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FEATURE

“Classic” Grounded Theory: An Extraction of Saldana’s Coding Heuristics

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Abstract. *One of the major decisions that a grounded theorist has to make has to do with coding and analysis. Yet there seems to be a general consensus in grounded theory literature that grounded theory coding is a complex, intuitive, and ideational process. Current literature provides descriptions of the coding options among the different traditions of grounded theory—Classic, Straussian, and Constructivist. Nevertheless, beginning grounded theorists need simple, specific, and practicable guidelines. We suggest that coding and analysis heuristics will go a long way in addressing that gap. They provide a way of turning tacit knowledge into explicit knowledge. Therefore, this paper provides an extraction of basic heuristics on how to conduct coding and analysis for ‘classic’ grounded theory largely drawn from Saldana (2016). The heuristics for each of the three cycles of grounded theory provide needed guidance for beginning grounded theory researchers.*

Keywords: grounded theory, grounded theory coding, grounded theory coding heuristics, classic grounded theory

Introduction

Coding is an essential part of grounded theory data analysis. Codes are the building blocks of the substantive theory (Glaser, 1998). That probably explains why Strauss (1987) aptly observes that effective coding is an integral part of qualitative data analysis; hence, the quality of research depends on the quality of its coding. Charmaz (as cited in Saldana, 2016) seemed to have concurred with the same sentiments when she opinioned that coding provides the vital link between the data collected and the meaning ascribed to it.

However, the whole process of grounded theory generation is a sophisticated ideational process (Glaser, 1978). More so, coding itself is equally complex. According to Saldana (2016), coding is a rigorous, evocative, and interpretive art. It is not an exact science. It does not come with formulas or algorithms. While Saldana (2009; 2016) acknowledges the problematic nature of coding for beginners and provides sources, descriptions, applications, and examples of coding, we argue that coding heuristics goes a step further in making it easier for beginning researchers to start coding and analysis. We suggest that coding is largely tacit knowledge, which needs to be converted to explicit knowledge (see Schryen, Gerit, & Benlian, 2015; Trautmann, 2010). Therefore, heuristics are useful in turning tacit knowledge that experienced researchers possess into explicit knowledge that beginners can use.

Further, the grounded theory method is contested, comprising three major schools of thought—Classic, Straussian, and Constructivist. Kenny and Fourie (2014) observed that coding is not one of the components where there is a consensus among the three major schools of thought. As such, a beginning grounded theorist may find it difficult to choose appropriate coding methods from among the three schools of thought. Still, novice qualitative researchers and grounded theorists make use of the grounded theory method and engage in grounded theory coding. The fact that it is art does not make the process any easier. We propose that one of the major challenges faced by beginners is starting the analysis process; hence, coding heuristics may provide guidelines to set the process in motion for beginners.

To the best of our knowledge, we have not come across grounded theory coding and analysis heuristics. While Saldana (2009; 2016) describes coding as a heuristic, he does not describe the methods and descriptions he presents as heuristics. But what is a heuristic? We have defined heuristics as mental shortcuts or rules of thumb that optimize decision making (Cherry 2020; Kahneman 2011). It is important to note that while they are useful, they may not always be accurate (Grünig & Kühn, 2017; Martí, Pardalos, & Resende, 2018). Despite the potential inaccuracies, they provide beginners with that much-needed impetus. Hence, the research questions guiding this paper are as follows:

1. How can beginner grounded theorists acquire coding as explicit knowledge rather than tacit knowledge?
2. What specific rules of thumb can a beginner follow to conduct grounded theory coding?
3. Which are those specific rules of thumb at each cycle of coding?

These questions are pertinent more so because coding and analysis in grounded theory is an iterative process that begins when the first piece of datum is collected. Therefore, in this paper, we extract and synthesize and present grounded theory coding heuristics, primarily from Saladana (2016). We suggest that they can mitigate the potential confusion and misery that a first-time grounded theorist may experience.

The benefits of the heuristics are that they facilitate the transmission of tacit knowledge to explicit knowledge. They are important in the specification, simplification, and systematization of coding for a novice. They thus provide that needed impetus in data coding and analysis.

