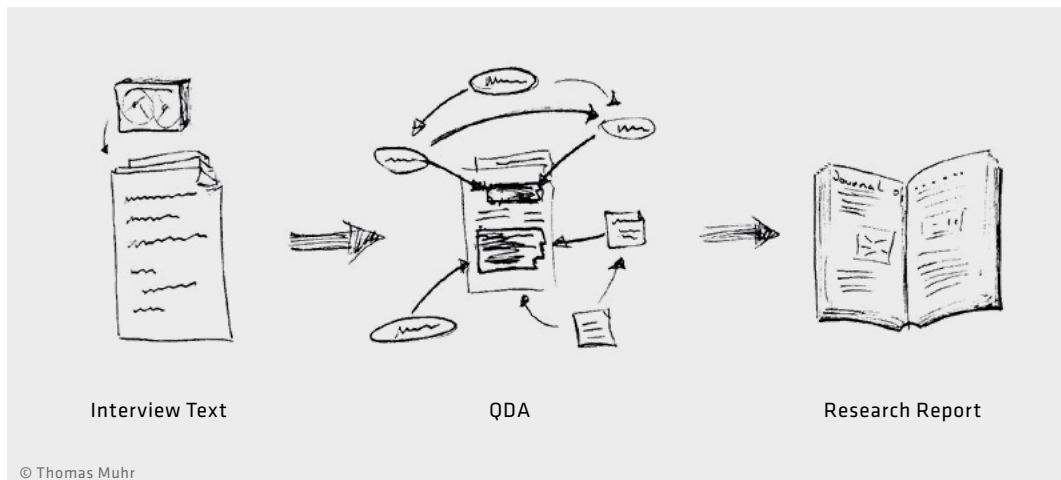


Fig. 5.01: Process of qualitative data analysis

Fig. 5.01, which you already know from the first lecture, shows the data flow in the interpretation of documents: real-world phenomenon -> record -> data analysis -> report on findings.

The formulation of a qualitative project requires clarification of the following basic questions:

- Prior knowledge: what is already known about the problem?
- Research question: what problem is being addressed?
- Objectives: what is the project intended to achieve?

Prior knowledge

If you are planning a quantitative or qualitative study, you will begin by using *everyday knowledge* and the existing literature to familiarize yourself with the *state of research* on the subject. This *prior knowledge* is more significant in qualitative studies than in quantitative research, however.

Quantitative social science studies use statistical tests to *verify hypotheses or theories*. This requires operationalization, allowing phenomena to be counted or measured. Qualitative studies, in contrast, are more open as to their results; their strength lies in the *discovery of new and unexpected connections*, and the development of new hypotheses and theories. This is why qualitative studies do not usually have any pre-formulated hypotheses to be tested.

When planning qualitative studies, and especially when analyzing the data, we rely on two kinds of prior knowledge about the object of research:

1. *Personal prior knowledge*: What everyday personal knowledge, prior experience and attitudes do I have in relation to the object of research? What results do I expect in my study?
2. *Professional prior knowledge (state of research)*: What theories and findings about the topic already exist? What relevance do they have for my study?

Personal and professional prior knowledge is essential to precisely define the research question. The more prior knowledge I have about a subject, the more “intelligent” the questions I can put to the data. It’s a little like the advantage an experienced hunter has over a novice from the city when it comes to detecting the presence of animals in the wild.

Prior knowledge, however, also includes stereotypes, prejudices, and unconscious attitudes of the researcher. This is why it is important, in qualitative studies, to make one’s own prior knowledge explicit and to regard it as hypothetical rather than factual knowledge.

In his book *From Anxiety to Method in the Behavioral Sciences*, the ethno-psychanalyst *Georges Devereux (1908 – 1985)* gives many examples of how unconscious presuppositions influence data collection and interpretation in the social sciences (*Devereux 1998*). But even the qualitative data to be analyzed are often unconsciously distorted documents of social reality – so our data analysis could potentially constitute a double distortion. In the sixth lecture, *Texts as qualitative data*, I will discuss psychoanalytically inspired attempts to reflect on these double distortions in data analysis.

Sensitizing concepts

This is a key concept for qualitative textual interpretation. Sensitizing concepts draw our attention to what we should be looking for in the data.

The term was coined by *Herbert Blumer (1900-1987)*, the founder of symbolic interactionism or interactionist sociology. As the teacher of *Anselm Strauss*, Blumer also influenced the theoretical foundations of grounded theory. *Blumer* sees a fundamental difference between the *definitive concepts* of the natural sciences and the *sensitizing concepts* of the social sciences. A definitive concept, based on a clear definition, refers to a common class of objects. A sensitizing concept lacks this clarity:

Instead, it gives the user a general sense of reference and guidance in approaching empirical instances. Whereas definitive concepts provide prescriptions of what to see, sensitizing concepts merely suggest directions along which to look (*Blumer 1980, p. 148*).

