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Analyzing Qualitative Data with MAXQDA

Text, Audio, and Video

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Introduction: Analyzing Qualitative Data with Software

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The umbrella term "qualitative data" covers a wide variety of data types. Using computer software to analyze these various types of data is a relatively new area of methods development. Indeed, computer-assisted analysis of multimedia data—such as videos—has only recently come to the fore, thanks to rapid technological developments. Today (almost) everyone can collect and analyze this kind of data (e.g., via video recordings on their smartphone). This chapter provides an overview of types of data that can be analyzed with MAXQDA, which file formats the software can process, and the scope of its features and functions. We will also discuss the relationship between qualitative methods and computer software as an analytical tool in practice of research. Does the inherent logic of computer software favor certain social science methods? Or can computer-assisted qualitative data analysis be regarded as an independent method that replaces other traditional (especially interpretative) methods?

In This Chapter

- Get to know a variety of qualitative data types
- Gain an overview of the range of data types and formats that MAXQDA can analyze
- Gain a first impression of MAXQDA's features and functions
- Understand the debate concerning QDA software as an analysis tool or method

What Is Qualitative Data?

MAXQDA is a software for the analysis of qualitative data and therefore belongs to the family of CAQDAS, the acronym for "Computer Assisted Qualitative Data Analysis Software." Recently, the shorter term QDAS (Qualitative Data Analysis

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Software) has occasionally been used; we will stick to the term CAQDAS throughout this chapter. At this stage, however, you may be wondering what exactly qualitative data is. The term "qualitative data" comes from the social sciences and is an umbrella term for all nonnumerical, unstructured data. While most people can immediately imagine something under *numerical data*, this is not done so easily in the case of *qualitative data*. Numerical data, that is, numbers—whether large or small numbers—with varying degrees of accuracy; this data is usually collected by means of measurements and analyzed using statistical methods. Appropriate software such as SPSS, STATA, SAS, or SYSTAT is available for these analysis methods.

While the field of numerical data is very simple, the opposite applies to qualitative data. There is an incredible amount of *qualitative data*, ranging from interview and focus group transcripts to photographs, documents, films, and audio and video recordings. However, the term "qualitative variables" used in quantitative social research must be distinguished from qualitative data; this refers to variables with nominal-scale levels, such as the variables "Gender," "Marital status," or "Party preference." These variables are often also called *categorical variables*, because their characteristic values can be assigned to categories ("Democrat," "Republican," etc.).

It makes sense to distinguish between methodological and technical aspects when considering different types of qualitative data. Methodologically, a distinction is made between narrative interviews, episodic interviews, ethnographic interviews, problem-oriented interviews, etc. For example, I can conduct an open-ended interview with a person using an interview guide. While the topics on which I would like to ask base my questions have been fixed in advance, apart from that, the interview is completely open. Technically, all these distinct types of data can be recorded in an MP3 or other audio file format. After the audio recording has been transcribed, the interview is saved as a text file in a specific format, e.g., RTF, DOC/X, or PDF. This technical side is not unimportant if you want to analyze the interview in MAXQDA or another QDA program. Some QDA software can only analyze texts in TXT or RTF format, while other programs can also handle documents in PDF format (sometimes only the words contained in a PDF file, but not the images, tables, or any other non-textual content). Other programs can also analyze audio and video files, and finally there are programs like MAXQDA or ATLAS.ti that allow synchronized playback and analysis of transcripts and their respective audio or video files.

So, if you consider the type of data analyzed, quantitatively oriented researchers have it relatively easy because they deal with only one type of data, namely, numbers. Qualitative researchers, in contrast, are confronted with a variety of data types; referencing the term "biodiversity," you could even use the expression "qualidiversity," a vast, hardly manageable plurality of data types and modes of data collection.