To facilitate the presentation of the coding heuristics we provide the following outline of this paper. A methodical section outlines how the heuristics were extracted from the literature review herein. That is followed by grounded theory analysis guidelines and heuristics, and grounded theory options and cycles. Finally, an outline of the coding heuristics is followed by a discussion, conclusions, and some recommendations.

Outline of Methodology

The methodology of the paper was primarily a literature review. The epistemological model of literature reviews discussed by Schryen, Gerit, and Benlian (2015) was used as the methodological foundation for extracting the heuristics. The model suggests that literature reviews make the following contributions (a)synthesis, (b) adoption of new perspectives, (c) theory building, (d) theory testing, (e) identification of gaps, and (f) provision of a research agenda. We conducted a review of grounded theory coding options by different authors which facilitated sythesis, adoption of a new perspective (namley the use of coding heuristics for begginers), identification of a gap (problematic nature of coding for beginners), and suggestion of the development and refinement of heuristics as a further research agenda. Figure 1 summarizes these contributions and illustrates how the coding methods (which we suggest to be tacit) were synstheised before coding heuristics were extracted. The problem faced by novice researchers when coding and analyzing grounded theory is the gap addressed by this paper. Coding methods are tacit knowledge possesed and used by experienced researchers. A review of literature faciliated the extratction of heuristics through sysnthesis and theory building.

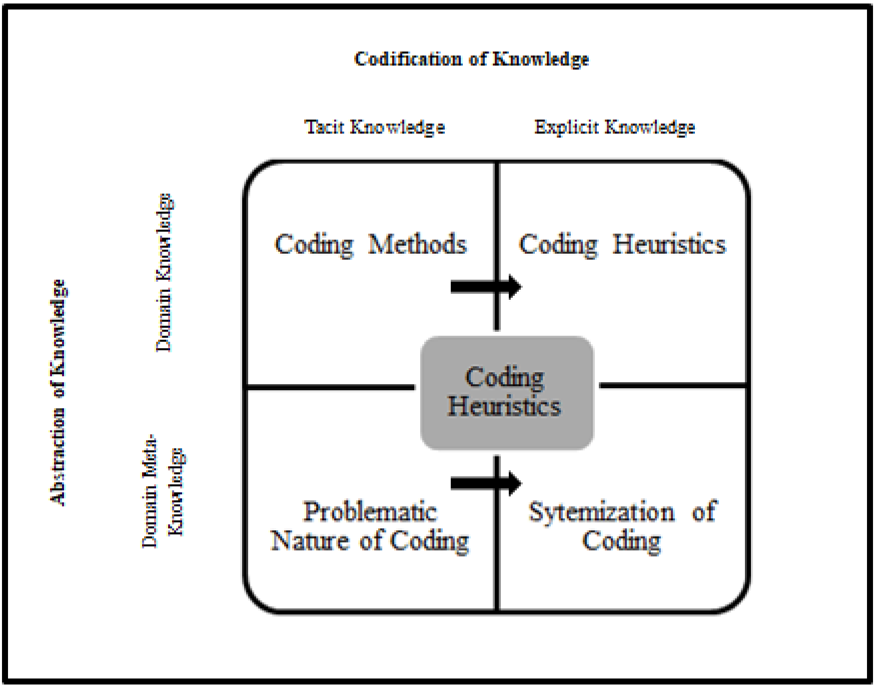

Figure 1. An Outline of the extraction and analysis of coding heuristics from literature.

Note. Adapted from "Theory of Knowledge for Literature Reviews: An Epistemological Model, Taxonomy and Empirical Analysis of IS Literature," by G. Schryen, W. Gerit, & A. Benlian, 2015, *Thirty Sixth International Conference on Information Systems, Fort Worth 2015*, *September*, 1–22, p. 9.

Overview of Grounded Theory Coding and Analysis

Coding is part of the analysis but is not everything there is about analysis. The importance of coding is noted by Holton and Walsh (2017), who suggest that coding and memoing are the basis of analysis. Each datum should be considered, comparing the data while patterns and relationships are explored each time in moving to higher levels of abstraction (Corbin & Strauss, 2015).

