

Enacting methodologically grounded qualitative coding via critical use of manual, digital and GenAI tools



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I teach Computer-Assisted Qualitative Data Analysis (CAQDAS) to students and researchers at various stages of their research careers, most typically via open-registration intensive workshops lasting between 1 and 5 days. Learners attend on a self-selecting basis to develop their analytical skills and learn how to get the most out of their chosen digital tools. This means learners at each workshop have diverse backgrounds and experiences. For example, some are part-way through their doctoral studies, others are early-career researchers, and some are more well-established academics or applied practitioners. In addition, they come from a variety of disciplinary backgrounds, most often social science disciplines but spanning many other contexts as well. This means that my teaching of computer-assisted qualitative analysis has to connect with a variety of theoretical, methodological and practical needs.

Underlying how I do this is the principle that the analysis methods being used affect how best to use digital tools for each study. In the language of the CAQDAS pedagogy I co-developed called the Five-Level QDA method (Silver & Woolf, 2019), this involves ensuring that analytic strategies – what you plan to do – drive software tactics – how you plan to do it – when using any tool. The five levels comprise two levels of strategy (objectives and analytic plan), two levels of tactics (selected and constructed tools), and a middle level (translation) between the two. The method unpacks the contrasting nature of analytic strategies as emergent and iterative, and software tactics as algorithmic and pre-determined, focusing on learning how to translate back-and-forth between them, to accomplish analysis that remains true to the ethos of the qualitative method being used.

Those that come to my workshops use different analytic methods and different digital tools. They seek to learn how to harness their chosen CAQDAS-package (e.g. NVivo, MAXQDA, ATLAS.ti, etc.) to enact their chosen analytic method (e.g. Reflexive Thematic Analysis, Critical

Discourse Analysis, Qualitative Content Analysis, etc.) A common technique across most – although not all – qualitative analysis methods and enabled by most digital tools designed to facilitate the process, is qualitative coding. Workshops where learners have diverse coding needs provide opportunities to discuss its various roles in the analytic process and the importance of the choice and use of tools. Some are keen to explore technological developments in coding features, such as the capabilities provided by text-mining tools and Generative-AI. Others are keen to find ways of managing the messy process of pen-and-paper coding methods by transitioning to the use of digital tools without changing the essence of the analytic process.

There are different ways of teaching qualitative coding methods and tools, for example, a methods-first approach in which methods are taught first, followed by how they can be operationalised using tools; a methods-interwoven approach in which the teaching of methods and their technological operationalisation are oscillated, and a methods-via approach in which methods are taught through the use of tools (Silver et al., 2023). Here I discuss teaching qualitative coding via the use of tools which brings to life how they can be enacted differently according to analytic method and the tools used.

Since Generative-AI (GenAI) tools that harness the capabilities of Large Language Models (LLMs) began to make their way into the qualitative analysis space, learners have become increasingly interested in understanding whether and how their use can or cannot contribute to the processes of qualitative coding. This adds a layer of complexity around the teaching of coding because GenAI-assisted tools can contribute to coding in ways not possible through the use of other tools. For example, suggesting codes and definitions based on selections of text (a form of inductive coding), identifying data segments that match researcher-specified code definitions and explaining the rationale (a form of deductive coding), and reviewing human coding for e.g. inconsistencies, capturing nuance and relevance (forms of code refinement). Such GenAI capabilities raise significant questions about the nature of interpretation in qualitative analysis and whether GenAI tools can do it.

I have designed a series of comparative coding exercises that are powerful ways to discuss the interpretive processes involved, and to explore the potential use of different tools, including GenAI, to deepen critical reflection among learners about what qualitative coding is, its place in different analytic methods, and the role of different tools and interpretive processes in enacting

it (Silver, forthcoming). One of these exercises compares human-coding with content-based auto-coding and GenAI coding, via a deductive coding exercise designed to explore similarities and differences in how humans interpret concepts, whether the use of digital tools replicates or can contribute to the process, and the nature and implications of using different tools to enact coding.

Each learner separately codes the same extract from an interview or focus-group transcript using highlighter pens on a hard-copy print out, or comments in a Word file according to their preference. They are provided with code names and definitions and asked to apply them to the transcript extract, without discussing the process with anyone else. Some of the codes are more content-based and descriptive, others more nebulous and interpretive. The group then shares and discusses the similarities and differences in their individual coding.

