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# Exploring collaborative practices in qualitative analysis: the case of GTM

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**Abstract.** This doctoral research project aims to study the collaborative practices of social scientists who use Grounded Theory Methodology (GTM). The main objective is to analyze how these researchers organize their collaboration within the analysis process of GTM. The study will first review the literature to understand the evolution of cooperation within GTM, which includes cooperative data collection, joint theorizing, and peer validation. A field study will then focus on social scientists at the University of Liège, including observations, interviews, and scenarios. This fieldwork will be enriched by including design sciences researchers from the Université de Technologie de Troyes. In the final phase of this research, the potential of artificial intelligence and data visualization in survey assistance, case clustering, and theorizing will be explored. To overcome the current limitations of CAQDAS software, a proposal for a collaboration tool aligned with GTM practices will be put forward. This research will contribute to a deeper understanding of researchers' GTM collaboration practices and tools.

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# 1 Research Questions

The notion of collaborative research refers to the relations that researchers have with each other in their practices and data analysis. This doctoral research is interested in understanding collaborative practices of social science researchers using grounded theory methods for qualitative analysis. Grounded Theory Methodology (GTM), formalized by Glaser and Strauss (1967), aims to build scientific theories from the analysis of field data rather than from pre-existing theoretical frameworks. Researchers using this method place a premium on data, recording their reflections in memos and applying an iterative process governed by the theoretical saturation of data. This analytical work is used as a central organizing principle for a large-scale research project as a whole (Bryant and Charmaz, 2007). GTM thus encourages collaboration between researchers, enabling a constant exchange of ideas and perspectives. However, little is known in the literature about how researchers using GTM cooperate. Our question in this context is: How is a collaboration between researchers organized within qualitative analysis using grounded theory, and what are the services and tools supporting this cooperation?

# 2 Methodological approach

Our methodology for understanding and supporting collaborative practices in grounded theory methods involves three key steps: first a theoretical analysis of recommended practices that we will then compare with field studies of actual practices. These two stages will then be used to study the existing tools that support GTM in order to design and integrate new features that can assist in better qualitative analysis for collaborative research. To initiate our approach, we conducted an in-depth analysis of the state of the art on researchers' collaboration in the context of GTM (Muller & Kogan, 2010). This investigative step, currently ongoing, can often be overlooked by researchers who rely primarily on field data. Whereas a state of the art is rarely conducted when focusing on field data, we chose to start with an analysis of handbooks and methodology books in order to better observe and understand methodological divergences among practitioners (Schmidt & Bannon, 1992; Malone & Crowston, 1990). The guidelines mentioned in the literature will then be compared with the actual practices of researchers in a collaborative environment. Observation techniques will be used to collect experimental data from grounded theory users and analyze their experience with the current software and tools that aid in their qualitative analysis. This will enable a comparison of recommended practices in grounded theory methodology literature with actual practices of different user groups. As a third step and based on our analysis of researchers' current collaborative

practices, we will design and integrate new functionalities into IT tools that could support this collective work. This step comes after identifying user needs and practices. The aim is to examine how to offer practical support to researchers while exploring the potential of artificial intelligence (AI) and data visualization as a tool to assist cooperative qualitative analysis during the grounded theory method. Our contributions to current tools will involve assistance in three GTM tasks: conducting the survey, analyzing “coding” interview transcripts, and articulating/theorizing cases. Our methodology will adopt an iterative and exploratory approach. We revisit our inquiries, fieldwork, and interview methods at each data analysis phase to uncover researchers’ collaborative practices. This entails reviewing the theoretical analysis stage, conducting fresh field studies, and adapting tools as needed with each discovery.

### 3 Current findings

In the literature on Grounded Theory Methodology, the researcher often presents the work of analysis as an individual process. Glaser and Strauss (1967) stressed the need for researchers to remain open and attentive to the data, to avoid preconceived judgments, and to let theories emerge from the analysis of observations. This approach advocates maintaining an analytical distance to prevent any undue influence from existing literature or pre-established theories and to preserve, in their view, the originality and authenticity of the theories emerging from the study. Similarly, a parallel perspective is emerging, highlighting the collaborative nature of analytic work and its potential to foster the researcher’s personal reflexivity and theoretical emergence. The co-construction of analyses and theoretical concepts can enrich the results and push the researcher to deepen their research (Corbin and Strauss, 2008; Charmaz, 2006; Morse et al., 2021). This cooperation among researchers on the same project is encouraged from the beginning of the research process, involving the selection of participants and data collection. Strauss and Corbin (1990) in "Basics of Qualitative Research: Grounded Theory Procedures and Techniques", highlight case studies on the Vietnam War, where the initial collaboration and historical knowledge of both researchers helped better target the actors to be interviewed (combatants and non-combatants) and the data collection method (interviews, reading war narratives, etc.). Cooperation within the GTM is also built through interaction between researchers and the subject. This constructivist approach considers that concepts and theories emerge from the interaction between researchers and participants, underlining the importance of constant reflection. Through their interviews, the two actors co-construct the participants’ experiences through their narratives (Charmaz, 2008). Collaboration between researchers takes shape during the reflection phase on the analysis of collected data, enabling the initial meanings of observed phenomena to be extracted. This reflective phase

can be facilitated by keeping a journal where impressions, decisions, and personal reflections on the researcher's analytical journey are recorded (Charmaz, 2006). Based on the researchers' personal diaries, these team exchanges encourage reflection and communication between them, ensuring transparency and consistency in data analysis. This collaborative stage helps develop a rich data vision by examining personal and interpersonal responses. It allows the development of the researcher's "sensitivity", which is the ability to present oneself from the participant's point of view and play the role of the other through collaborative immersion in the data (Corbin and Strauss, 2008).