Data collection and data analysis are simultaneous in grounded theory to facilitate constant comparison, which is a key tenet of the methodology (Charmaz, 2014; Corbin & Strauss, 2015; Glaser & Strauss, 1967). Coding is part of qualitative data analysis. But Saldana (2016) cautioned that researchers should not oversimplify data analysis to mean just applying codes to data. Accordingly, some guidelines and heuristics on grounded theory analysis are highlighted in the subsequent section.

Analysis Guidelines and Heuristics

One of the main heuristics for grounded theory data analysis is that (a) everything is a concept, and (b) the analysis should be done with due consideration to the research questions and aims (Birks & Mills, 2011). The process of analysis involves reflecting on the data and assigning labels to it in line with the researcher's interpretation. In addition, the choice of analysis strategies depends on the researcher's discretion as well as the stage of the research (Corbin & Strauss 2015). Table 1 provides a synopsis of the analysis heuristics that guide data analysis in grounded theory.

We suggest that even though these analysis heuristics in Table 1 were extracted from Corbin and Strauss (2015), they can be applied uniformly among the different genres of grounded theory. These heuristics have an important role to play because of the observations made above such as (a) data collection and analysis are simultaneous,

(b) coding is only part of the analysis, (c) coding and analysis are considered as intuitive art, (d) and micro and the macro perspectives are maintained throughout the analysis process even as coding provides the building blocks for theory. The suggested analysis protocol thus attempts to provide some guidance and structure in a largely fluid and intuitive process to aid beginners.

Table 1

Data Analysis Protocol

Analysis phase	**Description**		**Specific heuristics**
Micro Analysis	In-depth analysis of pieces of datum • Generative, in-depth • At the beginning of the study • Developing concepts in terms of their properties and dimensions	• Using description as the basis of conceptual ordering and theory building • As an art-creativity, flexibility, intuitiveness, descriptive, analytic, etc. • As a science grounding in data-validation by participants • Using concepts as the basis of analysis • Data reduction • Blending detail & abstraction • From concepts to categories, then to the core category	• Reading & digesting the entire transcript • Analyzing the data in sections/chunks • Step back & assess the data under review • Conducting line by line analysis, verifying the codes, using constant comparison, & questioning • Developing concepts as well as their dimensions & properties • Assessing the level of concepts • Validating the concepts • Recording analysis in memos.
General Analysis	What is all the data telling us? • Bird's eye view of all the data		

Note. Adapted from *Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory*, (pp. 78-121), by Corbin and Strauss (2015), Los Angeles: SAGE.

Grounded theory coding is done in three cycles. The variations of the three cycles are illustrated in Table 2. Saldana (2016) outlines a genre of *classical* grounded theory coding comprising in vivo, process, initial, axial, focused, and theoretical coding. Saldana (2016) aptly observes that coding is not an exact science. There are overlaps among the cycles. Coding is a process that requires judgment and whose role is to connect the data under review to the eventual theory that is assigned to it.

Table 2
Variations of Three Cycles of Coding

Coding Options and Cycles						
Source	**Proponent (s)**	**Initial coding**	**Intermediate coding**	**Advanced coding**		**Theory**
(Birks & Mills, 2011)	Glasser & Strauss (1967)	Coding & comparing incidents	Integrating categories and properties	Delimiting the theory		Emerges (Classic)
(Birks & Mills, 2011)	Glasser (1978)	Open coding	Selective coding	Theoretical coding		Emerges (Classic)
(Böhm, 2004)	Böhm, (2004)	Open	Axial	Selective		Emerges *(Classic)*
(Saldana, 2016)	Saldana (2016)	Initial, process, in vivo	Focused, axial,	Theoretical		Emerges *(Classic)*
(Kenny & Fourie, (2015)	Holton (2010; 2017)	Substantive coding (open coding; selective)		Theoretical coding		Emerges *(Classic)*
(Birks & Mills, 2011)	Strauss & Corbin 1990; 1998)	Open coding	Axial coding	Selective coding		Created (Straussian)
(Kenny & Fourie, 2015)	Strauss & Corbin (1990)	Open coding	Axial coding	Selective coding	Conditional matrix	Created (Straussian)

	Charmaz	Initial or open	Refocused		Constructed (Constructivist)
(Birks & Mills, 2011)	Charmaz (2006)	Initial coding	Focused coding	Theoretical coding	Constructed (Constructivist)

Note. Adapted from *Grounded theory a practical guide* (p. 116) by M. Birks and J. Mills, 2011, Los Angeles: SAGE.