At the strategies level, this prompts discussion about the different sorts of concepts that codes can capture, the importance of code definitions, the interpretive nature of coding, and the role of researcher reflexivity. At the tactics level, it prompts discussion about the differences when coding in hard-copy and using a word processor, reflecting on the impact of the tool on the way humans engage with the text. Almost always there are some interesting differences in how learners apply the codes, and I facilitate the methodological grounding of their coding experiences and the differences between their coding by asking questions designed to bring to the surface their assumptions.

We then move into a CAQDAS-package to consider how the same coding exercise – i.e. using the same transcript excerpt and the same deductive codes and definitions - could be enacted using (non-GenAI) tools designed to facilitate qualitative coding. First, we explore content-based coding tools, taking one of the more descriptive codes and brainstorm which words and phrases we could search for to capture relevant passages of data that might be candidates as instances of that code. We create collections of the terms and then use the available tools to find and auto-code the 'hits' and surrounding context. This is followed by attempting to do the same for one of the more nebulous concepts.

At the strategies level, this prompts discussion about the extent to which the explicit use of language sometimes adequately captures relevant meaning, and sometimes cannot do so, deepening discussions about interpretation when coding goes beyond the explicit. At the tactics

level, it prompts discussion about using tools appropriately, not as short-cuts but because they contribute to the analytic task at hand. These discussions emphasise the importance of choosing tools in the service of analytic methods, rather than simply because they are available, or appear to speed up the process, which are underlying principles of the Five-Level QDA method.

We then layer this up further by instructing GenAI coding tools to do the same coding we did at the beginning of the exercise (in hard-copy or in a Word file), to see how the result compares to the human coding. This works well if the human coding is replicated in the CAQDAS-package first, so that the GenAI coding overlays it and direct comparisons can be made. It also works well to again compare a more content-based code with a more nebulous concept, and it can be particularly instructive to use the same two codes as in the second part of the exercise to make direct comparisons across tools.

At the strategies level, this deepens discussion about what interpretation is when considering any differences in the extracts that the GenAI tool coded in comparison to the earlier human coding. At the tactics level, this is layered up by discussing circumstances in which such coding may contribute, for example, to support certain analytic methods, or when working with certain types of qualitative material and so on.

Throughout this three-phased comparative exercise, we ask ourselves and each other a series of questions, derived from several frameworks I have developed to encourage critical thinking about tool use for qualitative coding (Silver, forthcoming). These include asking why tools are being used, when they are being used, how they are being used, what they contribute to the process, and whether they match the study perspective. In so doing, we can critically reflect on what is gained through the use of tools, and what is lost, which I found to be particularly powerful questions to ask myself when I began learning about the potential role and implications of the use of GenAI for all aspects of the qualitative research process (not just coding). This and other related comparative coding exercises, also facilitate discussion about enacting qualitative coding appropriately in relation to the methodological spectrum. For example, discussing the value of differences in how individual interpret in purist approaches, the requirements for achieving inter-coder consistency in more positivist approaches, and the benefits and challenges of combining epistemological perspectives in pluralist approaches.

In the sessions I've led on these topics recently, I have found learners to be incredibly engaged in these discussions, rarely simply adopting GenAI to shortcut analysis as is often feared, nor dismissing their role out-of-hand before experimenting for themselves. Exercises such as the one described here, can not only be powerful ways to teach methodologically appropriate use of tools to enact qualitative methods, but also to discuss the techniques involved in those methods from a variety of perspectives, via the use of tools. A frequent 'lightbulb' moment in this respect involves reflecting on the fact that highlighter pens are tools, just like CAQDAS-packages and GenAI are. Although very different in nature, all tools have consequences on how we enact methods, and comparing their use can bring to life the methods themselves. Therefore, exercises like this, that are designed to foster critical engagement with and about methods and tools, via the strategies drive tactics framing of the Five-Level QDA method, help learners see their role in and responsibility for ensuring the choice and use of methods and tools are appropriate in undertaking and demonstrating rigorous qualitative research.

References

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