

Basic Stages of Analyzing Qualitative Documents Using ATLAS.ti

- Uma Nath Sharma*

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Abstract

ATLAS.ti is widely recognized as a prominent example of computer-aided qualitative data analysis software (CAQDAS), alongside other notable programs such as NVivo, MAXQDA, Dedoose, Quirkos, and QDA Miner. Specifically designed for the analysis of unstructured, non-numerical textual documents, ATLAS.ti facilitates comprehensive qualitative research processes. This paper aims to provide a brief demonstration of stepwise thematic analysis using ATLAS.ti X9. The focus is on analyzing three real micro-interview documents that delve into individuals' food behaviors regarding breakfast, lunch, and dinner. Drawing on direct experience with ATLAS.ti, the study meticulously illustrates three essential stages of thematic content analysis—pre-analysis, material exploration, and interpretation—within the software's intuitive interface. Moreover, the paper sheds light on activities conducted outside ATLAS.ti, both preceding and following its use, to enrich the analytical process. By offering a practical guide, this demonstration seeks to empower novice qualitative researchers in harnessing ATLAS.ti effectively for their analytical needs, thereby enhancing the rigor and depth of their research outcomes.

Keywords: *ATLAS.ti; ATLAS.ti project, Documents, Quotation, codes, Code group; CAQDAS; Research processes.*

Introduction

Technological innovation in the modern world has significantly influenced various sectors of human life, including the realm of knowledge and its construction through research (Soratto et al., 2020). In this context, numerous software programs have emerged and are increasingly utilized in qualitative and quantitative research globally. Among these, ATLAS.ti is a leading example of CAQDAS, designed to facilitate the comprehensive analysis of unstructured, non-numerical textual documents. This software, along with others like NVivo, MAXQDA, Dedoose, Quirkos, and QDA Miner, plays a pivotal role in optimizing qualitative research reports (Friese et al., 2018; Munirah, 2011). However, it should be also noted that the software, like ATLAS.ti, do not actually analyze data; they are simply a tool for supporting the process of qualitative data analysis (Friese, 2019).

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Basic Stages of Analyzing Qualitative Documents Using ATLAS.

ATLAS.ti is distinguished by its strong features that enhance the organization, coding, and interpretation of qualitative data. It enables researchers “to store and manage all data collected for [a] research project at one place,” providing a streamlined process for tracking and analyzing data (Friese et al., 2018, p. 12). Despite the availability of such an advanced tool, there remains a significant research gap in the practical application and instructional guidance for novice researchers. Many novice researchers struggle with the technical aspects of CAQDAS, resulting in underutilization of the software’s full potential (Creswell & Poth, 2018; Paulus et al., 2017). The lack of comprehensive, step-by-step tutorials tailored to beginners intensifies this issue, highlighting the necessity for stage-wise demonstrations and user-friendly guides.

Moreover, while much literature discusses the capabilities of ATLAS.ti and other CAQDAS, there is a lack of practical, experience-based accounts that walk through the entire process of qualitative data analysis from start to finish (Flick, 2017). For example, Hwang (2008) offers a detailed look at the capabilities of ATLAS.ti, including coding, data management, and visualization tools. However, it aligns with Flick’s (2017) observation that it falls short of providing real-world application insights for novice researchers. Smit and Scherman (2021) provides an insightful overview of the capabilities and applications of ATLAS.ti in qualitative data analysis. Despite the extensive literature on the technical functionalities and advantages of ATLAS.ti and similar CAQDAS tools, this work underscores a significant gap highlighted by Flick (2017). The paper recognizes the scarcity of practical, experience-based accounts that meticulously guide researchers through the complete qualitative analysis process using ATLAS.ti. Similarly, Soratto et al. (2020) outline the capabilities of ATLAS.ti in managing and analyzing qualitative data in health research. While it highlights the software’s functionalities, it lacks practical, experience-based accounts that guide researchers through the entire qualitative data analysis process.

This paper addresses this gap by providing a thorough, practical example of thematic analysis using ATLAS.ti X9, aiming to bridge the divide between theoretical knowledge of ATLAS.ti and its practical application. By focusing on the intricacies of the software and offering a real-world example, this paper is expected to contribute to the existing body of knowledge and serve as a valuable resource for novice researchers.

Methods

This paper aimed at providing a comprehensive, step-by-step practical guide for qualitative researchers on using ATLAS.ti to analyze qualitative data, featuring a showcase of qualitative data analysis techniques. For this, I adopted auto-reflective descriptive phenomenological research design that enables a thorough reflection on self-experiences related to the phenomena under study. In reflective phenomenology, the pre-conceived world is taken aside in order to concentrate on the perception of the real world phenomena related to the study (Smith et al., 2009). I drew on my reflection of using ATLAS.ti for qualitative data analysis, involving “the analytical isolation” of the phenomenon (Gorichanaz, 2017, p. 3). By reflecting on my own experiences with ATLAS.ti, I offered practical insights and tips that are grounded in real-world use (Friese, 2019). I used my subjective experiences to provide valuable insights into the research process (Friese, 2019; Paulus et al., 2013). On the other hand, describing the step-by-step process helps in providing a clear

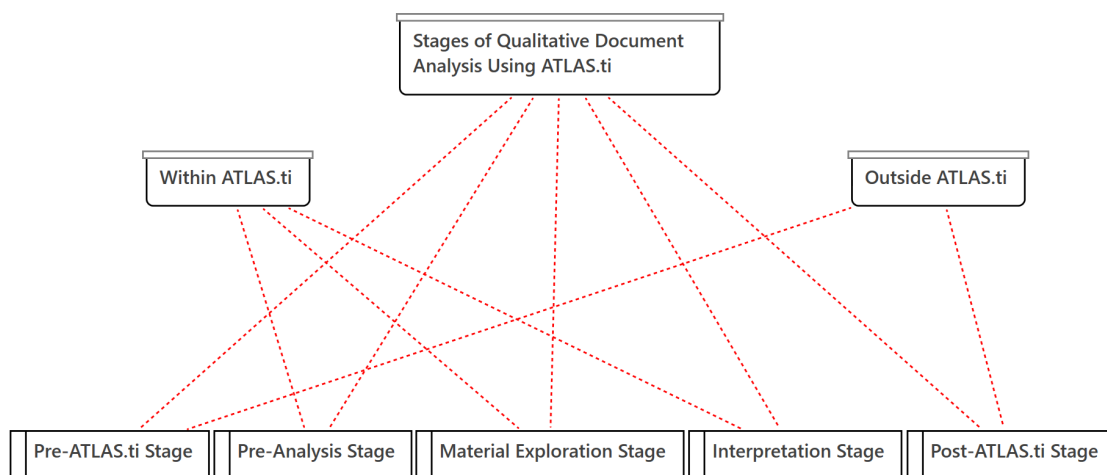
Basic Stages of Analyzing Qualitative Documents Using ATLAS.

and accessible guide for other researchers using ATLAS.ti (Paulus et al., 2013). Furthermore, I performed basic activities under each stage, within and outside the ATLAS.ti project, and demonstrated the detailed account of the activities utilizing verbal descriptions accompanied with the screenshot captures.

Results and Discussion

The results were presented and discussed in terms of the basic stages of qualitative data analysis using ATLAS.ti, following the framework outlined in Figure 1. This framework is adapted from Soratto et al. (2020) and incorporates their concept of three phases of thematic content analysis within ATLAS.ti project, surrounded by two additional stages outside the project.