Sensitizing concepts have a heuristic function in qualitative data analysis. Their *openness and potential to stimulate* new thinking makes them particularly suitable for the formation of hypotheses; they can draw the researcher’s attention to phenomena and aspects that could be important in interpretation.

Research question

What phenomena should the qualitative analysis investigate, and what unresolved questions should it answer?

I would like to explain the importance of these questions using a fictitious social science study. The same questions, in a slightly modified form, are also important for journalistic investigations.

Let us take as an example a study or investigation on the *stresses facing refugee children from the Middle East*. Suitable qualitative data might include e.g. interviews with children and parents, records from youth welfare offices, school essays, observation records from kindergartens, and children’s drawings.

The topic initially contains only a very vague research question: reviewing and describing the stresses faced by refugee children. During the data analysis, new or more specific questions may arise, e.g. about traumatization, the children's (and parents') potential for self-help, or the strategies of public authorities when dealing with behavioral disorders in children.

The data interpreters could also pursue a completely different line of questioning, e.g. a discourse analysis, identifying the language patterns and power structures prevalent in this area of refugee policy, and the dialectic between help and control (see sixth lecture, *Texts as qualitative data*).

The research question for a journalistic investigation into the same topic would probably go no further than reviewing the issue, but would focus on vivid examples and (perhaps) spectacular cases.

It is also possible to imagine a socially or politically motivated artist conducting research for an art project on and with refugee children. Such a project might raise questions that would otherwise be overlooked, and it would use artistic methods to present the results.

Objectives

What is the project intended to achieve? Who and what is it useful for? What secondary goals is it meant to achieve?

Systematic reflection on the *objectives* of a project is often neglected. The objectives should be distinguished from the research question. Important aspects of the objectives relate to the *purpose of the research*, the desired *generalizability* and the type of *practical implementation* envisaged.

In studies with a *focus on theory*, the aim is to expand scientific knowledge and to develop and test theories, beyond any specific application of knowledge. Of course basic research is neither useless nor purposeless ("Nothing is more practical than a good theory"), but application is not central here.

In *applied research*, in contrast, the focus is not on the expansion of knowledge, but on the resolution of specific problems. Here qualitative research is intended to deliver insights which can subsequently be used by practitioners or decision-makers to solve problems.

In our fictitious project about the stresses facing refugee children from the Middle East, the objective could be to educate the public about the problem, or to develop effective support structures. But the study could also contribute to theoretical insights into the way children and parents react to extreme stresses.

This may be about the requirements of the target audience of an analysis, and about the relevance of the study, whether it be for the construction of theories or the resolution of social problems. In recent times, theoretical and practical impact has come to be seen as the quality criterion for research projects.

Secondary objectives refer to the use of the research report for purposes unrelated to the content: e.g. to obtain an academic qualification, to apply for a journalism or art prize, or to train staff in a particular field.

The reason why it is so important to reflect on the primary and secondary objectives is that they influence the whole design, execution and data analysis: the type of case or sample chosen, the scope of the research, the methods used for data collection and analysis, and the way the results are presented or published.

What do the answers to these basic questions mean when it comes to starting a data analysis project supported by ATLAS.ti? The first step is to create a new ATLAS.ti project and add the available documents. In the above-mentioned example, an obvious name for the project would be "Stresses Facing Refugee Children from the Middle East":

The following tutorial shows how to create a new project in ATLAS.ti:

<https://atlasti.com/de/video-tutorials/atlas-ti-mac-video-tutorials#ein-projekt-anlegen-und-dokumente-hinzufuegen>.

When an ATLAS.ti project is created, the comment window should be used to add a short description of the project to the title. Memos should also be written, recording prior knowledge, ideas on the research question and objectives, and the first stages of planning.

Memo writing should continue throughout the analytical work. This record-keeping leads to a kind of research log, which can be easily managed in ATLAS.ti and linked to individual findings. This kind of research log made up of memos is extremely helpful, especially in collaborative projects (<https://atlasti.com/research-hub/writing-memos-when-analysing-qualitative-data>).

Using memos to keep written records of all analysis-related reflections is especially important in larger projects, as it facilitates collaboration between multiple members of a research group (<https://atlasti.com/research-hub/live-collaboration-in-atlas-ti-web>).

Planning strategies

In quantitative studies, the whole research design including the data collection tools is fixed in advance. In qualitative research, there are two distinct strategies:

- Fixed research design

A fixed research design offers the advantages of manageability and plannability, which can also be beneficial for qualitative studies. But this means that the researchers need – before the study begins – enough knowledge and hypotheses to determine what documents should be analyzed, what questions should be asked, and what methods of analysis should be applied.

