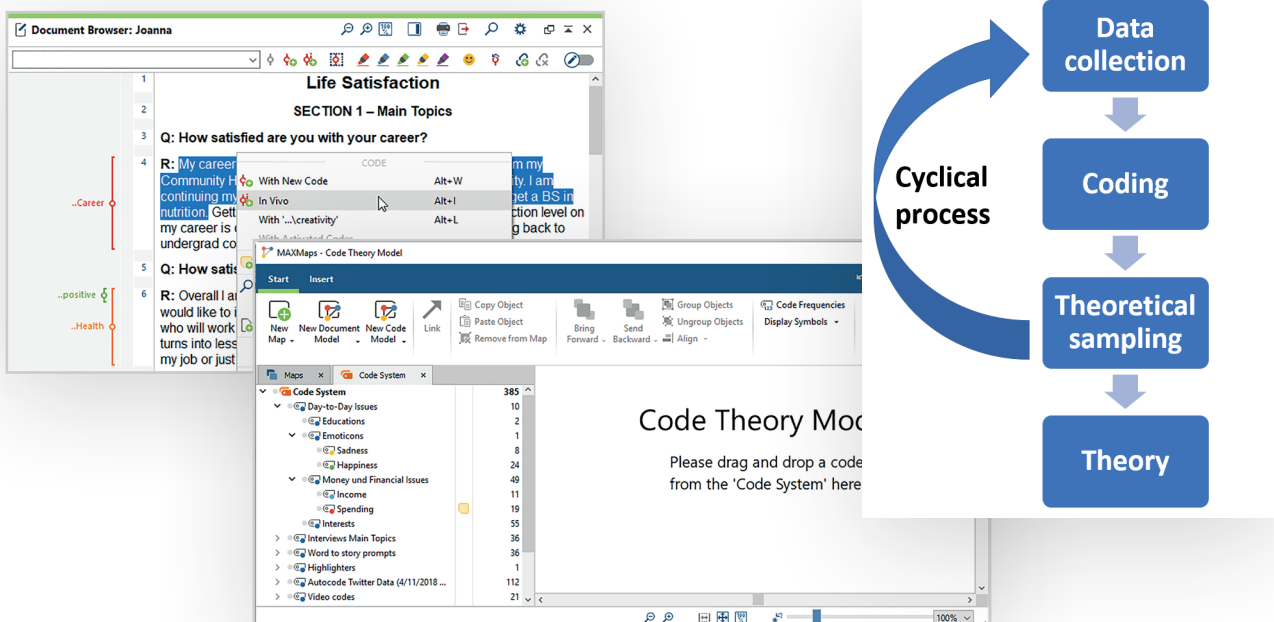# MAXQDA

The Art of Data Analysis

MAXQDA
Research Example

Grounded Theory Analysis with MAXQDA: Step-By-Step Guide

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Abstract: Learn how MAXQDA can support your grounded theory research analysis in easy to follow steps, including tips and tricks about how to make the process faster and easier.

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1. What is Grounded Theory?

The central principle of grounded theory is that the researcher's theories about a topic are constructed based on their data. In other words, **by collecting and analyzing qualitative data, the researcher can construct a new theory that is "grounded" in that data.** Grounded theory, therefore, begins with the collection of data based on a question rather than the aim to test a hypothesis.

The principles of grounded theory were articulated in 1967 by sociologists Barney Glaser and Anselm Strauss in their book The Discovery of Grounded Theory. The idea of starting with the data in order to create the theory contradicted previous methodological traditions, which mostly suggested that researchers should verify already-formulated theory during data collection.

> Grounded theory is the discovery of theory from data systematically obtained from social research.
> *- Glaser & Strauss, 2009*

Grounded theory remains one of the most popular qualitative methodological frameworks used by researchers today. This may be because grounded theory methodology and its application "foster seeing your data in fresh ways and exploring your ideas about the data through early analytic writing" (Charmaz, 2006). There are also many iterations of the grounded theory process, especially when it comes to coding. This article will, therefore, serve as a practical guide to analyzing data with MAXQDA rather than a methodological assessment of grounded theory itself.

2. Grounded Theory Analysis with MAXQDA

In grounded theory-based analysis, the researcher generally analyzes the data as follows: finding repeating themes by thoroughly reviewing the data; coding the emergent themes with keywords and phrases; grouping the codes into concepts hierarchically; and then categorizing the concepts through relationship identification. Finally, the categories created through this process, as well as the links found between them, are used as the basis for the development of a new theory.