Biaggi and Wa-Mbaleka (2018) provide an elaborate explanation of the objectives and outcomes of each of the cycles of the coding. Their analysis suggests that during the first cycle of coding, the aim is to explore all the possibilities of meaning from the data by separating it into sections. The sections will thus provide a foundation for further analysis in the second and third cycles of coding through constant comparison (see Biaggi & Wa-Mbaleka 2018). The following excerpts in Table 3 from the study by Sigauke (2019) illustrate how the process and in vivo codes were generated as part of the first cycle of coding. Given the iterative nature of grounded theory, the codes assigned during the first cycle are continuously refined in line with emergent grounded concepts in the data.

Saldana (2016) observes that focused, axial, and theoretical coding are used in the second and third coding cycles. They serve to aid in the constant comparison of data and concepts, thereby facilitating the placing of the initial codes generated in the first cycle of coding into categories while identifying axis around which other codes revolve. The axes thus facilitate the fusion of the emergent concepts. Finally, the axes help to expose the core category and the grounded theory.

Table 3

Sample of First Cycle In Vivo and Process Codes

Code assigned	**Text Excerpt**	**Type of first cycle code**
'Domino effect'	You're loving, you're welcoming, so, we have that positive spirit so it's not just the program, but the messengers, the people whom we train to do it, they embed the culture that we're trying to promote, and somehow, it had a ***domino effect*** in some churches. Those who were following. I'm not saying all the churches, we had 54 churches in that country, I am not saying all of them were on board. We were able	In vivo
'Beacon of light'	to penetrate about 20% of the churches	In vivo

	throughout, so we talking about 10, 10 to 15 around that. So, it’s not everyone who was into it, but those that became like a ***beacon of light***. They were really up there. You can see the difference	In vivo
‘Health center’	It’s still running. ***The center*** has now become a vegetarian restaurant, but the health leader who took over from me is still continuing with some of the programs that I initiated. The other one is the setting up of the ***health center.***	
Mission medical training	But so far during my stint as a health director, the one that I really thought had an impact was the missionary medical training which we conducted from 2008 until..., it lasted for about four years. So, every year we would have young people who had just completed high school sign up for the program. It would be four months of intensive training in the center we had just set up, and then the remaining 8 months their work was in the community supporting the work of the pastor, and their job is to pave the way for the bible, the gospel to be implemented.	Process Process
Setting up a health center	The other one is the setting up of the health center. That was funded by the church budget. So, we had this place in which we turned into a health center, and whereby we offered free services, preventive health education, courses training, exercise, cooking demos, health expos even anti-smoking clinics right in the center, and workplace health promotion for the companies. The program lasted from 2008 until 2014.	Process
Training-education	So, we had this place which we turned into a health center, and whereby we offered free services, preventive health education, courses training, exercise, cooking demos, health expos even anti-smoking clinics right in the center, We did not stay in one place, we became mobile, but we would go around churches training members on how to create programs that would entice people from outside to come	

	into the church without using bible study. Non-threatening style. Training. The training of people who are not even in the medical field.

Again, an excerpt of codes from the study of Sigauke (2019) in Table 4 illustrates the second and third cycle codes. In the study by Sigauke (2019), *centers of influence* were identified as the core category.

Table 4

Summary of Emerging Codes and Theory

Theory	**Categories**	**Axial codes**
Influencing health lifestyle behavior modification through centers of influence	Philosophical Approach	Foundation Focus Approach Scope
	Program Bench Marks	Performance Drivers Program Elements
	Program Actions and Strategies	Communications Evaluations Incentives Procedures Program Recruitment
	Centers of Influence	Centers of Influence Mission

Grounded Theory Coding Options and Cycles

Numerous coding genres can be used by qualitative researchers. However, the specific choice of the coding mix and the number of coding cycles that are employed depending on the study's epistemological and methodological foundation. Table 2 illustrates the different coding options and cycles in grounded theory studies.