Figure 1. Analytical Framework of the Study



(see Soratto et al., 2020)

1. Pre-ATLAS.ti Stage

In the pre-ATLAS.ti stage, we prepare documents from primary data, such as data collected through interviews or focus group discussions (FGDs). Additionally, we can select documents for analysis from secondary data sources, such as existing literature. Documents represent the data to be added to an ATLAS.ti project. These can be text, image, audio, video or geographic materials that we wish to analyze (Friese, 2021b). In the present case, the documents are in the form of written texts. The primary data were collected from three individuals (two males and one female; two teachers and one non-teacher) through single interview with each of them. The process of preparing these documents involved transcribing the oral data in Nepali (the language in which the interviews were conducted), translating them into English, and typing them into three separate Word files. This task also included the refinement of the data, avoiding the participants' catchphrases, unnecessary repetitions, irrelevant information, and inconsistencies within each document. One more crucial aspect of this preparation is titling the documents and naming the Word files in a manner that is both economical and informative. The titles and names of the documents are shown in Table 1.

Table 1. Titles and Names of the Documents

Titles in Word files	Names of the Word files
FTP3 In 1 (April 4, 2023)	FTP3 In 1
MNTP2 In 1 (April 3, 2023)	MNTP2 In 1
MTP1 In 1 (April 2, 2023)	MTP1 In 1

Note. F = Female; M = Male; T = Teacher; NT = Non-teacher; P = Participant; In = Interview; the dates within parentheses indicate interview dates

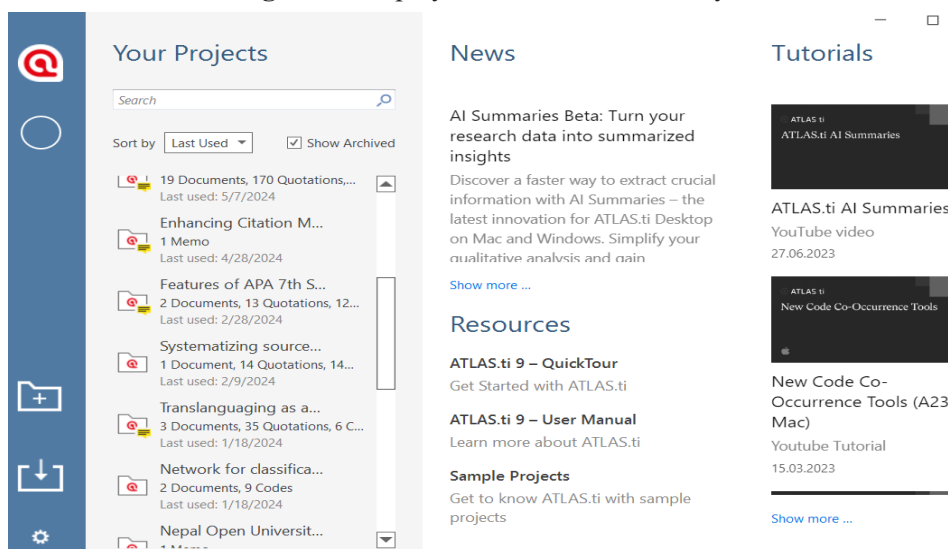
The participants can be identified as P1, P2, and P3 since their gender and profession are not relevant to this analysis. The aim of the study of food behavior was supposed to explore the food behavior of individuals regardless of their gender or profession. This coding method allows for comparison and contrast of food behavior across different genders or professions. The titles of the documents include the dates of the corresponding interviews, which provide a “thick description” of the research activities, a procedure for the verification of trustworthiness of the study. (Creswell & Miller, 2000; Creswell & Poth, 2018). However, the document names have been shortened, omitting the dates of the interviews, to make citations of the participants’ responses more concise while analyzing them.

After titling and naming all the documents, they were kept within a folder labeled ‘Documents.’ This streamlines the process of adding all the files to the ATLAS.ti project in one click.

2. Pre-Analysis Stage

It is the first stage within ATLAS.ti. This stage usually includes the task of creating a project in the ATLAS.ti library, adding documents in the ATLAS.ti project, and grouping them into document groups. For this, at first, I opened the ATLAS.ti library by double-clicking on the icon for ATLAS.ti, ‘@’ which I have pinned to the taskbar. The library displayed as shown in Figure 2.

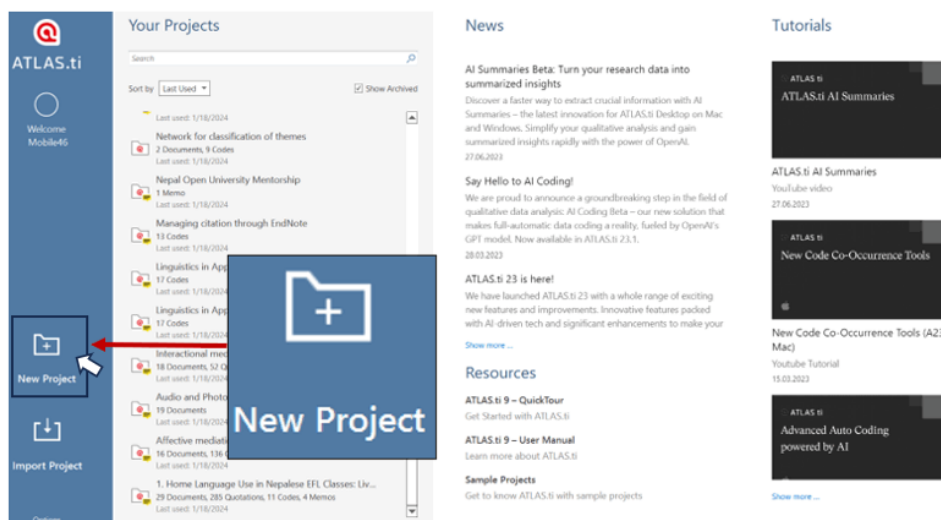
Figure 2. Display of an ATLAS.ti Library



Basic Stages of Analyzing Qualitative Documents Using ATLAS.

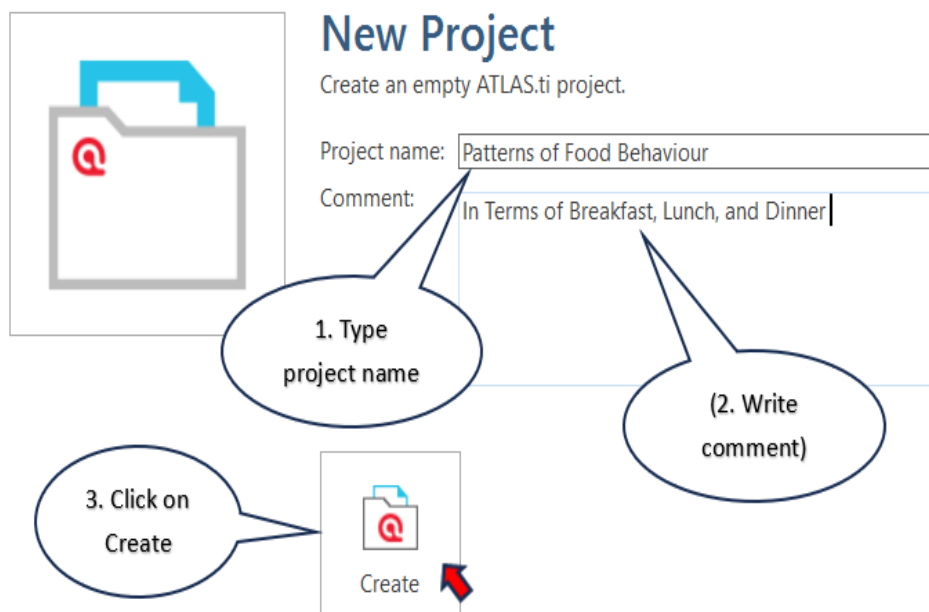
Secondly, I created a new project by clicking on the icon for New Project, '+', in the far-left vertical bar of the ATLAS.ti library as shown in Figure 3.

Figure 3. Creating a New Project



Thirdly, I named the project as 'Patterns of Food Behaviour;' wrote comment as 'In Terms of Breakfast, Lunch, and Dinner;' and clicked on 'Create' as depicted in Figure 4.