The main steps in using MAXQDA to analyze qualitative data based on the grounded theory methodology are what we call **the '4 Cs':**

1. **coding** the data,
2. **customizing** the Code System,
3. **category building** with Creative Coding, and
4. **constructing theories** with MAXMaps.

These steps facilitate an analysis process that gives the researcher the freedom to construct new theories instead of simply collecting data to test how well an established theory applies to the social phenomena they are studying. However, the freedom that grounded theory gives to the researcher may also be one of its biggest challenges when it is put into practice.

With no rigid structure or prescribed rules, researchers must work entirely on their own, which often leads to uncertainty about how to get the analysis process started. Grounded theory research, especially when conducted with the constant comparative method of data analysis, is "a labor-intensive task that requires the researcher to invest time in the processes of analysis and data collection" (Kolb, 2012).

As shown above, the process is much clearer when you use software. **With MAXQDA, you can search for data segments as you code the data and have analytical ideas, allowing you to develop the theory in real-time!**

2.1. Coding the Data

Coding is both the first and most crucial step between gathering data and developing a valid theory from the data. **A 'code' is a keyword or label used to identify the content of a data segment** in order to make it easier to find it again later.

Codes create order – think of a library's keyword catalog, for example. Catalogs help you find the right book and at the same time provide an overview of the topics on which the library has books. Of course, how useful such a catalog is will depend on the usability of the index system and on the accuracy of the keywords assigned. The same is true for a researcher's coding work. **Assigning codes to segments of texts, images or audio/video footage in MAXQDA is known as 'coding'.**

Coding in grounded theory can be divided into two main phases:

a. First, there is the initial **'open coding'** stage. In this stage, the researcher works closely with the data, trying to name specific lines or segments of the data by creating new codes. It is important to keep an open mind so that you avoid limiting the number of codes. The core codes will be refined during subsequent analysis phases.

b. **'Selective coding'** in advanced stages of the coding process (aka second, third, etc. rounds of coding) comes next. In these later stages of coding, the researcher focuses their coding to define the most significant higher-level codes and sort the lower-level codes created during the initial coding phase. (See steps 2 & 3)

MAXQDA offers various coding options besides the classic coding technique of the drag and drop. There is color-coding, or 'highlighter coding', which works just like highlighting a text passage in a book by hand with a colored marker. MAXQDA's color wheel option for choosing your code's color offers you endless options to make important data segments both easier to understand and more eye-catching to present in your final report.

Since codes should be grounded in the data, one of the most popular coding techniques in grounded theory analysis is known as 'in-vivo coding': **the use of the very words or phrases found in the data, such as interview transcripts or texts, as codes.**
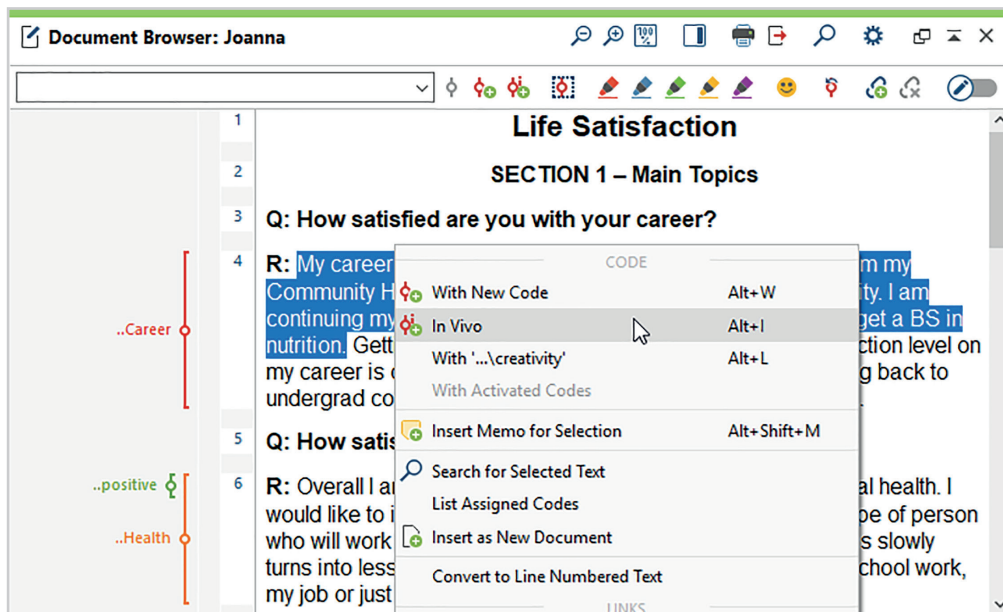
Choose the coding option that works best for you