Böhm (2004), Glaser (1978), Holton and Walsh (2017), and Saldana (2016) subscribe to the classic genres of grounded theory. However, their coding patterns though similar, are different. Glaser (1978) talks of selective coding during the second cycle, while others refer to axial coding at the same stage. Additionally, while Böhm (2004) refers to selective coding in the last cycle, the others mention theoretical coding at that stage.

Saldana's (2016) outline was considered simple and comprehensive and was thus selected for the study. Evidently, the cycles of coding transition from initial coding in the first cycle to intermediate in the second, and advanced in the third cycle. In general terms, during the first cycle, the initial meanings and labels are assigned to the data, and relationships and patterns are determined in the second, while the third cycle is concerned with consolidating the emergent theory. The process is iterative, with overlaps among the coding cycles. The excerpts in Table 3 and Table 4 provide illustrations on how the coding may actually be done at the different stages of coding. Additionally, Tables 5, 6, and 7 outline specific heuristics that someone using *classic* grounded theory can follow.

Saldana further highlights that coding provides the building blocks for meaning in the data, as illustrated in Figure 2 below. The theory that a study suggests is thus rooted in its data sources.

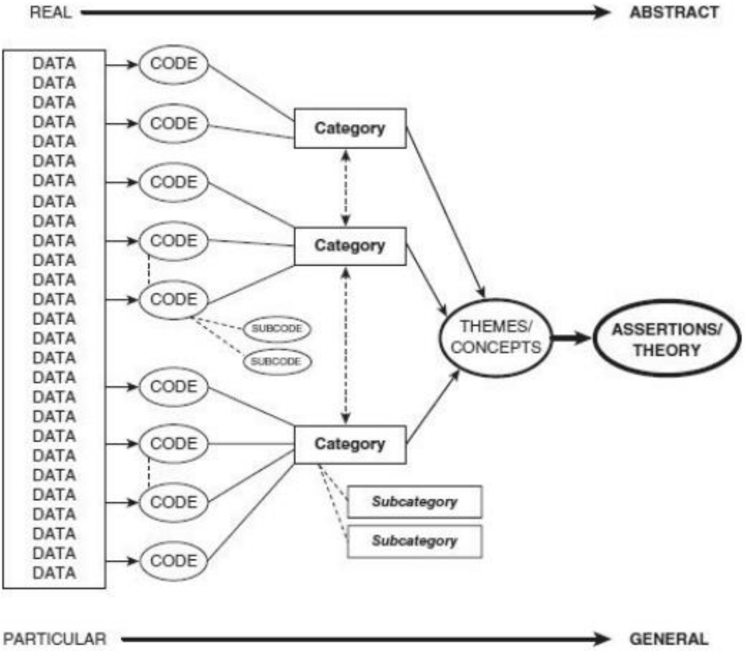

Figure 2. A streamlined code to theory model for qualitative inquiry.

Note. Adopted from *The Coding Manual for Qualitative Researchers,* (p. 14), by J. Saldana, 2016, Los Angeles, CA: SAGE.

Extractions of Coding Heuristics

There is no coding logarithm. Instead, the qualitative researcher looks for patterns in the data, "routines, rituals, rules, roles, and relationships" which help to form meaning (Saldana, 2016, p. 6). Grounded theory coding has specific guidelines. Hence, Saldana's (2016) guidelines for *classic* grounded theory coding are discussed in this section. Saldana (2016) suggests that coding is best treated as a heuristic. However, he does not necessarily outline coding heuristics. For that reason, we present our synthesis of the grounded theory coding heuristics extracted from Saldana (2016) for each of the three coding cycles.

First Cycle Coding

The first cycle coding methods can be divided into seven categories, ranging from grammatical to procedural approaches (Saldana 2016). However, elemental methods are recommended during this cycle, namely in vivo, process, and initial coding. Table 5 highlights the suggested coding heuristics that can be used in the first cycle coding. Charmaz (2014), Glaser (1998), as well as Holton and Walsh (2017), suggest that it is better to use verbs during this first cycle of coding. They note that while descriptive codes may be easy to use, it may be difficult to transfer them to higher conceptual levels.