A fixed research design, however, often fails to do justice to the particular strength of qualitative studies, i.e. their openness to new and surprising phenomena and connections.

- "Rolling wave planning"

The strategy of "rolling wave planning" offers an alternative to a fixed research design for qualitative studies. Here a rough plan is made to begin with, and the individual steps are then planned in response to the interim findings.

Since this approach is somewhat frowned upon in research, it is important that you understand the principle. Imagine you're an organizational consultant and you've been tasked with proposing ways to improve the collaboration between different departments in a company. Mostly likely you wouldn't follow a fixed plan, but would enter into a "dialogic process" with the people involved and their environment. You would analyze existing documents of various kinds and from different sources, and have conversations or interviews with key individuals or teams in the most important departments. Then you might conduct a questionnaire survey on the strengths and weaknesses of the collaboration. Gradually, you'd be able to develop a more and more detailed picture or model of the collaborative relationships within the company, with their strengths and weaknesses. At the end of the rolling wave planning, the model or "theory" arising from this process, a kind of cognitive map of these relationships, would most probably give you more practicable proposals for improving internal collaboration than if you had followed a fixed research plan.

Rolling wave planning is the norm in practice and action research and in non-academic approaches to qualitative data, e.g. in project management or business management.

2. THE WORKSPACE AND TOOLS OF THE HERMENEUT

What does a workspace for textual interpretation of the *hermeneut*² look like, and what are the tools of the trade? Hermeneutics has a long tradition (see first lecture). In the 18th century, it developed into an independent humanities methodology, known as the *historical method*. Its aim is to discover, as accurately as possible, "what it was like," that is, to reconstruct *historical truth*, by critically reviewing and interpreting "sources," i.e. texts, images, multimedia documents and other artefacts. This method is used by philologists, historians, art historians, detectives and investigative journalists when they verify the truthfulness of their sources. We will return to this "mother of all methods of qualitative data analysis" – and the digital support ATLAS.ti provides for it – in the sixth lecture.

The traditional workspace

If we consider what the traditional workspace and tools of these interpreters of texts and images looked like before the arrival of the computer, this will help us to understand their technical transposition into a digital interpretation support system like ATLAS.ti.

Let us suppose that we are talking about research into a historical event such as the outbreak of the First World War. The first step for such a project is to set up a work environment or *workspace*. At the center is the *desk* with *writing utensils* and a *card file*. Within reach is a shelf or filing system, where all the necessary *documents* for the project are accessible in books and folders. Larger libraries and archives also offer such workspaces, where scholars can access the whole repository of documents. The filing system holds the documents to be analyzed, and new documents as data sources can be added continuously as work progresses. Since these constitute the starting point of the interpretation, we refer to them as *primary documents*. All interim findings during the interpretive work (*secondary documents*) and also

² After the development of the ATLAS.ti prototype, the pen and paper method was compared to textual interpretation on a computer in a study with the appealing title "The Hermeneut at Her Computer" (Lind 1992).

the final report are stored in their own compartments in the filing system.

The card file (also index card file or index file) has the important function of recording the excerpts and links between the primary and secondary data on index cards. It constitutes a kind of control unit, where all the findings from the research and interpretation are gathered.

An extensively documented example is the famous card file of sociologist *Niklas Luhmann* (1927-1998). *Luhmann*, a prominent exponent of sociological *systems theory*, wrote over 400 scholarly articles and 70 books. He claimed that he owed his productivity to his best assistant, the card file (<https://en.wikipedia.org/wiki/Zettelkasten>). *Luhmann's* card file is an analog precursor to software systems like ATLAS.ti.

Fig. 5.02 makes it clear why a computer-based card file has replaced its traditional precursor.



Fig. 5.02: A typical card file for traditional hermeneutic work³

The data analysis begins when the interpreter reaches for a folder on the shelf, takes out a single primary document and lays it on the desk to read. While reading, he marks the passages that are important for his research question, and highlights them as *quotations*. For some quotations he adds one or more keywords in the margin (*codes*). A code is not just an aide-memoire to help search for the related quotations in the text. Ideally a code should also use a succinct formulation to sum up the meaning of the related quotations. The coding of the text is an important step in textual interpretation.

After the interpreter has worked through several primary documents, he may compile a *code list* of the codes assigned so far and create a card for each code, on which he will write a *comment* or memo. The primary documents are thus deconstructed into many small text components, allowing the interpreter to sort the codes and their quotations by various criteria, independent of the linear text, and to construct relationships between them. The interpreter uses further memos to record the results of this search for connections in the primary documents, as the interim outcome of his thought process.