MAXQDA's in-vivo coding function is specifically designed to help facilitate this type of grounded theory-based analysis. Simply select the word(s) you want to use as a code and then click on the 'Code in-vivo' symbol in the "Document Browser" window toolbar. The selected word will be added into the "Code System" window as the code for this short text segment. MAXQDA's various coding options can also be selected from the context menu that pops up when you select a document segment and click the right mouse button.

Customizing the Code System

During later 'rounds' of coding, the researcher goes through the data they have already coded again using the selective coding technique mentioned above. You can now create code hierarchies by sorting codes into 'parent codes' and 'subcodes' in MAXQDA's "Code System" window. This process will help you create and refine what is called a 'code tree', which will allow you to easily identify codes with similar content and group them into concepts.

MAXQDA helps you with this step by allowing you to have your codes organized in a hierarchical structure automatically, meaning you can create multiple subcodes, followed by subcodes of subcodes. The Code System is also automatically shown as a tree structure on the screen, which you can open in a separate window if your code system has a complicated structure with many subcodes.

This hierarchical structure can contain up to ten levels and the total number of codes in unlimited. The numbers in the rightmost column of the "Code System" window indicate the number of the coded segments, allowing you to easily track their frequency.

You can also expand or close the sub-categories by clicking the arrow icon next to the code, as shown below:
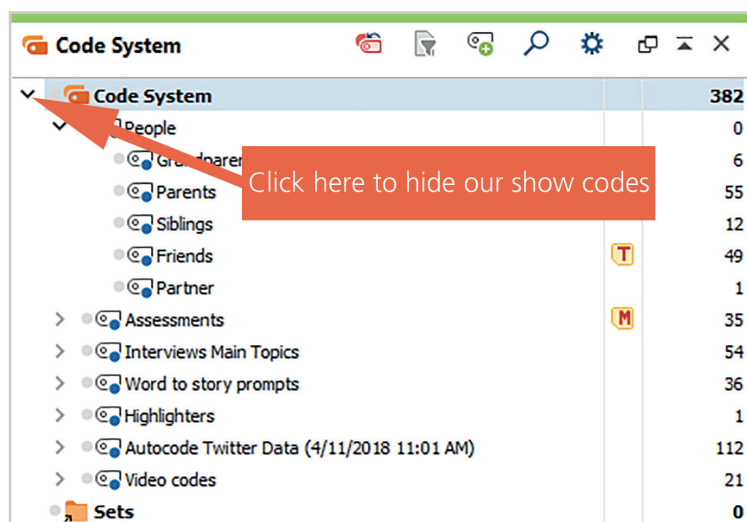

Easily customize your code tree with MAXQDA

Category Building with Creative Coding

In grounded theory analysis, categories are created by grouping together similar concepts in the second half of the selective coding phase (or third phase of coding, as is described by some experts). These categories will ultimately be the basis for the new theory's structure because the researcher will be able to label the links between categories theoretically (Schreiber, 2001). **When new codes are generated, sorted, and organized into the hierarchical code structure, the relationships between codes begin to emerge.**

MAXQDA's Creative Coding function is the perfect tool for this categorization process because it provides the researcher with a large workspace on which codes can be freely moved and sorted in order to form meaningful groups. To begin, simply click Creative Coding in the **Codes** menu tab at the top of the screen to activate the Creative Coding Mode. You will see the following workspace on the screen:
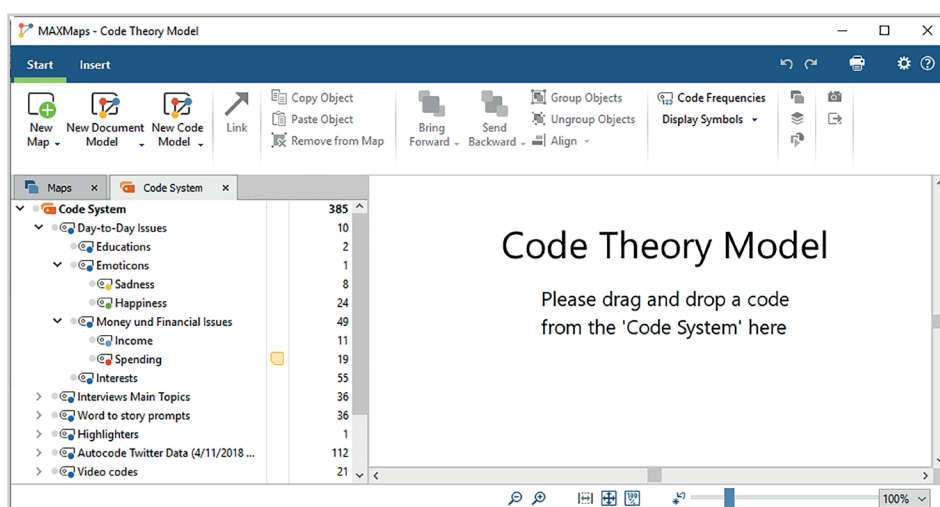
Selecting Codes for Creative Coding