Table 5
First Cycle Coding Protocol

Type of Code	Specific Code	Heuristics
Elemental codes	In vivo	• Drawing on participants own language
In all cases, write analytic memos to explain each code.	Process	• Using gerunds exclusively for codes; • Coding observable activity; • Searching for consequences; • Taking note of transitional indicators: if, when, because, then, etc.
	Initial/open	• Using together with in vivo & process coding • Breaking data into discrete parts for further analysis while comparing for similarities and differences • Opening for emerging theoretical directions

Note. Adapted from *The coding manual for qualitative researchers*, (pp. 68-118), by J. Saldana, 2016, Los Angeles, CA: SAGE.

In vivo codes. In vivo coding is when the respondent's own words are used as codes. The in vivo codes are demarcated with quotation marks ''. In vivo coding is also termed *literal, verbatim, inductive, indigenous, natural, or emic* coding in some literature (Saldana 2016). Table 3 provides some examples.

Process codes. Process coding focuses on gerunds or observable activity (Charmaz, 2014; Corbin & Strauss, 2015; Saldana, 2016). Process coding may be done concurrently with initial, axial, and focused coding (Saldana 2016). Arguably, process codes may make it easier to use axial coding during the second cycle of coding since the processes, activities, and actions that characterize the data would have been illuminated. (Saldana 2016) also contends that they are not just processes but those with “antecedents, causes, consequences, and a sense of temporality” (p. 117). Table 3 provides some examples.

Second Cycle Coding

Some studies can end with first cycle coding, but second cycle coding is required for grounded theory studies (Saldana 2016). During the second cycle coding, the codes from the first cycle are regrouped and reconstructed to develop categories, themes, and concepts using the researcher’s imagination and judgment. Different types of codes can be used for this stage of coding. However, as illustrated by Table 2, grounded theory studies are limited to selective coding, focused coding, refocused coding, or axial coding at this stage. Axial coding can be used to cluster coded data with similar concepts and themes together. It helps to outline the properties and dimensions of each category, determine dominant codes, eliminate redundant codes while identifying those that were most illustrative. Table 6 summarizes the heuristics used in the second cycle of coding.

Table 6

Second Cycle Coding Protocol

Axial coding	**Heuristics**
	• Extending the analytic work from Initial Coding; • Strategically reassembling data that was split during initial coding; • Determining dominant codes while crossing out redundant, less important ones & synonyms; • Selecting the best representative codes/axis; • Linking categories & sub-categories & ask how they are related; • Specifying properties & dimensions of categories [contexts, conditions, interactions, & consequences of a process-if, when, how]; • Reducing the number of initially coded data by labeling and sorting them into conceptual categories; • Sharpening codes to achieve the best fit; • Writing memos that serve as codes and category generators

Note. Adapted from *The coding manual for qualitative researchers* (pp. 232-248), by J. Saldana, 2016, Los Angeles, CA: SAGE.

Third Cycle Coding

The third cycle of coding comprises theoretical coding. Theoretical coding is the culmination of abstraction through synthesizing and integrating all the categories from the preceding cycles of coding to the emergent theory. However, it can be noted that there are obvious overlaps between the second cycle and third cycle coding. During this stage, the umbrella code or the phenomenon covering all the other codes is identified. This category explains the substance of the research. Table 7 illustrates the third cycle coding heuristics that can be employed. Table 4 provides examples of codes assigned during the third cycle of coding.

Table 7

Third Cycle Coding Protocol

	Heuristics
Theoretical coding	• Coding to identify an umbrella code that covers and accounts for all other codes and categories formed thus far • Finding the primary theme of the research • Finding the central theme or core category that explains what the research is all about • Finding the core category that identifies the major obstacle, problem, issues or concern of the participants • Identifying the code which sums all the other codes • Integrating of all categories and concepts systematically around that central/core category • Suggesting a theoretical explanation for the phenomenon; • Explicitly stating the central/core category of the study • Using analytic memos to explain and justify the core category with reference to the data • Describing the related components -contexts, conditions, interactions & consequences • Getting additional data either new or from existing participants in order to identify any variations within the existing theory • Drawing charts to illustrate the categories, process, & theory • Using elegance, precision, coherence, and clarity as evaluation criteria for the emerging theory consolidating the central theme or core category that explains what the research is all about; • Suggesting a theoretical explanation for the phenomenon; • Hypothesizing on the relationship between the codes and

categories
- Explaining the ‘big picture’
- Using coding families

Note. Adapted from *The coding manual for qualitative researchers* (pp. 248-254), by J. Saldana, 2016, Los Angeles, CA: SAGE.