³ Von Kai Schreiber from Münster, Germany - zettelkasten, CC BY-SA 2.0, https://upload.wikimedia.org/wikipedia/commons/3/33/Zettelkasten_%28514941699%29.jpg

An important step repeated in different phases of work is *searching*. During coding, key words in the text can help to find the passages associated with a code. But the interpreter also wants to be able to access the relevant quotations in their textual context as he works on each code. This enables him to make repeated comparisons and better understand the meaning of the quotations.

As a further aid to structuring, the interpreter arranges the codes that are central for his research question on a page, and represents the relationships between them with arrows. This creates a *semantic network* or *cognitive map* between the codes, which are in turn connected with the quotations from the primary texts.

In a larger analysis project, of course, there are usually several interpreters *working together*. Ideally, each interpreter has his own workspace with access to the documents. After each phase of analysis, he must make the results of his work available to his collaborators.

So this is the traditional workspace, and these are the important steps that the interpreter has to follow.

Transposition to a computer-supported workspace

In the *interpretation support system* ATLAS.ti, *document storage* is implemented similar to a database. The work table becomes a digital *user interface* consisting of movable “*windows*”. *Icons* (Greek: pictures) visible in the headers symbolize tools for text work (Fig. 5.03).

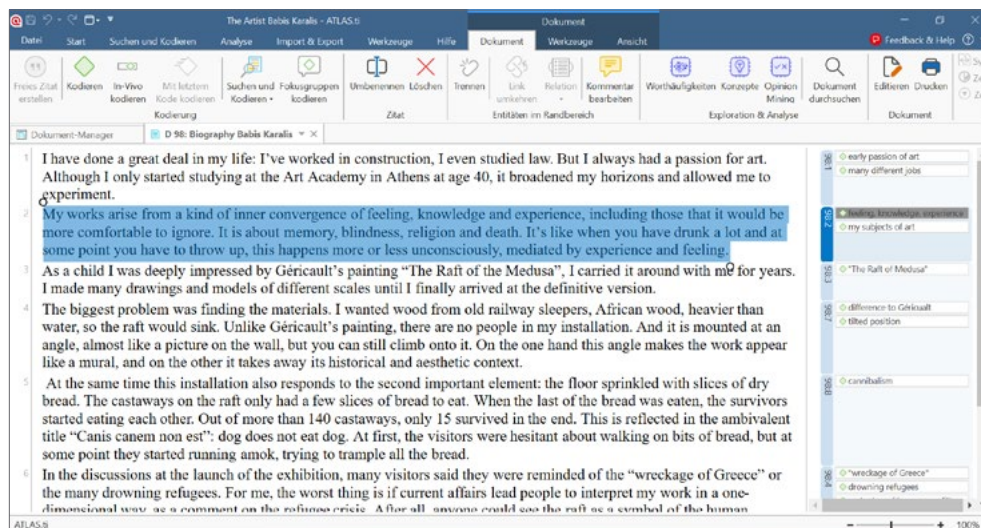


Fig. 5.03: ATLAS.ti user interface (The interface may consist of other windows)

Top: Headers with function icons
Left: Main window with primary document and highlighted quotation
Right: Coding

The interpreter reads the *primary text* that is to be analyzed in the main window of the user interface, and highlights the passages that are important for his research question. By clicking on the icon with the quotation symbol, he saves the highlighted passages as *quotations*.

A coding icon can then be used to define one or more codes for the quotation. The user can also add *comments* and write *memos*.

Further analytical tools can be used to carry out *searches* in primary documents or in *lists of quotations, codes or memos*. These lists can also be *sorted* in various ways. Finally, the *network editor* makes it possible to link documents, quotations and codes by creating *relationships*. This allows their connections and contexts to be viewed and edited in graphic form in *semantic or conceptual networks*. Relationships between two objects (quotations, codes etc.) can also be created simply by dragging one object onto another.

When several interpreters are *working together* on a project, each interpreter is given his own account, and all interpretive steps he takes are “stamped” with his name. This allows a nuanced and effective cooperative analysis of the documents.

An interpretation support system like ATLAS.ti should therefore be conceived of as a digital implementation of the traditional hermeneutic workspace and the traditional process of textual interpretation. The combination of information technology concepts and functions such as database storage, searches, visualization, and editing tools creates a new type of software – an *electronic workbench* for the interpretation of texts and images, which not only simulates the traditional workspace for textual interpretation, but also optimizes and reinvents it. In contrast to traditional textual interpretation, this makes the most of the advantages of digital data processing, and each step is clearly documented. In the seventh lecture, *The tool*, Thomas Muhr will describe in more detail – from the point of view of the computer scientist – how this is developed and implemented.

