Grounded theory, the way to analyse qualitative data: A comprehensive review of literature

Evans Magaisa[1], Tasvika Moyo[2], Engelbert Chamunorwa Wilson[3], George Shava[4]

[1]*Department of Construction Economics and Management, National University of Science and Technology, Zimbabwe*
[2]*Zimbabwe Republic Police Bulawayo Professional Updating Centre*
[3]*Zimbabwe Republic Police SARPCCO Centre of Excellence, Harare.*
[4]*Department of Technical and Engineering Education and Training, National University of Science and Technology, Zimbabwe*

I. INTRODUCTION

Grounded theory is a research approach in which data collection and analysis inform each other to construct theories of the phenomenon under study, and they take place simultaneously (Thornberg & Charmaz, 2014: 153). It is the systematic discovery of theory from data that is obtained during the social research process. Grounded theory is an aim towards conceptual thinking and theory building rather than empirical testing of a theory (Khan, 2014: 224).Grounded theory is a methodology for developing theory that is grounded in data, which is systematically gathered and analysed (Noble & Mitchell, 2016: 1). Since its inception in 1967, grounded theory has become a popular choice among researchers contemplating qualitative data approaches amongst a variety of subject backgrounds (Yu & Smith, 2021: 553). Corbin (2016: 51)notes that grounded theory is a method that rejects a dogmatic and rigid approach to doing research, but rather embraces taking the role of the other, giving voice to participants and the researcher shaping the research accordingly. Therefore, the researcher formulates new questions as the research evolves, chooses among a variety of data sources and even changes the direction of the research midway as the situation demands. Researchers therefore enter in to an investigation with an open mind ready to hear what the participants are saying. The questions that emerge from the analysis will guide the next steps in data collection and analysis.

When to use grounded theory research

Grounded theory is a qualitative approach that is used when accounts of the phenomena under investigation are not likely to provide a holistic picture of the process and outcomes (Nel & Govender, 2018: 6). Therefore, at the onset, the researcher does not have research questions or hypotheses. This may be because theories that exist are either poorly described or do not exist at all. The researcher will only be too sure of what the research is all about after collection and analysis of data. After analysing data, a core category and related concepts emerge.

The grounded theory process

The grounded theory process is as follows:

Framing the question

Grounded theory research is fluid, dynamic and evolving, that is, the researcher asks interview questions from respondents, that will then lead to the emerging of other concepts and therefore further research questions (Corbin, 2016: 45). The researcher, however, have to trust their instincts and let what they perceive to be significant guide them. From the first stage of the data collection, data is subsequently analysed to give more insights into important phenomena about the social process and thereby guiding the researcher to further inquiry as discussed below.

Data collection and analysis

In grounded theory research, data collection and analysis inform each other to construct theories of the phenomena under study, and they take place simultaneously (Thornberg & Charmaz, 2014: 153). The researcher must remain objective when collecting and analysing data. The research is based on the notion that there is no one reality, but there are multiple realities, and collecting and analysing data requires capturing those multiple viewpoints. The researcher can capture a semblance of reality in the data, and present the reality as theoretical findings (Corbin, 2016: 37). In the beginning of the data analysis, the researcher does not know with certainty the significance of concepts that emerge from the data. The researcher only knows intuitively that something is important. Grounded theory uses induction, deduction and the verification of data together, which then produces further insights, questions and assumptions about phenomena, which are then followed up by further inquiry (Nel & Govender, 2018: 2). The researcher follows one lead after the other, thereby getting more and more relevant information about the subject under study.

Theoretical sampling

Theoretical sampling is the process of identifying and pursuing clues that arise during data analysis in a grounded theory study (Birks, Hoare & Mills, 2019: 1). In grounded theory, data collection and analysis take place simultaneously. The theory is embedded in the data, that is, the researcher is sensitive and looks hard enough in to the data, and theory will emerge (Corbin, 2016: 36). The data that has been collected generates codes and categories, and not hypotheses. The collected data is analysed and concepts emerge which help the researcher better understand phenomena. Therefore, as more

data are collected and analysed, the research continues to evolve and more theory is built. The building of the theory will inform the researcher on the literature that needs to be reviewed. The data analysis also helps the researcher engage in all aspects of the research.