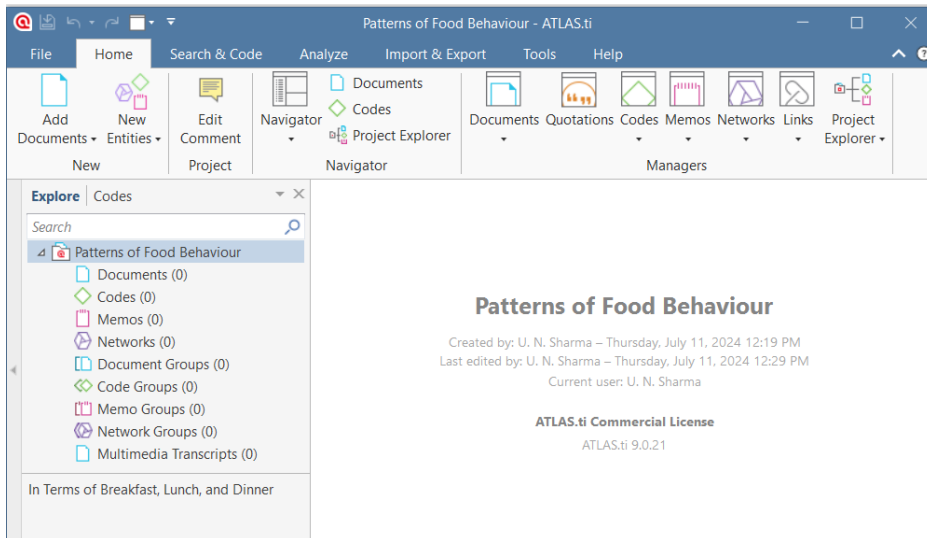
Figure 4. Naming the Project, Writing Comment, and Clicking on 'Create'



The activities performed as shown in Figure 4 resulted into a new empty project as given in Figure 5. Any project in an ATLAS.ti library is indicated by an icon, '📁'.

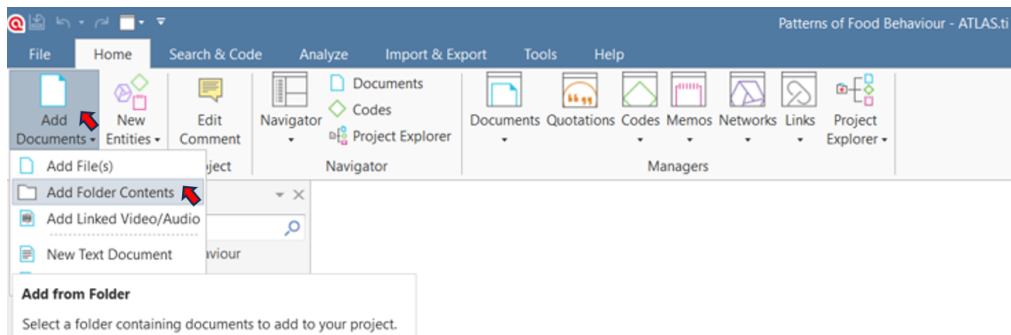
Basic Stages of Analyzing Qualitative Documents Using ATLAS.

Figure 5. Display of a New Empty ATLAS.ti Project



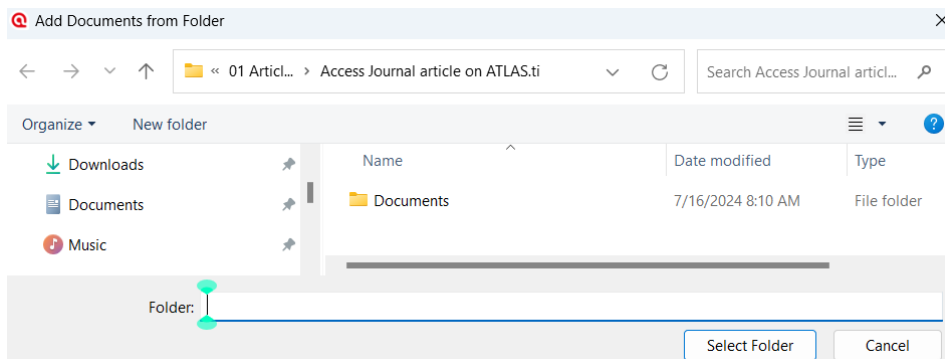
Fourth, I added the documents to the new ATLAS.ti project by performing the steps: Home > Add Documents > Add Folder Contents, as illustrated in Figure 6.

Figure 6. Adding the Documents in the Folder to the Project: First Step



When I clicked on 'Add Folder Contents,' a display for browsing the folder of documents appeared as shown in Figure 7.

Figure 7. Display for Browsing the Intended Folder



Basic Stages of Analyzing Qualitative Documents Using ATLAS.

I highlighted the folder of the documents and clicked on ‘Select Folder’ as shown in Figure 8 to get the display as shown in Figure 9.

Figure 8. Adding the Documents: Second Step

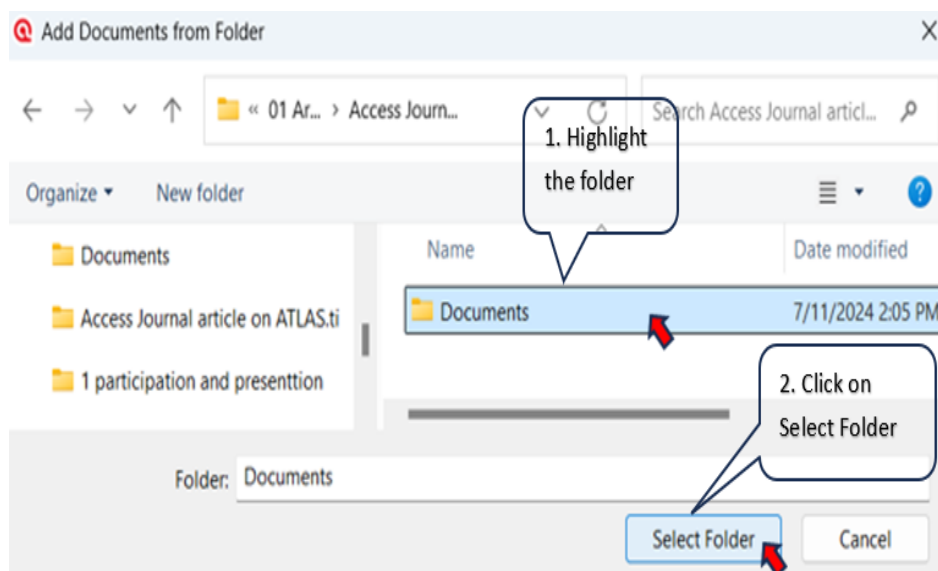
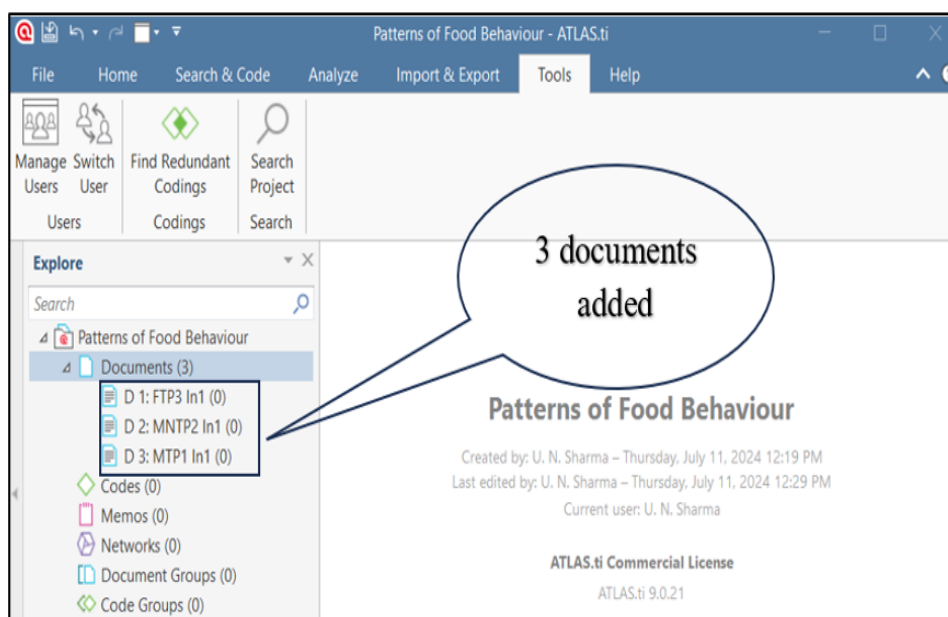