Discussion

While grounded theory data coding and analysis are largely intuitive, we suggest that coding heuristics may be beneficial to a first-time grounded theorist. Many important observations are evident from the preceding outline. To begin with, the authors of grounded theory who have adopted a *classic* genre did not adopt the same methods of coding at each of the coding cycles. Additionally, even coding methods traditionally associated with the Straussian genre of grounded theory were used in a *classic* genre of grounded theory. Axial coding is a case in point.

Saldana’s (2016) outline seems to stress the use of process codes during initial coding. Coding for processes while highlighting antecedents, causes, consequences, and contexts at this stage works well with axial coding in the second stage of coding. Arguably it will be easier to identify axis as well as their properties and dimensions when process codes are used. Axial coding follows smoothly from process coding. Theoretical coding thus serves to consolidate the emergent core category and the *big picture* emerging in the research.

The suggestions offered by Saladana (2016) are beneficial in that they provide a specific route that a beginner can use to navigate among the three genres of grounded theory. Open coding is common among all three genres and is useful during the first cycle. He selects axial coding at the second stage, which is from the Straussian genre. Theoretical coding, which is from the Glaserian genre, is selected at the third stage. Such a guideline is not only simple but specific. It provides a clear route which a beginner can use to oscillate among the options highlighted earlier in Table 2.

The focus of this paper is to help beginning grounded theorists to start the coding and analysis process. Our experience, observations, and queries of beginners interested in grounded theory suggest that additional guidelines are needed for that group. Hence the suggestion that heuristics are useful in providing further clarity. Glaser (1998) aptly observed the experiential nature of grounded theory. Suddabay (2006) rightly cautions that grounded theory is not a mechanical technique where rules and techniques are applied to data. But he further observes that grounded theory is not easy.

The heuristics presented in this paper may seem obvious for experienced grounded theorists. We argue that it may be so because due to experience, such knowledge is now part of what Kahneman (2011) calls system 1. To the experienced, coding is largely effortless and intuitive. That is why most literature explains coding and analysis as intuitive. For beginners, however, it is part of what Kahneman calls system 2. Beginners, for a start, need to be deliberate about the whole process. They need more specific guidelines. That is why they need specific heuristics to set them in motion. It is important to convert tacit knowledge to explicit knowledge (Schryen et al., 2015; Trautmann, 2010)

The use of heuristics is a starting point for beginners. They help in our view to unpack expert intuitions possessed by experts. They do not replace the needed creativity but provide the impetus. While the heuristics we have presented may not be novel, we suggest them as simple and practicable heuristics that beginners to grounded theory and analysis can start with.

Conclusions and Recommendations

We propose several conclusions from the preceding discussion. First, the labels used to describe the genres of grounded theory are inadequate and limiting. There is room for researchers to adopt coding methods that are effective from either genre at any stage of the coding process. Secondly, process coding is an important first step during the first cycle of coding. Coding for processes is one of the key heuristics in Saldana's genre of *classic* grounded theory. Thirdly, axial coding flows smoothly from process coding. Fourthly, the processes in the third cycle of coding serve to consolidate the emergent theory. Third cycle coding thus builds from the first two cycles. Obviously, memos are an integral part of all the cycles of coding and, coding is iterative. Hence, there are obvious overlaps among the three cycles of grounded theory coding. Importantly, heuristics may provide the needed impetus for beginners in grounded theory to start the coding and analysis process. They help to convert tacit coding and analysis knowledge into explicit knowledge. Finally, the heuristics that have been presented are not prescriptive, nor do they replace requisite creativity.

Our overall recommendation is that beginning grounded theorists can start using heuristics, and they embark on grounded theory studies. Doing so will provide them that much needed initial momentum. There is room for the development and refinement of the suggested heuristic by other researchers. Further, there is a need for more work on turning that tacit knowledge that experienced researchers have to explicit knowledge that beginners can use.

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