Table 1.1 Data types and formats that can be analyzed in MAXQDA

Data type	Examples from empirical social research	Importable data formats in MAXQDA
Existing texts of all kinds	Interview and focus group transcripts, research diaries, notes, etc.	RTF, RTFD (Mac), DOC/X, ODT, TXT
Paperwork	Research reports, articles from journals	PDF
Audio recordings	Structured interviews, narrative interviews, episodic interviews, focus groups, etc.	MP3, WAV and other formats
Video recordings	Ethnography, field research, educational research, etc.	MP4, MOV, 3GP, 3GGP, MPG, AVI, M4V, AVCHD
Surveys	Import survey data from Excel with automatic coding. Import of variables from SPSS files	XLS/X, SAV
Data from online survey tools	SurveyMonkey, Qualtrics, LimeSurvey, 2ask, etc.	Via API from SurveyMonkey, XLS/X, HTML
Spreadsheets	Import of spreadsheets	XLS/X
Data from social media	Twitter, Facebook, etc.	Via API from Twitter, PDF (von Facebook-Seiten)
Photographs, pictures	Ethnography, field research, urban research, educational research	PNG, JPG, JPEG, GIF, TIF
Bibliographic data	Exports from literature management programs (Endnote, Citavi, Zotero, etc.) and online literature databases	RIS, TXT
Web pages	Websites of organizations, web forums, etc.	PDF, PNG
MAXApp projects	Import of projects created with MAXApp (iOS/Android)	ZIP, XML
Pre-structured data	Semi-structured interviews with open and closed questions, database exports, etc.	RTF, RTFD (Mac), DOC/X, ODT, TXT
Texts and tables entered directly in MAXQDA	Field notes, observation protocols, etc.	–
Audio and video recordings transcribed in MAXQDA	All types of interviews and group interviews; video recordings, e.g., of lessons in school classes	–

What Types of Data Can Be Analyzed with MAXQDA?

In accordance with the variety of qualitative data described above, the list of all data types that can be analyzed with MAXQDA is very extensive. Table 1.1 provides an overview of data types and data formats without claiming to be complete.

The last two rows of Table 1.1 are different from the others, because in these cases the data is not available in advance; it is generated using MAXQDA. You

might enter an observation protocol or a field note directly into MAXQDA while conducting field research, for example, or transcribe audio/video files with the program.

You can choose between 15 different languages for the MAXQDA interface. Regardless of which interface language you choose, MAXQDA can process all texts that comply with the Unicode standard; this means that texts in (almost) all languages, for example, Chinese, Korean, or Arabic texts, can be processed. This also applies to all category names, document names, notes, and summaries entered in MAXQDA.

The Analytical Functions of MAXQDA

MAXQDA is able to analyze all the data commonly collected in the context of empirical social research. Of course, the software can also be used for tasks beyond social science research. It is particularly well suited, for example, to conducting literature reviews, as is standard practice in all scientific disciplines. MAXQDA can also be used to systematically index and automatically code large volumes of text: companies can manage their board meeting minutes, pastors their sermons, and criminal investigation offices their interview records.

What can you do with MAXQDA and what features and functions does it offer? The functional overview, which is available on the MAXQDA website at www.maxqda.com/products/maxqda-features, comprises 11 sections:

1. Data types (import and analysis)
2. Data management and usability
3. Transcription
4. Qualitative data analysis
5. Mixed methods
6. Visualization
7. Teamwork
8. Report and publish
9. Languages
10. Quantitative text analysis
11. Statistical data analysis

With a volume of almost 20 pages, the list of individual functions is far too long to be reproduced in full here, especially since many functions are described in detail in the other 19 chapters of this book. Here, at the outset of working with the software, we will restrict ourselves to an initial overview of the basic functions for qualitative data analysis (point 4 of the list above); these are displayed in Table 1.2.

MAXQDA can support your work throughout every phase of a project. A central feature of MAXQDA and all QDA software is the option of working with codes (categories) and assigning codes to selected parts of your data—be these words or passages of a text, sections of an image, or scenes in a video. Since the beginnings of