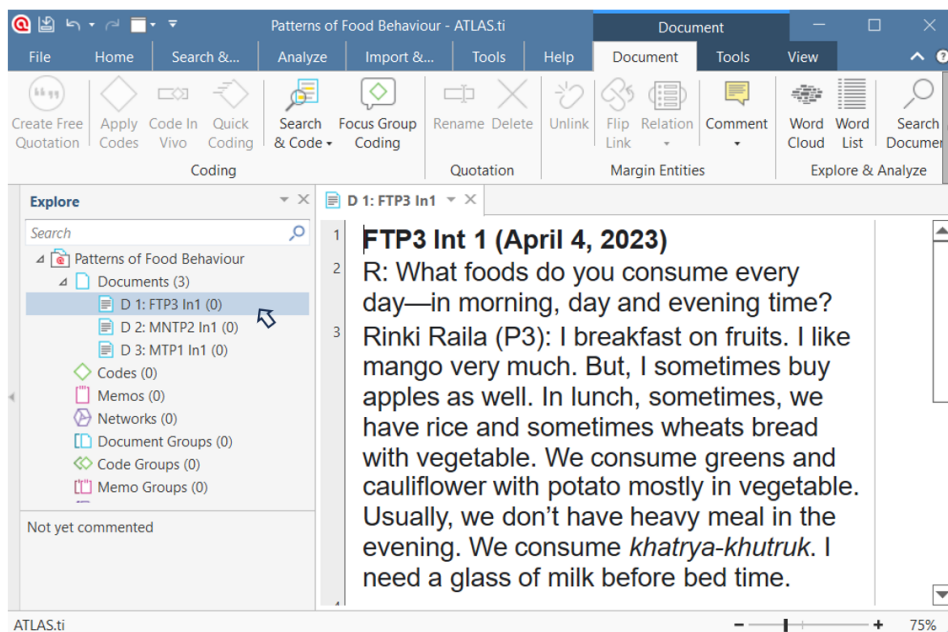
Figure 9. ATLAS.ti Project With the Documents Added



The documents in an ATLAS.ti project are indicated by an icon,  and the document groups by  as shown in Figure 9. Each of the added documents can be opened by double-clicking on them as shown in Figure 10, for instance.

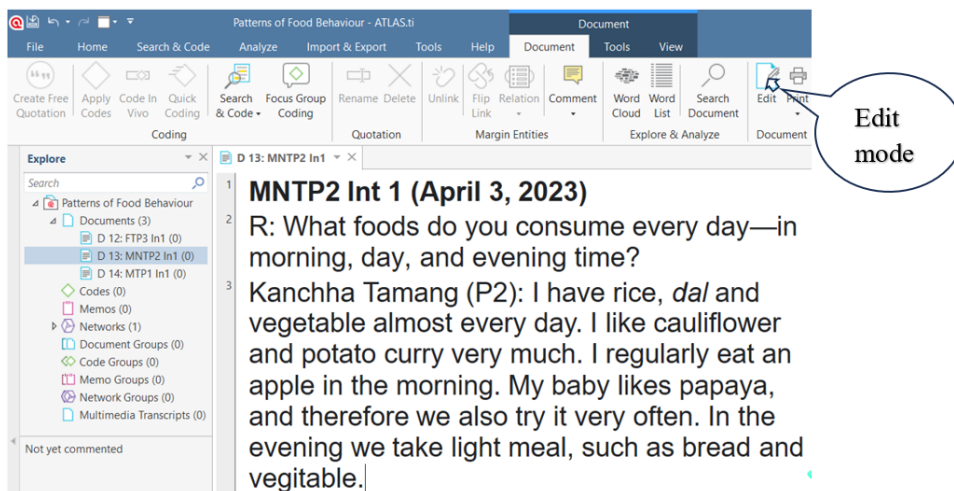
Basic Stages of Analyzing Qualitative Documents Using ATLAS.

Figure 10. ATLAS.ti Library With a Document Opened



We can open other documents in the same way, and edit them within the project, if necessary, by toggling Edit mode of the documents as shown in Figure 11.

Figure 11. Edit Option of the Document in ATLAS.ti Project



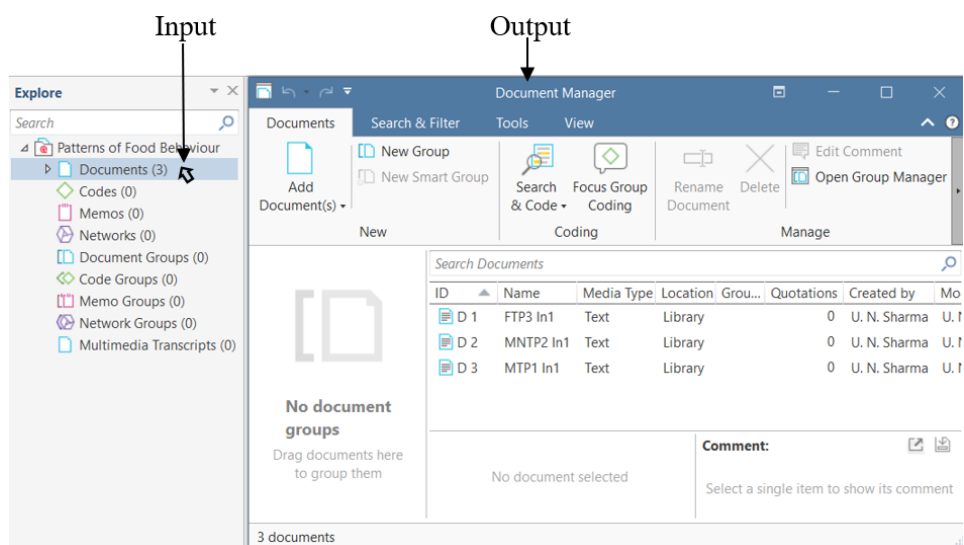
After adding documents to the ATLAS.ti project, the next step is to group them into document groups. Document groups function as variables, allowing for organized categorization. For example, all interviews with female participants can be grouped under “gender::female,” and those with male participants under “gender::male” (Friese, 2021b). Similar groupings can be created for different professions, marital statuses, education levels, and other variables. This method ensures that documents within each group are listed together alphabetically. In this study, I opted for single

Basic Stages of Analyzing Qualitative Documents Using ATLAS.

colons instead of double ones, using 'gender: male' and 'gender: female' for simplicity.