Drag the codes you want to work with from the "Code System" window and drop them into the MAXMaps workspace. **You can now freely group and organize the codes with your mouse**, create new parent and subcodes if necessary, and change the color of the codes as desired. MAXQDA provides you with an easy-to-use toolbar for all of these functions that will appear above the workspace.

Once you have finished organizing your codes, quit Creative Coding to apply the changes to your code tree. Click the 'Quit Creative Coding' symbol in the top left of the window and then choose 'yes' in the pop-up window.

Constructing the Theory with MAXMaps

After the selective coding phase, the theoretical links between the categories will have become clearer. The next step in grounded theory is the theoretical sampling phase, in which **further select data is collected in order to develop the emerging theory and elaborate the main categories constituting it.**

We recommend using MAXQDA's MAXMaps feature to create a visual diagram of your theory at this stage. MAXMaps allows you to visualize complex connections in the data and relationships in the theory by creating concept maps that show how the different elements are related to one another.

You can either begin with a blank map that you can easily drag and drop elements into, or you can use one of the several model templates in MAXMaps to automatically import connections found in your data. For example, if you are interested in examining the connections within a specific category, you can use a Code Theory Model to display the connections between a code, its subcodes, and memos, as is shown here:
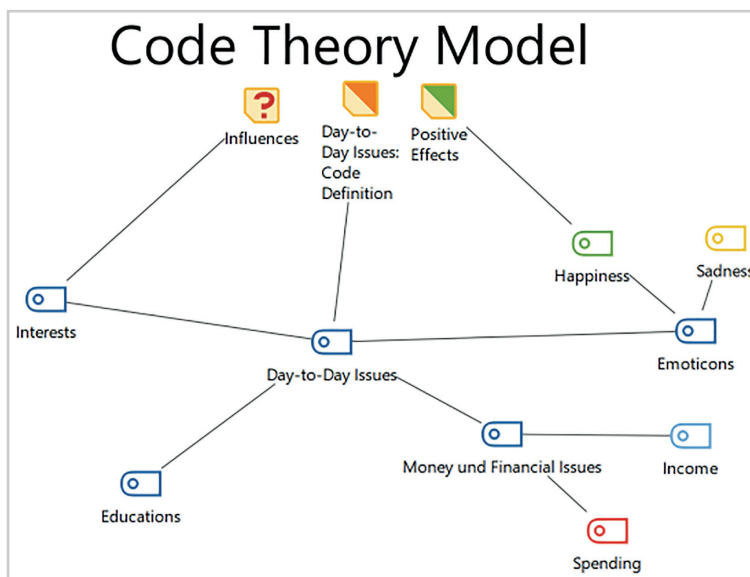

Code Theory model with integration of subcodes on two levels.

You can also create tables and worksheets to gain a better perspective of the elements within a project as well as easily find the sources of your data because all the elements used in a map are interactive, meaning they are connected to the MAXQDA project. Simply double-click on the icon to open the document, coded segment, or memo to read or even modify the analysis work that brought you to the theory you are visualizing. **MAXMaps is the perfect tool to easily find the places in your theory where further data is needed** during the theoretical sampling phase in your grounded theory analysis.