The transformation into an IT-supported work environment offers new possibilities for qualitative data analysis, in terms of both analysis and quality control. Since the introduction of computer-supported textual interpretation, the possible applications have multiplied and the potential data volume and scope of the analysis have grown substantially. Of course, the new tools also change the way we look at the texts (see e.g. *Konopásek 2011*).

Besides the gain in efficiency, however, this transformation also means a certain loss: as an interpreter, you no longer leaf through beautiful (or not so beautiful) books and turn the rustling pages of manuscripts, which have their own history; you no longer scribble your usual signs in the margins of texts or images; you no longer write on slips of paper or make hand-drawn sketches. Work, reduced to looking at the screen, moving the mouse, and typing on the keyboard, loses some of its physical and sensory appeal. In the book *Understanding Computers and Cognition: A New Foundation for Design* (Winograd & Flores 1987), which guided us in our design of ATLAS.ti, the authors write: “Computers, like every technology, are a vehicle for the transformation of tradition.”

The transformation of tradition will always come with gains and losses. In the IT-supported workspace for textual interpretation, the gain in efficiency is obvious. I am not quite so sure about the depth of interpretation that can be achieved, not because of the absence of rustling paper and dusty tomes, but because, in our efficiency-obsessed times, virtually no one is prepared to follow the example of the old-style scholars and work on the same topic for decades. If this type of scholar still exists, his mentality or lifestyle may mean that he chooses not to use a computer. Yet a new, more efficient technology does not necessarily mean that earlier traditions are completely supplanted, as the continued existence of sailing ships and handlooms shows.

3. QUALITATIVE DATA ANALYSIS IN THE STYLE OF GROUNDED THEORY

To end this lecture, because of its broad applicability, I would like to discuss grounded theory as a comprehensive strategy for the analysis of qualitative projects.

Context of development

Grounded theory is not a theory, as the name might suggest, but *a strategy and an inventory of methods to discover a theory based on the data* – as indicated by the title of the first publication on the subject, “The Discovery of Grounded Theory” (Glaser & Strauss 1967). Grounded theory is not a single method, but a style of research with foundations in hermeneutics. To avoid the misunderstanding that this is a theory, it is now common practice to speak of the “grounded theory method.”

The grounded theory was developed in the early 1960s by the American sociologists *Barney Glaser (1930-2022)* and *Anselm Strauss (1916-1996)*, in the context of studies on the sociology of medicine. *Anselm Strauss* came from the Chicago School of sociological field research, and was part of the tradition of interactionist sociology. His assistant *Barney Glaser*, a student of *Paul Lazarsfeld (1901-1976)*, came from an empirical/quantitative research tradition.

The theoretical foundation of grounded theory is *symbolic interactionism*, with its basic assumptions that *human action and human interactions* are at the center of social research, and that action and interaction are not determined by physical environmental stimuli, but by *interpretations* of the environment, which are mediated by symbols.

Grounded theory emerged in the context of a classic field study. When *Anselm Strauss* came to the *Medical School of the University of California San Francisco* in 1960, he chose, as his first project, a previously unexplored subject: dying in medical institutions (*Awareness of Dying, Glaser & Strauss 1965*). The authors went into neonatal intensive care units, cancer wards, nursing homes and other institutions, and used participant observation and interviews to investigate what factors influence dying in institutions. They used the data to develop a highly influential theory, which changed attitudes to death in modern medicine.

The theory states that the *context of awareness* of the communication between dying patients and medical personnel and relatives is of critical importance for dealing with these patients. On the basis of their data analysis, the authors distinguish four contexts of awareness: (1) a closed context of awareness (the patient is not aware of his condition), (2) a context of suspicion (the patient begins to doubt whether he will recover), (3) a context of mutual deception (perhaps you know this from your own experience: the patient knows that I know he's going to die, and I know he knows it, but we put on a pretense: “It'll be fine!”), and lastly (4) a context of openness (everyone involved knows that death is imminent and talks openly about it). The context of awareness has important consequences for the patient. At the time of the study, the context of suspicion was dominant. The patient notices his condition is getting worse and worse. For fear of giving themselves away, the nursing staff and doctors begin to avoid the patient, and become reluctant to go into his room, which can lead to neglect. The context of mutual deception makes the dying patient feel as though he has been left alone. The theory of contexts of awareness had an enlightening effect at the time, and contributed to the more open way that dying people are treated today.

Strauss perfected this methodology in many other projects in the sociology of medicine and the sociology of work (see *Legewie & Schervier-Legewie 1995*). Today the grounded theory method is one of the most common approaches in qualitative social research, and has proven its worth in both basic and practice-based research.

Glaser later proposed his own version of grounded theory. For the differences between them and for criticism of *Glaser's* approach, see *Strübing (2011)*.

The grounded theory method, in numerous variations and developments, is now the most common approach in qualitative social research and data analysis (*Mey & Mruck 2011*).