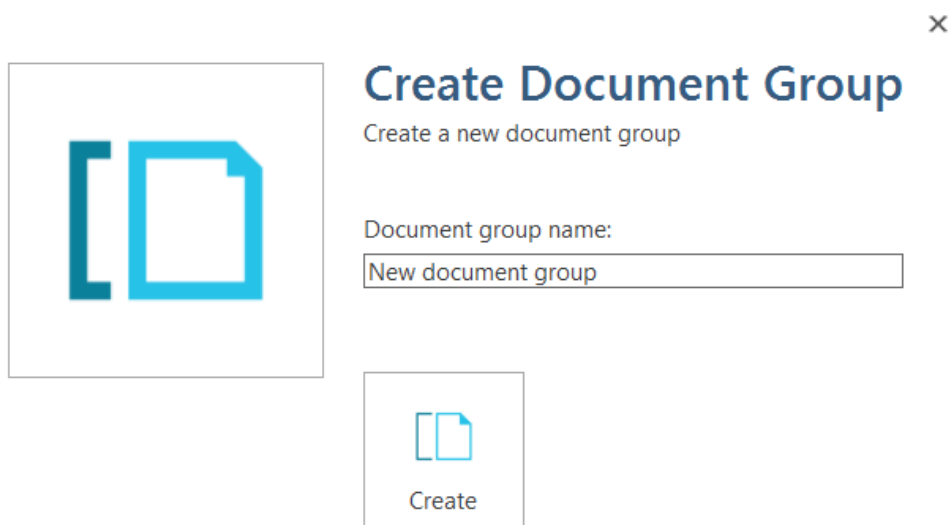
In the present sample of qualitative document analysis, the documents were grouped into four document groups in terms of the gender and profession of the participants, namely Gender: Female, Gender: Male, Profession: Teacher, and Profession: Non-teacher. For this, I opened Document Manager in the ATLAS.ti project double-clicking on Documents under Explore section and got the display as depicted in Figure 12.

Figure 12. Opening the Document Manager



Then, I created document groups going to New Group icon in the Document Manager section. When I clicked on New Group in the Document Manager display, a window appears as in Figure 13.

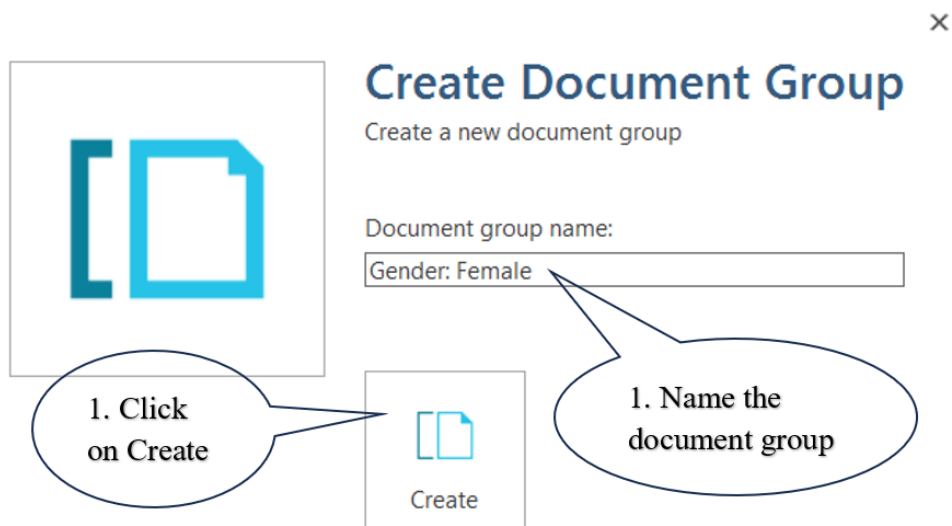
Figure 13. Resultant Output While Clicking on 'New Group' in the Document Manager



Basic Stages of Analyzing Qualitative Documents Using ATLAS.

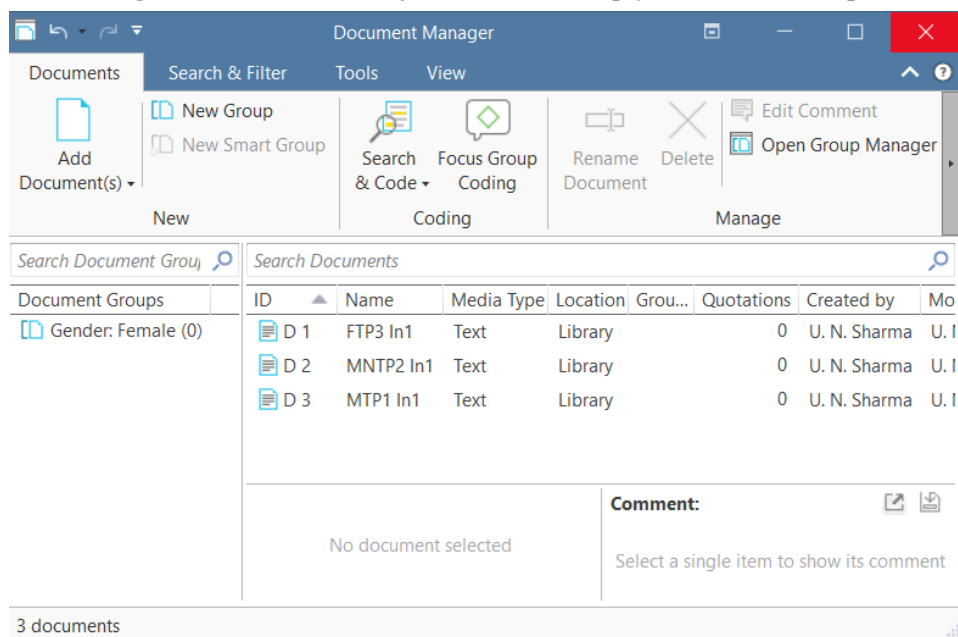
I put the name of one of the already planned document groups in the given slot, and click on 'Create' as shown in Figure 14.

Figure 14. Creating a New Document



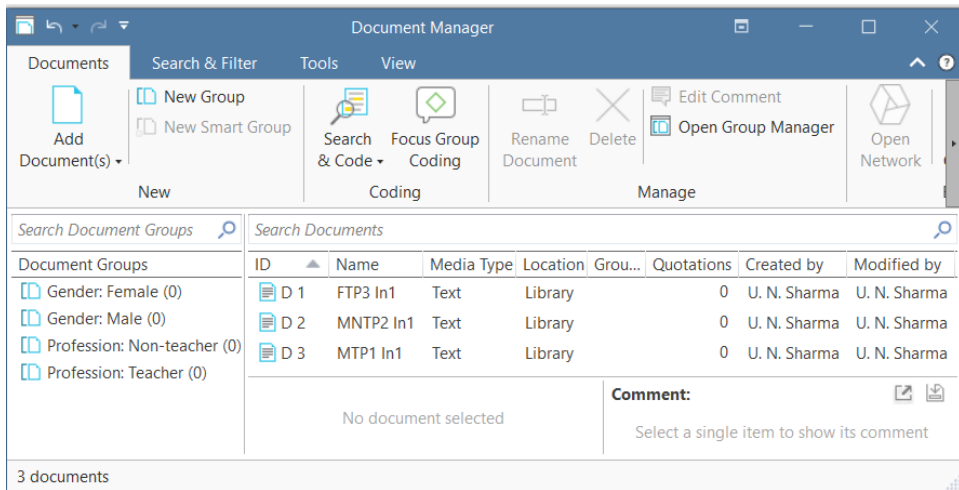
The ATLAS.ti project with the creation of one empty document group appears as in Figure 15.

Figure 15. ATLAS.ti Project With One Empty Document Group



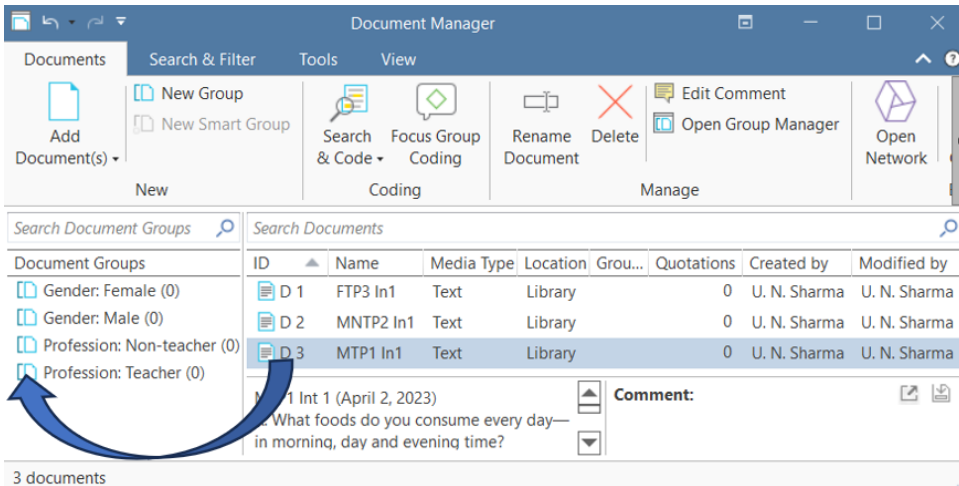
I created the three other document groups mentioned above in the same manner, resulting in the display shown in Figure 16.