The contribution of team discussions about data also becomes apparent during the material coding process. As Corbin and Strauss (2008) emphasizes, it is essential to regularly share and discuss individual interpretations during coding and data analysis. Team coding also allows novice researchers to transition from specific to abstract concepts more quickly (Wiener, 2007). This group practice facilitates the confrontation of different interpretative perspectives and refines the understanding of categories as the research progresses. Ongoing discussions among researchers maintain openness to various analysis paths, fostering the emergence of additional perspectives during subsequent theoretical samplings. Collaboration among researchers extends to theoretical construction. Codes derived from teamwork, memos analyzed and constructed during meetings, and discussions contribute to refining the term, becoming the main category of the theory (Wiener, 2007). This analytical approach subsequently facilitates peer validation by encouraging the presentation and discussion of ideas as a team, helping to validate and refine theoretical concepts. According to this literature analysis of GTM, collaboration evolves progressively, encompassing cooperation in data collection, the joint development of theories, and peer validation. Building on the literature, our approach will involve conducting field studies to explore the collaborative practices employed by GTM researchers (Muller & Kogan, 2010).

## 4 Next steps

To explore researchers' actual collaborative practices in qualitative analysis through grounded theorizing, our field work will focus primarily on the University of Liège. This choice is explained by the diversity of students and researchers in the social sciences (sociology, education sciences, psychology, etc.) in Liège, who are training in qualitative analysis and GTM under the supervision of Christophe Lejeune. We plan to extend our study to researchers in design sciences at the Université de Technologie de Troyes. This extension is intended to enrich our understanding of collaboration between researchers within the framework of GTM. Compared to Liège, these informants are distinguished by their active engagement in a dynamic of systems design and transformation fostering in the humanities and social sciences, an approach generally absent,

with the notable exception of management sciences and ergonomics. By combining these two fields, we hope to obtain a diverse sample of researchers and collaborative practices in grounded theory analysis.

From March 2024, our research study in Liège will focus on two groups. The first group will comprise six undergraduate PhD students in the social sciences, who will engage in weekly hands-on collective analysis work. The second group will be made up of doctoral students and teacher-researchers in psychology and education, who will take part in discussion seminars on their individual and collaborative practices of the grounded theorizing method. To begin with, we will conduct a preliminary observation phase using the shadowing method. This approach involves closely following the subjects in their analytical practice while observing their natural behavior when using tools. This methodology will enable us to capture the dynamics and nuances of analytical processes within these specific groups in great detail. After the group classes, we plan to conduct two types of interviews to understand collaborative practices better. The first type is the semi-structured, free-form, life-focused individual interviews, where we will explore the researchers' personal experiences with GTM collaboration. The second type is group interviews, mainly using the focus group method, which will focus on observed interactions by having participants verbalize them and explore shared representations between users of qualitative analysis tools (Schmidt & Bannon, 1992). Finally, we'll use scenarios to support conversations about collaborative methodological practices and tools to help them express their needs. This method will enable us to reflect on collaborative applications and practices. It will allow us to collect a variety of data, which will be compared as we go along. We will use this data collection method with researchers at the Université de Technologie de Troyes who use GTM. At the end of the fieldwork, we will have identified the theoretical orientations and effective collaborative practices of GTM researchers. In this final stage of research, we will explore the potential of data visualization and artificial intelligence (AI) as an analytical lens through which human researchers can see new data elements or representations through which they can compare codes and other interpretations (Muller et al., 2016). We are interested in providing assistance in three different tasks:

- **Survey assistance:** The main aim is to facilitate the identification of relevant elements when coding the corpus, while guiding users in making decisions about closing the survey. For instance, clustering, obtained whether visually or through machine learning algorithms, allows researchers to grasp potential data patterns.
- **Assistance with reading and analyzing interviews:** This exploration will involve detecting emerging trends and weak signals, as well as facilitating text comparison. Lexicometric algorithms can be used to revisit the text, see it differently, or highlight specific elements. It will be possible to

display text "specificities" with visual elements such as rare words (Spärk, 1972).

- **Assistance with the articulating of cases and theorizing:** The final contribution will be to support researchers in developing their theoretical analysis through augmented visualizations, such as graphs or matrices. These visualization methods aim to showcase the benefits of data visualization in qualitative analysis and theoretical emergence (Kuckartz, 2010).

## 5 Towards implications for design

Semi-automatic software, commonly called "CAQDAS" such as NVivo, AtlasTI, or MaxQDA, have mainly marked the qualitative research landscape, particularly in GTM. These tools have undeniably facilitated the analysis process by offering functionalities such as labeling, editing, and schematization, thus contributing to the structuring and understanding of collected data (Muller & Kogan, 2010). However, despite their usefulness, these software packages have significant shortcomings in fully meeting the needs of GTM researchers, whose practice goes beyond simple coding. The focus on coding, highlighted in the specialized literature, sometimes diverts these tools from the strict application of GTM. Certain functionalities, often integrated for marketing purposes, can lead to a reductive vision of the methodology, neglecting other crucial aspects of the collaborative work of GTM researchers. With this in mind, our research proposes to overcome the current limitations of CAQDAS by designing a collaborative tool specifically aligned with the practice of GTM researchers. We draw on cooperative theory, put forward by researchers such as Christophe Lejeune (2017) and Charmaz (2006), to emphasize overlooked but essential features such as logs, diagrams, and bottom-up labeling. By involving researchers directly in the creative process through cooperative workshops, their needs and practices are thoroughly considered. This approach goes beyond just improving existing functionalities and integrating user testing stages based on the UX method. These tests help to clarify users' fundamental objectives, ensuring that the tool designed meets the specific needs of GTM researchers (Schmidt & Bannon, 1992; Malone & Crowston, 1990).

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