The phenomenon-indicator-concept model (Fig. 5.04)

A fundamental element of the grounded theory approach is the *phenomenon-indicator-concept model*. We are examining social reality, or a section of the social world. But we can only acquire knowledge about this by gathering data or documents in which the phenomena of interest are reflected. These may be documents of a linguistic nature, field notes, records of participant observations, interviews, the results of questionnaire surveys, diary entries, historical documents, court records, images and multimedia documents, works of art, buildings, or other man-made artefacts – and of course figures and measurements. The first step in qualitative data analysis is to *identify* and *code units of meaning* in these documents that relate to particular phenomena and are therefore *indicators* of these phenomena.

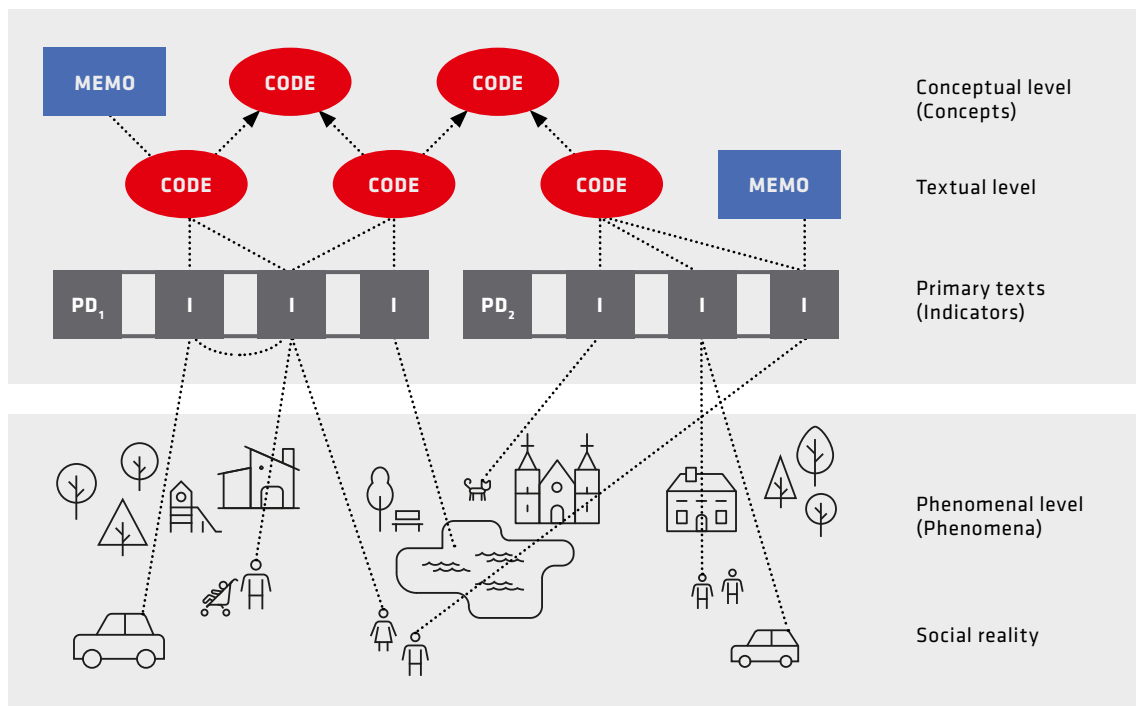


FIG. 5.04: PHENOMENON-INDICATOR-CONCEPT MODEL
PD: Primary document I: Indicator

In ATLAS.ti we distinguish between the *textual* and *conceptual* level (Muhr 1994). On the textual level, the phenomena of interest are identified as *quotations* and named or *coded* in the primary documents. On the conceptual level, *theoretical concepts* are then developed from the codes – by means of comparisons and with the help of the ideas and hypotheses recorded in the *memos*. The concepts are the building blocks from which an emerging *theory* is eventually constructed.

The discovery of new theories

To understand the development of new theoretical concepts from observation data → be it physical measurement data or qualitative data as in grounded theory – we need to make a foray into the modes of logical reasoning that are used to construct theories.

According to the traditional understanding of science, the “discovery” of new theories is a matter for the creative imagination of the researcher. The philosophy of science concentrates on the conditions for *testing* existing theories and hypotheses. The modes of logical reasoning used here are limited to *deduction* (reasoning from the general [i.e. from a general rule or theory] to the particular) and *induction* (reasoning from a sufficient number of particular cases to a general rule).