Figure 16. ATLAS.ti Project With Four Empty Document Groups



These document groups emerged in my mind on the basis of the nature of the participants. The document groups shown in Figure 16 are empty with no/zero documents attached to them. The documents can be attached to the document groups by selecting, dragging, and dropping them to the intended groups as shown in Figure 17, for instance.

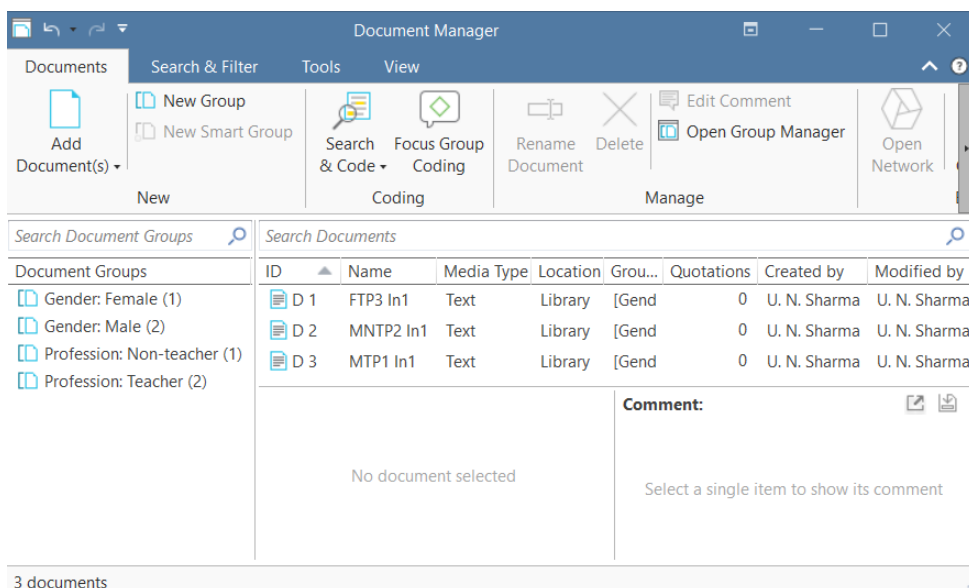
Figure 17. Grouping Documents Under the Intended Document Groups



All other documents can be grouped under respective document groups so that the resultant display of the project appears as depicted in Figure 18.

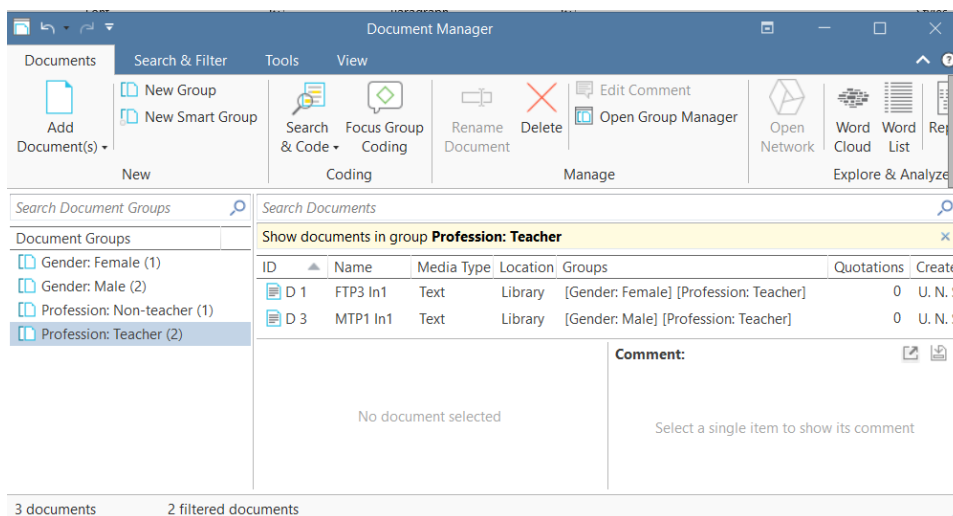
Basic Stages of Analyzing Qualitative Documents Using ATLAS.

Figure 18. ATLAS.ti Project With Documents Attached to Document Groups



Such a grouping of documents has a function of making the further analysis and retrieval of the documents easier. For example, clicking on any document group in Figure 18 reveals the documents it contains and also displays their associations with other groups, as illustrated in Figure 19.

Figure 19. ATLAS.ti Project With the Selection of a Document Group



Additionally, in this sample analysis, the grouping of documents offers a general demographic overview of the participants, as illustrated in Figure 19.

3. Material Exploration Stage

This stage primarily involves identifying and selecting quotations, coding them, and grouping them into code groups to create themes. Quotations refer to selected or marked segments of a document that are coded during analysis. As Friese (2021b) states, a quotation in qualitative data analysis is “a segment from a document that you consider to be interesting or important” (p. 16). These quotations are significant because they are meaningful and related to our research questions or objectives. The segment can be a word, phrase, sentence, or a set of sentences. Quotations serve as verbatim, grounded evidence to support the codes and the higher-order themes. “Quotations are created automatically” while coding the documents in ATLAS.ti project (Friese, 2021b, p. 163).

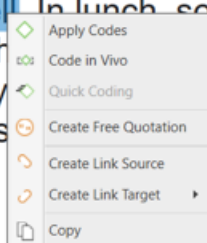
Coding refers to assigning labels to quotations. It is a fundamental feature in ATLAS.ti that allows us to highlight significant elements within our documents (Friese, 2021a). Coding “moves data from diffuse and messy text to organized ideas about what is going on” (Richards & Morse, 2013, as cited in Friese, 2021b, p. 17). Technically, coding involves tagging a specific segment of our documents with a label. To do this, we select a quotation and right-click on it, as demonstrated in Figure 20.

Figure 20. Display of Options While Attempting to Code a Quotation

FTP3 Int 1 (April 4, 2023)

R: What foods do you consume every day—in morning, day and evening time?

Rinki Raila (P3): I breakfast on fruits. I like mango very much. But, I sometimes buy apples as well. In lunch, sometimes, we have rice and sometimes wheats bread with cauliflower with potato mostly. We consume greens and usually, we don't have heavy meal in the evening. We consume *khutruk*. I need a glass of milk before bed time.



Among the options shown in the display in Figure 20, we can utilize Apply Codes, Code in Vivo, Quick Coding, and Create Free Quotation. While coding the documents for the first time in a project, Quick Coding is not active, as in Figure 20, since this option is used when the code is same as the most recently used code. We use Apply Codes if the code is in our mind, not in the text, we use Code in Vivo if the code is in the data/text and same as the quotation. However, the codes usually lie in the researcher’s mind though they emerge from the document. Therefore, we mostly use Apply Codes option. If we cannot think of the code instantly, and want to code the selected quotation later, we select Create Free Quotation.

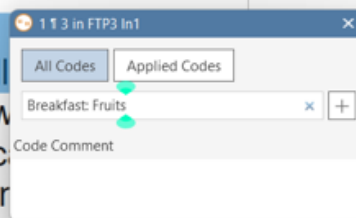
In the present case, I picked Apply Codes to get the slot for naming the quotation, where I named the quotation as shown in Figure 21.