Theoretical coding

Theoretical coding is the mechanism through which grounded theory explains phenomena through explicating the elements of a social process, which are a series of events that are related to one another (Birks, Hoare & Mills, 2019: 5). Theoretical coding uses advanced abstractions to provide a framework that enhances the explanatory power of grounded theory. The advanced abstractions come from theories extant to your own but which support your own grounded theory, to add explanatory power. Theoretical coding is not always necessary in grounded theory research, but helps to fully utilise its explanatory power. Theoretical coding occurs late in the process of analysis as an element of advanced coding, and must be directed by the data analysis. The use of existing theories is an opportunity to demonstrate how the research contributes to existing knowledge.

Data Saturation

Data saturation as a grounded concept was coined from what is known as 'theoretical saturation' (Tay 2014; Morse 2004). As described by Morse 2004, this concept refers to "the phase of qualitative data analysis in which the researcher has continued sampling and analysing data until no new data appear and all concepts of the theory are well developed … and their linkages to other concepts are clearly described" and thus data collection could cease. Urghart (2013) and Birks and Mills (2015) relate saturation primarily to the termination of analysis rather than to the collection of new data. According to Starks and Trinida (2007, p. 1375), theoretical saturation occurs "when the complete range of constructs that make up the theory is fully represented by the data". Guest et al (2006) and Grady (1998, p. 26) provide a similar description of data saturation as the point at which; new data tend to be reluctant of data already collected. In interviews, when the researcher begins to hear the same comments again and again, data saturation is being reached. It is then time to stop collecting information and to start analysing what has been collected.

Code saturation and meaning saturation in grounded theory research

Hennink, Kaiser and Marconi (2016) differentiated between two types of data saturation: **code** saturation and **meaning** saturation. In grounded theory **code** saturation could be reached at nine interviews, when researchers "head it all" whereas meaning saturation could be reached at 16-24 interviews, when researchers "understand it all". Morse (2015a), insisted that qualitative researchers have to reach both of those types of saturation by using both subjective and objective data, which thereby afford the best guarantee of vigour. Similarly, Hennink et al (2016) concluded that the following parameters may enhance **meaning** saturation and ultimately assist in determining an effective sample size; the purpose of the study, the nature of the study, the types and styles of coding and the complexity and stability of the codebook used by the researcher. Morse (2015b) recommended that qualitative researchers; including grounded theorists, use the following strategies to achieve data saturation and vigour. Morse (2015 p.587) notes that saturation is "present in all qualitative research; it is commonly considered as the gold standard for determining sample size in qualitative research with little distinction between different types of qualitative research.

In a largely deductive approach (one that relies wholly or predominantly on applying pre-identified codes, themes or other analytical categories to the data rather than allowing these to emerge inductively). Saturation may refer to the extent to which predetermined codes or themes are adequately represented in the data. When used in a deductive approach analysis, saturation serves to demonstrative the extent to which the data instantiate previously determined conceptual categories whereas in more inductive approaches and grounded theory in particular.In narrative research, a role for saturation is harder to discern. Rather than the sufficient development of theory, it might be seen to indicate the 'completeness' of a biographical account.Dube et al (2016) suggest that saturation says something about (though not conclusively) the ability to extrapolate findings and Boddy (2018 p. 428) claims that 'once saturation is reached, the results must be capable of some degree of generalisation; this seems to move us away from the notion of the theoretical adequacy of an analysis and the explanatory scope of a theory toward a much more empirical sense of generalizability. Therefore, for saturation to be conceptually meaningful and practically useful there should be some limit to the purpose to which it can be applied.

II. RELEVANCE OF REACHING DATA SATURATION

a) Morse (2015 p.587) takes the view that saturation is "present in all qualitative research; it is commonly considered as the 'gold standard' for determining sample size in qualitative research with little distinction between different types of qualitative research.
b) In a largely deductive approach (i.e. one that relies wholly or predominantly on applying pre-identified codes, themes or other analytical categories to the data rather than allowing these to emerge inductively). Saturation may refer to the extent to which predetermined codes or themes are adequately represented in the data.
c) When used in a deductive approach analysis, saturation serves to demonstrative the extent to which the data instantiate previously determined conceptual categories whereas in more inductive approaches and grounded theory in particular.
d) In narrative research, a role for saturation is harder to discern. Rather than the sufficient development of

theory, it might be seen to indicate the 'completeness' of a biographical account.

e) Dube et al (2016) suggest that saturation says something about (though not conclusively) the ability to extrapolate findings and Boddy (2018 p. 428) claims that 'once saturation is reached, the results must be capable of some degree of generalization; this seems to move us away from the notion of the theoretical adequacy of an analysis and the explanatory scope of a theory toward a much more empirical sense of generalisability.Therefore, for saturation to be conceptually meaningful and practically useful there should be some limit to the purpose to which it can be applied.