Fig. 5.05: Charles S. Peirce (1839-1914) ⁴

This understanding was expanded by the American philosopher, logician, mathematician and semiotician *Charles S. Peirce (1839-1914)*. Peirce is regarded as the founder of *pragmatism*, a philosophical approach which holds that all knowledge about humans and nature ultimately arises from the practical actions of humans. According to the pragmatic concept of truth, the rightness of a theory is tested and proven in practical actions. This is not to be confused with pure utility, which the pragmatists have been wrongly accused of espousing. Pragmatism and its criterion for truth were important for the research of the *Chicago School* and are also, according to *Anselm Strauss*, the foundation for grounded theory.

Peirce made a lifelong study of the modes of logical reasoning that lead to certain knowledge. In addition to the two usual modes of reasoning, deduction and induction, he describes a third mode, *abduction*:

Abduction is the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new idea; for induction does nothing but determine a value, and deduction merely evolves the necessary consequences of a pure hypothesis.

Deduction proves that something *must* be; Induction shows that something *actually* is operative; Abduction merely suggests that something *may* be.

⁴ Wikimedia Commons
https://upload.wikimedia.org/wikipedia/commons/a/a4/Charles_Sanders_Peirce_theb3558.jpg

Its only justification is that from its suggestion deduction can draw a prediction which can be tested by induction, and that, if we are ever to learn anything or to understand phenomena at all, it must be by abduction that this is to be brought about. (*Peirce 1998, p. 216*).

If the general rule is that all ravens are black, then I can use *deduction* to conclude that an individual raven must be black. If I have observed on multiple occasions that ravens are black, I can use *induction* to establish the rule – which is highly likely to apply, until proven otherwise – that all ravens are black. If a white raven is suddenly observed, then I need to form a new hypothesis by *abduction* to explain this divergence from the rule. Such a hypothesis might be, for example, that a genetic mutation has led to this change in the raven's color.

According to *Peirce*, scientific reasoning requires constant shifts between deduction, induction and abduction. Theoretical propositions are usually derived from generalizing induction and tested by deductive inferences. Only when surprising new data appear can a new rule be discovered by abduction. If this rule is plausible, then it is worth testing it, by induction and deduction, as a potential new theory.

In line with the traditional understanding of science, *Peirce* also emphasizes the creativity of the researcher as a key factor in the discovery of new theories:

The abductive suggestion comes to us like a flash. It is an act of insight, although of extremely fallible insight. It is true that the different elements of the hypothesis were in our minds before; but it is the idea of putting together what we had never before dreamed of putting together which flashes the new suggestion before our contemplation. (*Peirce 1934, p. 181*).

An important element here is the suggestion that, to discover new theoretical rules, “different elements of the hypothesis [must have been] in our minds before,” i.e. that not just imagination but also prior knowledge and experience play a significant part.

A detailed discussion on abduction in the grounded theory method can be found in *Reichertz (2011)*. In the sixth lecture, *Texts as qualitative data*, in the section on *theoretical coding*, we will learn about some grounded theory techniques which can be strategically used to help discover new hypotheses.

Characteristics of the grounded theory method

The grounded theory method does not provide us with any strict procedural rules that researchers can follow, as would be the case for a statistical analysis. Rather, this is a systematic and well-considered collection of heuristic steps, which are derived partly from the pragmatistic concept of science, and partly from decades of dealing with qualitative data in complex field research projects.

In the following section I want to give you an overview of the most important characteristics.

- Dialogic and processual character:

The researcher does not begin with theoretically derived hypotheses about his object of research, but uses his assumptions and prior knowledge as *sensitizing concepts*,

which structure his perception when gathering and analyzing the data.

An important means of knowledge is the *comparison of contrasting phenomena*. In a psychotherapy research project, for example, the following comparisons could be useful: successful vs. unsuccessful therapies, spontaneous recovery vs. dramatic deterioration, patients with a supportive social background vs. socially isolated patients, average vs. extreme course of illness. Data collection and analysis gradually becomes more targeted in the course of the process, allowing provisional concepts to be developed and progressively refined. This requires, at all stages, an oscillation between deduction, induction and abduction, between data collection and data interpretation, until a “data-based theory” finally takes shape.

- Diversity of data sources and data collection methods:

In the research process, decisions are made about which data sources and methods of data collection and analysis are appropriate for the given research question: the everyday and professional/technical knowledge of the researchers, existing documents, statistics, observational records, interviews, group discussions, surveys, image material and field experiments. But this also means that there is no rule against expanding the selection of data during a study and including new sources, if phenomena that had not previously been considered make this seem necessary.

- Theoretical sampling:

- Based on the theory that is taking shape, aspects are chosen for the targeted collection or selection of further data. Random samples are replaced by the deliberate selection of the widest possible variety of cases and phenomena. This ensures that the phenomena under study are represented in the data in all their diversity – including atypical cases. Theoretical sampling is applicable particularly when large amounts of qualitative data (often thousands of pages of documents) are available to answer a question, but it would be too laborious – or would lead to excessive redundancy – to analyze them in their entirety. Theoretical sampling is not an alternative to random selection, but relates to a different type of research question. If the question is about the frequency of a clearly described and operationalized phenomenon, then of course random selection is mandatory.