Figure 21. Naming Code for the Quotation in the Given Slot

FTP3 Int 1 (April 4, 2023)

R: What foods do you consume every day—in morning, day and evening time?

Rinki Raila (P3): I breakfast on fruits. I like much. But, I sometimes buy apples as well sometimes, we have rice and sometimes w with vegetable. We consume greens and c potato mostly in vegetable. Usually, we dor meal in the evening. We consume *khatrya-khutruk*. I need a glass of milk before bed time.



When I pressed 'enter' I got the display as shown in Figure 22.

Figure 22. Resultant Display of an Act of Coding

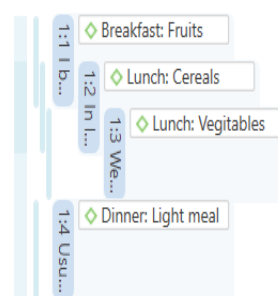
Rinki Raila (P3): I breakfast on fruits. I like mango very much. But, I sometimes buy apples as well. In lunch, sometimes, we have rice and sometimes wheats bread with vegetable. We consume greens and cauliflower with potato mostly in vegetable. Usually, we don't have heavy meal in the evening. We consume *khatrya-khutruk*. I need a glass of milk before bed time.



Then, I coded all the quotations in Document 1 in terms of breakfast, lunch and dinner as the assumed objective of the analysis, as displayed in Figure 23.

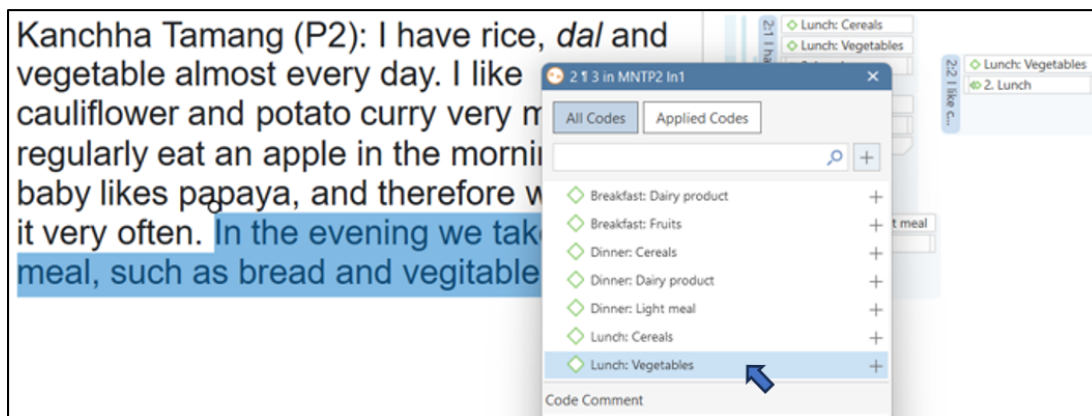
Figure 23. Display of Various Codes in a Document

Rinki Raila (P3): I breakfast on fruits. I like mango very much. But, I sometimes buy apples as well. In lunch, sometimes, we have rice and sometimes wheats bread with vegetable. We consume greens and cauliflower with potato mostly in vegetable. Usually, we don't have heavy meal in the evening. We consume *khatrya-khutruk*. I need a glass of milk before bed time.



I coded two additional documents in the same manner as the first one. However, after coding multiple quotations, all previously used codes appear in the list. If a new code matches a previous one, it can be attached to the new quotation by double-clicking on the code, as shown in Figure 24.

Figure 24. Display of Previous Codes Under All Codes



After coding all three documents, I organized the codes into three code groups based on their themes. First, I created the code groups in the Code Manager, similar to how I created document groups in the Document Manager. Then, I attached the codes to their respective code groups by selecting, dragging, and dropping them into the appropriate groups, as I did while grouping the documents. The final arrangement of codes and code groups is shown in Figure 25.

Figure 25. List of Codes and Code Groups

Code Groups	Name	Grounded	Density	Groups	Created by
1. Breakfast (2)	Breakfast: Dairy product	1	1	[1. Breakfast]	U. N. Sharma
2. Lunch (2)	Breakfast: Fruits	3	0	[1. Breakfast]	U. N. Sharma
3. Dinner (3)	Dinner: Cereals	1	0	[3. Dinner]	U. N. Sharma
	Dinner: Dairy product	1	0	[3. Dinner]	U. N. Sharma
	Dinner: Light meal	2	0	[3. Dinner]	U. N. Sharma
	Lunch: Cereals	3	0	[2. Lunch]	U. N. Sharma
	Lunch: Vegetables	4	0	[2. Lunch]	U. N. Sharma

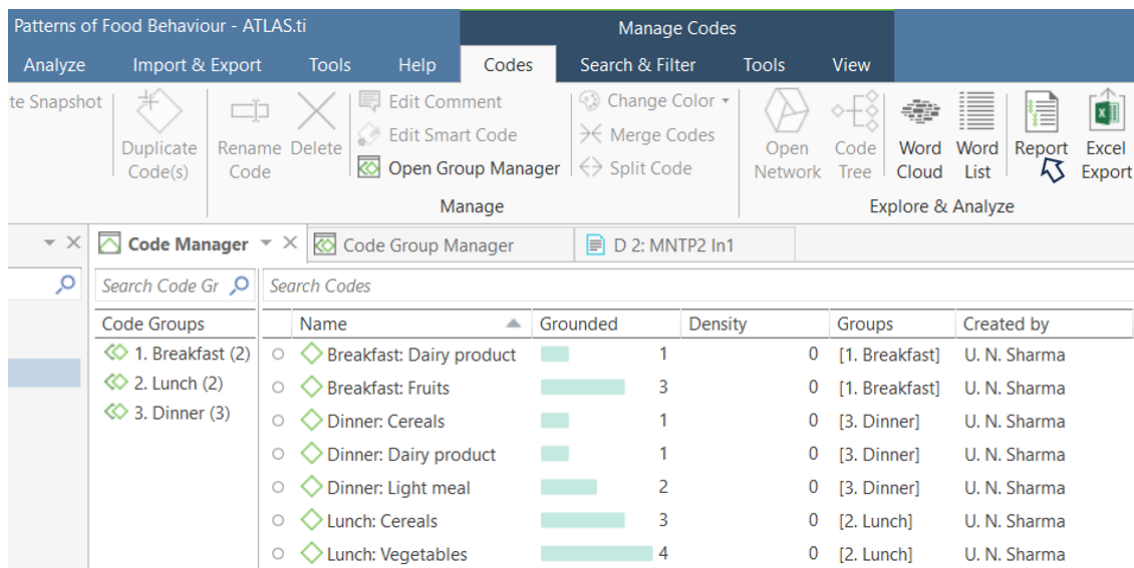
Note. The numbers within parentheses corresponding to the code groups indicate the number of codes; the numbers under column heading ‘Grounded’ indicate the number of quotations grounded in the data.

Upon the activities performed in the material exploration stage, all the quotations have been linked to their codes, and the codes have been linked to their code groups or themes. These links are shown in interpretation stage within ATLAS.ti.