Of course, while we have outlined several steps and given suggestions as to how MAXQDA can support your research, grounded theory analysis is not a linear process; during later stages of theoretical sampling, the researcher must code new data and at that point, they might want to revise some of the categories they have already developed, which means the cycle will begin again.
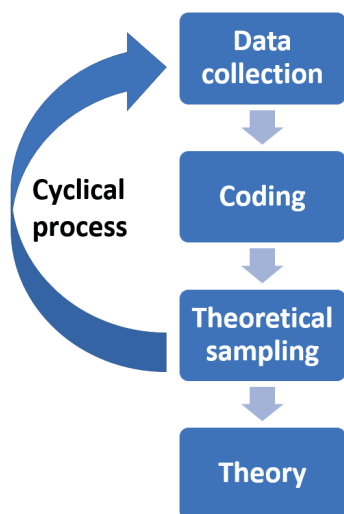
Don't get discouraged! The cyclical process might seem daunting at first, but with each round of testing and ameliorating your categories using MAXQDA, your theory will become both clearer and more resilient. Remember, if you have made it this far, **you are near the finish line of constructing a new theory**, which could change how your topic is viewed from now on.

3. The Importance of Memos

Memos are a core component of grounded theory analysis. **When coding, it is important to critically analyze the progress as you go**, and it is best to write these thoughts down. Memos are the place where the researcher can keep track of their ideas in an informal way, as well as formally keep track of the reasoning behind the steps they are taking as their research progresses. Furthermore, and possibly most importantly, new ideas and insights might develop organically through the process of writing memos.

You can organize your memos in whichever way you feel most comfortable with, but we highly recommend adding a heading and explaining which segment of data they are referring to. By taking a few extra minutes to organize your memos, you will save a lot more time during the later stages of coding and reporting. Luckily, MAXQDA automates several steps for you so that you don't need to hand write and lay out your notes with cards or post-its any longer!

How to Create Memos in MAXQDA

Memos are an integral part of any MAXQDA project, just as **memo writing is an essential part of grounded theory research.** MAXQDA's intuitive design allows for flexibility in methodological approaches and supports you to be as creative as you wish to be during your research and analysis processes.

You can differentiate between various types of memos within MAXQDA that then have different roles in your analysis. In MAXQDA, memos can be attached to documents, document groups, audio and video files, etc. Memos can also be assigned to the codes themselves. Code memos often contain category definitions and anchor examples, which can clarify the meaning of the categories you create through grounded theory analysis and explain their link back to the original quotes. There is even the option to create a 'free' memo, which is not attached to anything other than the project.

To create a memo, double-click the memo icon and a dialogue window will appear. Name your memo and add the text. The 'Author' and 'Creation date' fields are filled-in automatically to help save you time.
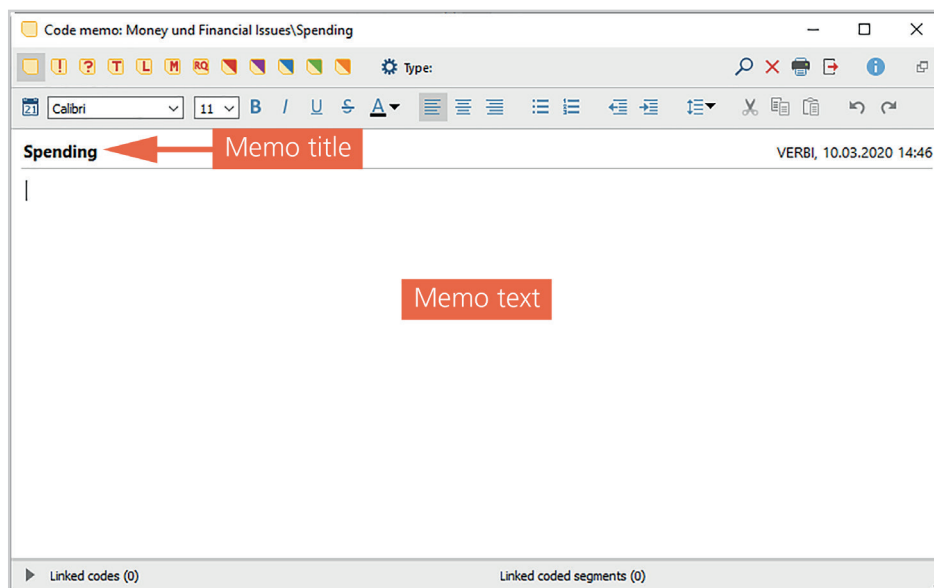
MAXQDA's Memo Dialogue Window

Memo Types

Next, you can choose to assign a 'type' to your memo using one of the 10 symbols provided by MAXQDA. When conducting grounded theory analysis, we highly recommend sorting your memos into types. Theoretical Memos are the most common type of memo used in GT analysis because they describe the researcher's ideas behind their analysis activities.