- The principle of saturation:

Data collection and analysis are continued until no new aspects appear in the data. This is a pragmatic stop criterion: the degree of precision targeted must be tailored to the research question and the level of effort that can be justified. Theoretical sampling and the principle of saturation ensure the *ecological validity* of the results and help to avoid unnecessary work.

- Theoretical coding:

The core of the grounded theory method is theoretical coding, a simultaneously systematic and creative method of textual interpretation. The *phenomena* to be examined are “captured” in the data as *indicators*. These may be text segments, image material, or statistical data, which relate in some way to the research question, and are “conceptualized” by means of theoretical coding (phenomenon-indicator-concept model). The coding assigns one or more codes (terms, concepts) to the data (e.g. a text segment as an indicator).

Each code points to phenomena in the subject area under examination, by means of the assigned text segments or quotations. During the coding, the interpreter continuously records his ideas and reflections on the codes and the evolving theory in *theory memos*. Here it is important to get beyond the descriptive level, and to “break up” the apparent content with theory-generating questions on the phenomenon under study (what, who, how, why, what for?). The work begins with *open coding*, with “evenly suspended” or “hovering” attention. Later the coding becomes increasingly targeted (*selective coding*). We will look at these techniques in detail in the sixth lecture, *Texts as qualitative data*.

- The theory or model as a network of concepts:

As the theory evolves, concepts are not just derived from the data, but are also linked to each other and grouped into higher-level categories. In this way, the central categories for the description of a subject area gradually take shape, and a *theory or model as a network of concepts* emerges. The concepts of the theory are derived from the text segments on which they are based in a sequence of interpretive steps, and are thus firmly rooted in the data (this is the basic principle of grounded theory).

An important application of grounded theory in qualitative projects is the *secondary analysis* of existing data or the analysis of data gathered for other purposes, e.g. historical archive data. In this case, the strategy of theoretical sampling can be used to decide which data should be analyzed, and in what order.

The analytical techniques of the grounded theory method can be creatively combined with specific methods of data analysis such as qualitative content analysis, narrative analysis, discourse analysis, metaphor analysis, or quantitative methods (see 6th lecture *Texts as qualitative data*).

Strauss does not regard grounded theory as a strict and unchangeable set of rules, to be applied step by step. In an interview from 1990, he has this to say about the essentials of grounded theory:

First I'd say grounded theory is less a method or a set of methods than a methodology and a style of thinking analytically about social phenomena.

If I were to say what's central, I'd emphasize three points: firstly, coding. The coding is theoretical, it's not just for classifying or describing the phenomena. Theoretical concepts are formed which have an explanatory value for the phenomena under study. The second is theoretical sampling. Again and again I've met people who've gathered mountains of interviews and field data and have only thought about what to do with the data afterwards. I understood very early on that it's crucial to begin the analysis right after the first interview, to write memos and formulate hypotheses, which then help to decide who to interview next. And the third thing is the comparisons that are made between the phenomena and contexts, which give rise to the theoretical concepts. When these elements come together, you have the methodology.

But what people do with it depends on their needs, of course. Think of historians: they have to connect it with their techniques for studying sources. Or computer scientists, who've recently started to use grounded theory to analyze systems. There are also people who want to combine the method with quantitative research – and why not? ...

I see the style of grounded theory as very variable. The proposal to use abridged procedures when investigating certain questions goes in this direction ...

I don't want to be a purist, I want to be useful with this method. It's nice if sociologists and psychologists use it, but it's even nicer if people who work in practice find it useful. (Translated from *Legewie & Schervier-Legewie 2004a*).

4. STIMULI FOR DISCUSSION

- What significance does prior knowledge have for the planning process of qualitative studies?
- Discuss the difference between the research question and the objectives of a qualitative study.
- What function do sensitizing concepts have in qualitative data analysis?
- Describe the advantages and disadvantages of a fixed design vs. rolling wave planning.
- Outline the most important material conditions and work steps in traditional textual interpretation.
- What advantages does a software system like ATLAS.ti have over traditional interpretive work? How does it facilitate the work or present new possibilities for qualitative data analysis? What disadvantages do you see, personally?
- For what objectives is the use of the grounded theory method suitable in qualitative studies? For what kinds of research question is a qualitative data analysis following the grounded theory method not appropriate?
- Explain the mode of logical reasoning known as abduction, with regard to the discovery of new hypotheses, in contrast to deduction and induction.
- What are the most important characteristics of the grounded theory method?

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www.qualitative-research.net/index.php/fqs/article/view/562/1217*

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