Theoretical saturation in grounded theory research

Failure to reach data saturation has an impact on the quality of the research and affects the validity of the content (Fusch& Ness, 2015: 1408). In the aim of the study, the researcher should include what determines when data saturation is achieved. Data saturation is reached when no new elements emerge from the data and the addition of new information ceases to be necessary (Nacimento et al., 2017: 228).In grounded theory research, data saturation is reached as a result of the researcher's subjectivity, wisdom and intuition as well as seeking help and guidance from other expert grounded theorists (Aldiabat& Le Navenec 2018: 258). The nature of the research question, researcher's experience in the qualitative field, triangulation of data collection methods, understanding the philosophical underpinnings of research methods all guide the researcher to know if they have reached the saturation of data. saturation is reached as a result of theoretical sampling,

Constructivist grounded theory

In constructivism, concepts and theories are constructed by researchers out of stories that are told by research participants who are trying to make sense out of their experience, to the researcher and themselves (Corbin, 2016: 39). The mind is not passive in the construction of knowledge, so human beings construct knowledge more than they discover it.Constructivist Grounded Theory celebrates first-hand knowledge of empirical worlds, takes and a middle ground between postmodernism and positivism and offers accessible methods for taking qualitative research into the 21st century (Denzin 1991; Krieger 1991; Marcus; Fisher 1980 and Tyler 1986). Multiple social realities, recognises the mutual creation of knowledge by the viewer and the viewed, and aims toward interpretive understanding of subjects meaning (Guba and Lincoln 1994; Schwandt 1994).

The power of grounded theory lies in its tools for understanding empirical worlds. We can reclaim these tools from their positivist underpinning to form a revised more open-ended practice of grounded theory that stresses its emergent constructivist elements. We can use grounded theory methods in flexible, heuristic strategies rather than formulaic procedures. A constructivist approach to grounded theory reaffirms studying people in their natural settings and redirects qualitative research away from positivism. Grounded theory methods do not detail data collection techniques; they move each step of the analytic process toward the development, refinement and interrelation of concepts. The strategies of grounded theory include;

a) simultaneous collection and analysis of data
b) two-step data coding process
c) comparative methods
d) memo writing aimed at the construction of conceptual analysis
e) sampling to refine the researcher's emerging theoretical ideas and
f) integration of the theoretical framework.

A constructivist grounded theory recognises that the viewer creates the data and ensues analysis through interaction with the view. Data does not provide a window on reality. Rather, the 'discovered' reality arises from the interactive process and its temporal, cultural and structured contexts. The researcher and subjects frame that interaction and centre meaning upon it. The viewer then is part of what is viewed rather than separate from what a viewer sees shapes what he or she will define, measure and analyse. Because objectivist (i.e. the majority of) grounded theorists depart from this position, this crucial difference reflects the positivist leaning in their studies.

Causality is suggestive, incomplete and indeterminate in a constructivist grounded theory. Therefore, a grounded theory remains open to refinement. It looks at how 'variables' are grounded – given meaning and played out in subjects' lives (Dawson and Prus 1995; Prus 1996). Their meanings and actions take priority over researchers' analytic interest and methodological technology.A constructive grounded theory seeks to define conditional statements that interpret how subjects construct their realities. Nonetheless, these conditional statements do not approach some level of generalisable truth. Rather they constitute a set of hypotheses and concepts that other researchers can transport to similar research problems and to other substantive fields. Thus the constructivist grounded theorist's hypothesis and concepts offer both explanation and understanding and fulfill the pragmatist criterion of usefulness.