> The researcher 'theorizes' from the data by writing memos to extract theoretical meaning behind codes and logical relationships between codes during the coding proces.
> - Glaser 1998

In your MAXQDA project, you might choose to use the memo icon with a "T" to represent theoretical memos, the memo icon with an "M" for methodological memos, assign the blue icon for ideas generated in-vivo, red for ideas from previous research, and so on. You can customize your memo organization system in whichever way works best for you.

When you have finished writing a memo, simply close the window and MAXQDA will save it automatically. Moreover, the information you add to a new memo is saved in the open memo window at regular intervals of 5 minutes, so you don't have to worry about losing your ideas if you accidentally close the dialogue window!

Overview of Memos

With so many different options and types of memos available in MAXQDA, you might find it helpful to have an overview of all your memo work and information. MAXQDA's Overview of Memos was created for this purpose specifically and can help you save a lot of time when you start writing. The quickest way to access the Overview of Memos is in the Reports tab at the top of your screen in MAXQDA.

A new dialogue window will open with a table containing all of the important information about your memos, including where the memo is, the title, the author, its origin, and a preview of the memo's content. From there, you can browse your work, filter the memos by column to find specific information, and jump to the memo you are looking for. **Gathering and viewing your thoughts throughout the entire grounded theory analysis process has never been easier!**
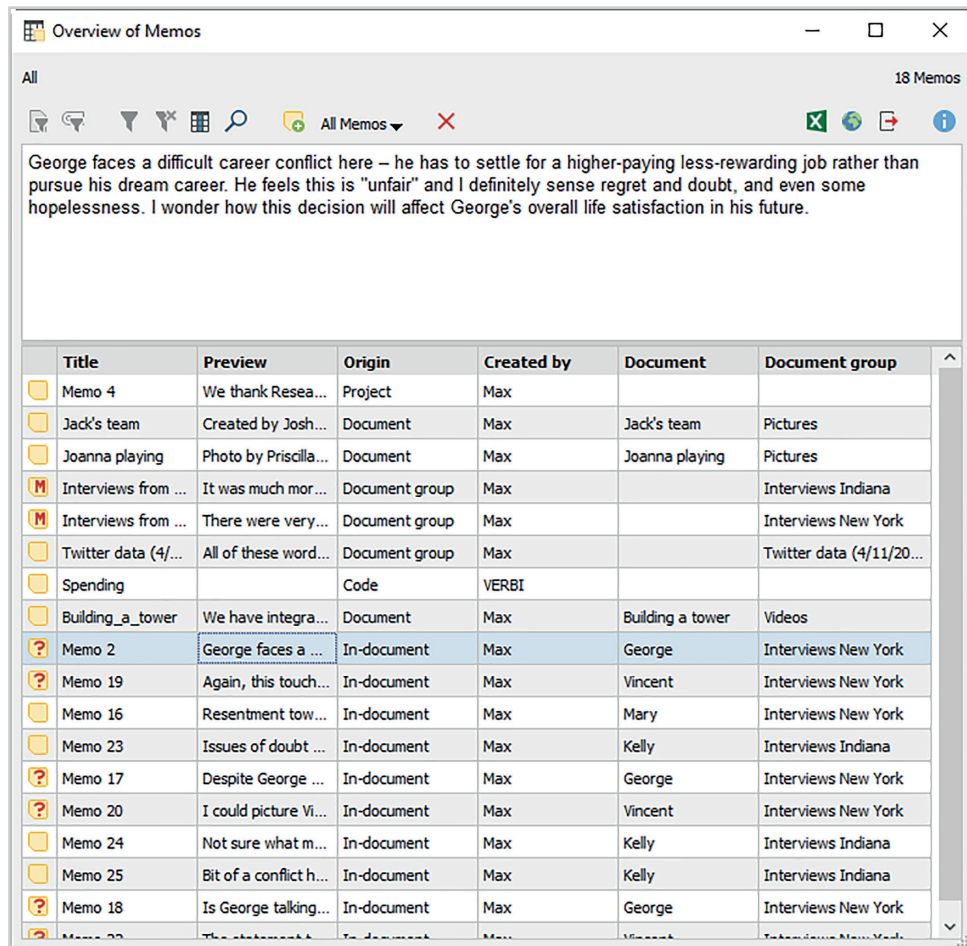
MAXQDA's Overview of Memos Dialogue Window

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