Table 1.2 MAXQDA's basic functions for qualitative data analysis

Analysis function	Description
Coding	Assign codes to parts of a document (text passage, part of an image, video clip). Form categories inductively from the text, e.g., by in vivo coding, coding with colors as you would with a highlighter, coding with symbols ("emoticode"), assigning shortcuts for frequently used codes
Text search and automatic coding	Search for terms in all or selected documents of a project. Automatically code their locations with flexible determination as to the context to be coded (e.g., complete sentences, paragraphs)
Hierarchical category system	Work with a hierarchical category system (code system)—subcategories of up to 10 levels. Organize the category system and its layers via drag and drop. Use code favorites and code sets as a compilation of codes. Optional weighting of and comments on coded segments
Memos und comments	Attach memos to documents, codes, or data segments with your own comments, ideas, and hypotheses. Option to write free memos. Eleven different memo types and memo labels help you organize your memos. Search for and filter memos in table overviews. Search for terms in all documents or memos of a project
Paraphrasing	Select part of a text and summarize the content of this text passage in your own words
Thematic summaries	Summarize text passages to which the same code has been assigned on a case-by-case basis, i.e., write a summary of the statements on a specific topic for each document
Code search	Search for coded data segments by selecting ("activating") documents and codes. Interactive lists with results, simultaneously display segments in their original document. Filtering possible by activation, variables, colors, and weights
Classification with Variables, mixed methods	Assign demographic and other standardized information as variables for documents. Group and search data using variable values. Within the framework of mixed methods studies that combine quantitative and qualitative data
Links and references	Link individual text passages or image sections with each other and with external files, web pages, or geo-references
Logbook	Record valuable information on the working process of a research project in a research diary

QDA software development in the 1990s, the analytical technique of coding data segments has played a central role in qualitative analysis; however, there are also analytical approaches that are not category-based (Silver & Lewins, 2014, pp. 18–19). In this way, QDA software can also serve to support purely hermeneutic analyses by allowing quick searches for words and word combinations, as well as the display of references in context. Additionally, the ability to link points in texts and images together, thereby creating a hyper-structure across these documents, also works without categories and requires no coding of the data.

Methods for Qualitative Data Analysis

"What is, and to what end do we analyze qualitative data?" is a question one might pose, in the style of Friedrich Schiller's inaugural lecture in Jena. The answer would not come so easily, however, because there are many, indeed a great many qualitative methods: the program for the annual Magdeburg Methodological Workshops on Qualitative Education and Social Research (www.zsm.ovgu.de), for example, lists more than 40 methods. The list of methods that are the subject of the workshops at the Berlin Method Meeting (www.qualitative-forschung.de/methodentreffen/) is hardly any shorter:

> Psychoanalytically oriented social research, interpretation as co-construction, grounded theory methodology, qualitative content analysis, documentary method, sociological hermeneutics of knowledge, sociological hermeneutics of knowledge, biography and narration analyses, biographical case reconstruction, objective hermeneutics, observation protocols, triangulation, artifact analysis, sociological discourse analysis of knowledge, sequence analysis in text interpretation, figurative hermeneutics, film and television analysis, life-world analytical ethnography, auto-ethnography, systematic analysis of metaphors, grounded theory and situational analysis, biographical case reconstruction.

All these are methods which are described in varying degrees of detail in the relevant literature and are used to a varying extent in the practice of social research. It is also clear that the listed methods involve very different levels of abstraction. Scholars have often tried to create a typology of qualitative methods according to criteria of proximity to or distance from one another. The typology developed by Renata Tesch, for example, is well known; it groups methods according to their underlying research interest and distinguishes between four main types (Tesch, 1990, pp. 72–73):

- Research interest is focused on the characteristics of language.
- The research interest is directed toward the discovery of regularities.
- The research interest is focused on understanding the meaning of texts and actions.
- Research interest is focused on reflection.

Typologies of this kind are always confronted with the difficulty of plausibly assigning concrete methods such as grounded theory method, discourse analysis, or content analysis. Often there is not enough differentiation between method and methodology. As a sub-discipline of scientific theory, methodology deals with the inherent logic of methods, i.e., the question of which method is appropriate for certain research problems. Methods, on the other hand, designate planned procedures for achieving a certain goal, for example, the way in which a hypothesis is examined. Even though they may only be of limited use, typologies like the one by Tesch listed above give a certain overview and put the criteria of comparison up for discussion. Indeed, in their book focusing on QDA software, Silver and Lewins (2014, pp. 23–33) refrain from grouping and typifying the variety of methods and

methodologies and instead sketch out five *strategies of analysis* that they believe are effectively supported by QDA software, namely, discourse analysis, narrative analysis, framework analysis, grounded theory method, and thematic analysis:

1. *Discourse analysis* refers to a wide range of language-based approaches to the analysis of texts, ranging from descriptive variants to Foucault's discourse analysis and critical discourse analysis. The data can be collected using various methods such as interviews and group discussions or is already available in the form of papers, articles, reports, speeches, etc. There are different approaches to discourse analysis in different disciplines, the common feature of which is that interest is directed toward language, words, sentences, and linguistic structures.
2. Silver and Lewins also see the field of *narrative analysis* as characterized by diversity. It is also about language and the analysis of texts, mostly interviews, diaries, existing narrative sources, and more. The methodologies and methods used in these fields (such as oral history) are numerous; Silver and Lewins name grounded theory, hermeneutics, and phenomenology.
3. *Framework analysis* is a special analysis technique that is category-based and organizes the key research topics in a matrix into which thematic summaries are entered. Silver and Lewins themselves point out the similarities of this relatively unknown approach with grounded theory, thematic analysis, and code-based methods.
4. *Grounded Theory* is a research style dating back to Glaser and Strauss (2009, firstly 1967). It is more of a methodology than a method. Since its beginnings, grounded theory has focused on the method of constant comparison. It is based on a multistage process of coding and working with memos. From initial open coding, one works in an interplay of new data collection, analysis, and memo writing up to codes of higher abstraction and higher importance. Grounded theory method has also diversified in recent decades, and there are now various variants, ranging from Corbin's more traditionally interpretative approach (Corbin & Strauss, 2015) to Charmaz's constructivist orientation (2014).
5. The *thematic analysis* is, as Silver and Lewins see it, a technique used in many approaches rather than as an independent method. In contrast to Foucault's discourse analysis or grounded theory, for example, the method of thematic analysis is not accompanied by certain basic methodological or epistemological assumptions. Thematic analysis is flexible, is used in many disciplines, and aims at a detailed description of the data rather than theory development.

These five strategies presented by Silver and Lewins clearly exhibit varying degrees of abstraction and have different theoretical foundations, sometimes a very far-reaching theoretical foundation such as Foucault's discourse analysis. This difference in the level of abstraction applies all the more to the two other strategies presented by Silver and Lewins, mixed methods research and visual analysis, which they describe as *broader approaches*. While mixed methods research sees itself as a methodology—Johnson, Onwuegbuzie, and Turner (2007, p. 129) even speak of a "third methodological paradigm"—the analysis of visual data material can certainly

take place within the framework of grounded theory method, discourse analysis, or mixed methods.

This division into five strategies and two broader approaches, as well as the typology of Tesch, is obviously based on the observation that these various methodologies, methods, and techniques are all used to varying extents in empirical research and can all benefit from the support of QDA software. However, these groupings are not necessarily convincing in terms of their classification system. They are more like playlists on YouTube, which summarize similar things according to certain criteria but do not claim to create a system covering the entire field.

As you can see, there are diverse answers to the first part of the question, "What is, and to what end do we analyze qualitative data?," as asked at the beginning of this chapter. In fact, the answers are so diverse that it might be advisable to write whole separate texts, such as "Grounded Theory with MAXQDA," "Ethnography with MAXQDA," or "Critical Discourse Analysis with MAXQDA." However, this strikes us as a bit too ambitious at this stage. Instead, we will stick (for now) to providing you with a book about data analysis with MAXQDA that is method-spanning, but nevertheless method-oriented, and avoids giving too concrete instructions as those you might expect to find in a software reference manual.

Only a few of the methods described above try to answer the second part of the question based on Schiller's lecture, namely, to which end qualitative data analysis is to be carried out. This question extends beyond the area of methods and into the areas of methodology, epistemology, and ontology. In this book, which is primarily concerned with methods, we will exercise some caution regarding the further layers of epistemology and ontology over and above these methods. Nevertheless, we think it is worth pointing out that social science methods that utilize modern digital technologies presents tremendous opportunities for interdisciplinary work, the recognition of interrelationships and the development of theories. Of course, the methods described in this book cannot with certainty prevent you from getting lost in details, but at the very least they offer you the chance to develop far-reaching theories and thereby contribute to social transformation.

Is MAXQDA a Method?

Since the beginnings of software for computer-assisted qualitative data analysis, the methodological status of QDA software has been a matter of controversy. The following positions mark the two extremes of a broad spectrum of positions and opinions.

On the one hand, there is the position that CAQDAS imposes a certain method on the user. Working with categories is especially favored, for example, and interpretative methods are strongly disadvantaged. In other words, according to this view there is a kind of hidden curriculum with which CAQDAS provides a very specific direction of analysis that, in turn, is diametrically opposed to the classical qualitative approach to analysis. This view can already be found in the early 1990s with Barney Glaser, co-author of grounded theory (Glaser, 1992). Here, QDA software is