Constructivist grounded theorists recognize that mutuality exists within the research relationship and that the relationship is privileged where a connection exists between the research and the participant in this context and must be respected as such by the researcher. Charmaz (2008 p. 133), puts it this way, "entering the phenomenon shrinks the distance between the viewer and the viewed. Subsequently, we might better understand our research participants' multiple realities and stand points".Further, constructivist grounded theory aims to develop a detailed understanding of the underlying social or psychological process within a certain context by exploring in more detail social interactions and social structures (Charmaz

2006). From a research perspective the notion of a shared reality is discovered by the researcher through the interview process with research participants (Charmaz 2000). Using a constructivist grounded theory approach allows the researcher to focus attention on the underlying social process that might be occurring in any given context (Charmaz 2006), which may not be immediately apparent but emerges over time as the data is analysed and theorising begins.

III. CONCLUSION

Grounded theory is a useful way of theory building in analysing qualitative data. It is crucial to be sensitive to the new concepts that emerge during data collection. It is also imperative to understand, maintain and utilise the relevant, evolving relationship between data collection and analysis. It is also important to keep repeating the process of data collection until data saturation is reached in order to guarantee quality of the study

REFERENCES

[1] Aldiabat, K. M., & Le Navenec, C. (2018). Data saturation: The mysterious step in grounded thery research. The Qualitative Report, 20(1), 245-261. Retrieved December 29, 2021, from

[2] Birks, M., Hoare, K., & Mills, J. (2019). Grounded theory: The FAQs. International Journal of Qualitative Methods, 18, 1-7. Retrieved December 29, 2021, from https://journals.sagepub.com/doi/pdf/10.1177/1609406919882535

[3] Corbin, J. (2016). Taking an analytic journey. In J. M. Morse, P. N. Stern, J. Corbin, B. Bowers, K. Charmaz, & A. E. Clarke, Developing grounded theory: A second generation. New York: Routledge. Retrieved December 28, 2021, from https://www.routledge.com/rsc/downloads/9781598741933_Corbin.pdf

[4] Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. The Qualitative Report, 20(9), 1408-1416. Retrieved Decenber 29, 2021, from https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=2281&context=tqr

[5] Khan, S. N. (2014). Qualitative research method: Grounded theory. International Journal of Business Management, 9(11), 224-233. Retrieved December 27, 2021, from https://www.ccsenet.org/journal/index.php/ijbm/article/view/39643

[6] Nacimento, L. C., Souza, T. V., Oliveira, I. C., Mores, J. R., Aguir, R. C., & Silva, L. F. (2017). Theoretical saturation in qualitative research: An experience report in interview with school children. Brazilian Nursing Journal, 71(1), 228-233. Retrieved December 29, 2021, from https://www.scielo.br/j/reben/a/SrfhX6q9vTKG5cCRQbTFNwJ/?lang=en&format=pdf

[7] Nel, K., &Govender, S. (2018). Transformative research methods: Grounded theory. In S. Kramer, S. Laher, A. Fynn, & H. H. Janse Van Vuuren. Johannesburg: Pschological Society of South Africa. Retrieved December 29, 2021, from https://www.psyssa.com/wp-content/uploads/2019/03/ORIM-Chapter-3_Transformative-research-methods_Grounded-Theory.pdf

[8] Noble, H., & Mitchell, G. (2016). What is grounded theory? Evidence Based Nursing, 0(0), 1-2. Retrieved December 28, 2021, from https://www.researchgate.net/publication/294424440_What_is_grounded_theory/link/5a92ff7345851535bcd935a9/download

[9] Thornberg, R., &Charmaz, K. (2014). Grounded theory and theoretical coding. In U. Flick, A SAGE handbook of qualitative data analysis (pp. 153-169). London: SAGE. Retrieved December 28, 2021, from https://www.ufs.ac.za/docs/librariesprovider68/resources/methodology/uwe_flick_(ed-)-_the_sage_handbook_of_qualitative(z-lib-org)-(1).pdf?sfvrsn=db96820_2

[10] Yu, M., & Smith, S. M. (2021). Grounded theory: A guide for a new generation of researchers. International Journal of Doctoral Studies, 16, 553-568. Retrieved December 28, 2021, from http://ijds.org/Volume16/IJDSv16p553-568Yu7247.pdf