4. Interpretation Stage

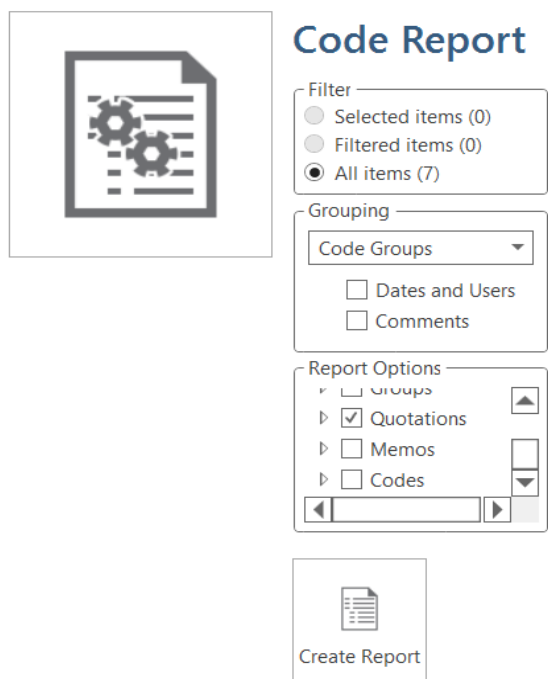
The main activities in this stage include extracting reports and generating a network (see Soratto et al., 2020, for detail). Various types of reports can be produced and saved as Word files. The most useful report for analysis and interpretation is the code report, which organizes quotations by code groups. To generate this report, I clicked on Report in the Code Manager, as shown in Figure 26.

Figure 26. Clicking on Report in the Code Manager



I changed the settings of the code report dialogue box that appeared when I clicked on Report, as shown in Figure 27.

Figure 27. Code Report Dialogue Box



Then, I clicked on Create Report to have a dialogue box for saving the report as shown in Figure 28.

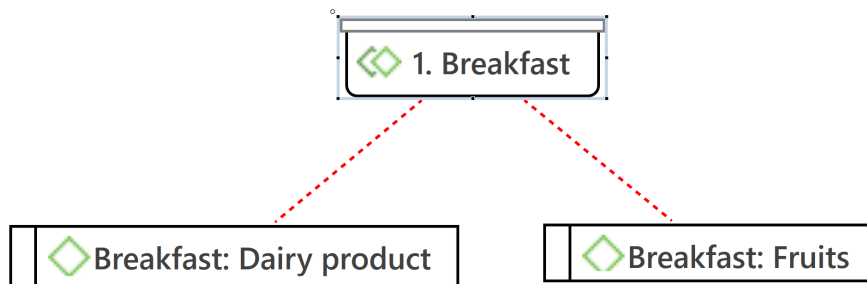
Figure 28. Code Report Saving Dialogue Box



I saved the report as a Word file (see Appendix) by clicking on the Save button in the display shown in Figure 28.

Another task in this stage is creating networks. For example, we can create a code group and codes network by right-clicking on a code group and selecting Open Network, resulting in a network like the one presented in Figure 29.

Figure 29. Theme-Codes Network of Breakfast



Similar networks can be developed for the other two themes as well.

The primary goal of the interpretation stage in ATLAS.ti is to generate analysis reports in Word format and create networks that can be utilized in the final, post-ATLAS.ti stage.

5. Post-ATLAS.ti Stage

At this stage, we write the analysis and interpretation part of the research by utilizing the reports and networks obtained during the interpretation phase. Here, we delve into the thematic results, establishing connections with existing literature. For instance, the first thematic result, breakfast, can be discussed as follows:

Breakfast

Breakfast is often considered the most important meal of the day due to its role in replenishing glucose levels and providing essential nutrients after a night of fasting (Rampersaud et al., 2005). The participants of the current study were found to have dairy product and fruits in their breakfast as shown in Figure 29. Note that in a real research paper on food behaviour, the figure appears here (i.e., in this place).

Dairy Product

One of the participants reported that they (referring to his family) “also have curd” in summer in addition to fruits in breakfast time (3:6 ¶ 3 in MTP1 In1). The inclusion of curd, particularly in summer, suggests an awareness of the need for probiotics and hydration, which are beneficial for gut health and maintaining body temperature in hot climates (Roberfroid, 2007). I also have curd regularly in the morning except in winter.

Note. In the citation of the interview in the above paragraph, the first ‘3’ indicates the document number in ATLAS.ti project; ‘6’ indicates quotation number; ‘¶’ is the paragraph marker; the second ‘3’ indicates the paragraph number in the document; and ‘MTP1 In1’ is the name of the document (i.e., Word file).

Fruits

All the participants shared their habit of having fruits in morning time. P3, for instance, shared her preference in breakfast as: “I breakfast on fruits. I like mango very much. But I sometimes buy apples as well” (1:1 ¶ 3 in FTP3 In1). The participants’ consumption of fruits in breakfast aligns with recommendations for a nutrient-dense breakfast that includes vitamins, minerals, and fiber. The participants were found to have apples, grapes, oranges, and bananas—the excellent sources of vitamins C and A, potassium, and dietary fiber—which are crucial for maintaining good health (Slavin & Lloyd, 2012).

Conclusion

Based on the ATLAS.ti analysis process outlined above, it is evident that systematic documents preparation and their organization before using ATLAS.ti significantly enhance the structured transition into analysis. Creating a new ATLAS.ti project efficiently, adding documents, and grouping them improves data management, facilitating focused coding and theme development throughout material exploration. This process culminates in reporting the analysis and establishing networks during the interpretation stage, thereby deepening understanding of data relationships. Integrating findings with existing literature in the post-ATLAS.ti stage further reinforces the analysis, underscoring the method’s efficacy in qualitative research through systematic data handling, rigorous coding, and contextual interpretation.

However, it is important to acknowledge that qualitative document analysis is not always a linear sequence of activities; it often involves reiterative refinement. Moreover, while the activities discussed represent foundational steps, experienced qualitative researchers using ATLAS.ti incorporate additional techniques such as memos and comments to enrich their analysis within the software.

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Appendix: Code Report With Quotations Grouped by Code Groups

Project: Patterns of Food Behaviour

Report created by U. N. Sharma on 7/17/2024

Code Report – Grouped by: Code Groups

All (7) codes

1. Breakfast

2 Codes:

↗ **Breakfast: Dairy product**

1 Quotations:

3:6 ¶ 3 in MTP1 In1

In summer, we also have curd.

↗ **Breakfast: Fruits**

3 Quotations:

1:1 ¶ 3 in FTP3 In1

I breakfast on fruits. I like mango very much. But, I sometimes buy apples as well.

2:3 ¶ 3 in MNTP2 In1

I regularly eat an apple in the morning. My baby likes papaya, and therefore we also try it very often.

3:5 ¶ 3 in MTP1 In1

In morning time, we have some seasonal fruits such as apple, grapes, orange, and banana.

2. Lunch

2 Codes:

↗ **Lunch: Cereals**

3 Quotations:

1:2 ¶ 3 in FTP3 In1

In lunch, sometimes, we have rice and sometimes wheats bread with vegetable.

2:1 ¶ 3 in MNTP2 In1

I have rice, dal and vegetable almost every day.

3:1 ¶ 3 in MTP1 In1

I prefer millets to other cereals for day meal. I very often have gundruk and millets dhido. Sometimes, we cook rice as well.

↪ **Lunch: Vegetables**

4 Quotations:

1:3 ¶ 3 in FTP3 In1

We consume greens and cauliflower with potato mostly in vegetable.

2:1 ¶ 3 in MNTP2 In1

I have rice, dal and vegetable almost every day.

2:2 ¶ 3 in MNTP2 In1

I like cauliflower and potato curry very much.

3:2 ¶ 3 in MTP1 In1

We include mustard greens or any other green vegetable in our meal.

3. Dinner

3 Codes:

↪ **Dinner: Cereals**

1 Quotations:

3:3 ¶ 3 in MTP1 In1

In evening time, we consume wheats; we take bread and milk.

↪ **Dinner: Dairy product**

1 Quotations:

3:4 ¶ 3 in MTP1 In1

In evening time, we consume wheats; we take bread and milk.

↪ **Dinner: Light meal**

2 Quotations:

1:4 ¶ 3 in FTP3 In1

Usually, we don't have heavy meal in the evening. We consume khatrya-khutruk.

2:4 ¶ 3 in MNTP2 In1

In the evening we take light meal, such as bread and vegetable.