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An Adaptation of Grounded Theory Using a Modified Convergent Interviewing Technique

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Abstract

Grounded Theory (GT) researchers have been using adaptations of this methodology to serve theory building purposes, following different theoretical frameworks. However, there is a lack of enough information on the variation of GT used, or their epistemological assumptions in some studies. The purpose of this paper is to provide our experience in a GT study using a modified convergent interviewing technique to help guide other researchers on using this method and build their own research design. We have combined a decision-making technique, called Delphi, with convergent interviewing and provided a clear explanation of the steps required to apply this method in a GT research study. To help other researchers, justifications made to choose convergent interviewing in this GT study, and the proposed adaptation are explained in detail. The method used resulted in a more efficient data collection and analysis stage in the main author's PhD study, that aimed to find main issues in a Health Information Technology innovation development by interviewing key informants. The case for this study was about using Information Technology in health care (e.g., computerised medical records for sharing patient care among clinicians in different services). The GT methodology and the proposed interviewing method can be used in the development processes of other innovations where the main issues or events need to be determined and generate relevant theory. There is potential in the proposed method to improve theory building studies by providing explicit theoretical and methodological decisions of this study.

Keywords

Grounded Theory, Convergent Interviewing, Health Information Technology

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An Adaptation of Grounded Theory Using a Modified Convergent Interviewing Technique

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Grounded Theory (GT) researchers have been using adaptations of this methodology to serve theory building purposes, following different theoretical frameworks. However, there is a lack of enough information on the variation of GT used, or their epistemological assumptions in some studies. The purpose of this paper is to provide our experience in a GT study using a modified convergent interviewing technique to help guide other researchers on using this method and build their own research design. We have combined a decision-making technique, called Delphi, with convergent interviewing and provided a clear explanation of the steps required to apply this method in a GT research study. To help other researchers, justifications made to choose convergent interviewing in this GT study, and the proposed adaptation are explained in detail. The method used resulted in a more efficient data collection and analysis stage in the main author's PhD study, that aimed to find main issues in a Health Information Technology innovation development by interviewing key informants. The case for this study was about using Information Technology in health care, e.g., computerised medical records for sharing patient care among clinicians in different services. The GT methodology and the proposed interviewing method can be used in the development processes of other innovations where the main issues or events need to be determined, and generate relevant theory. There is potential in the proposed method to improve theory building studies by providing explicit theoretical and methodological decisions of this study. Keywords: Grounded Theory, Convergent Interviewing, Health Information Technology

Choosing an appropriate method of data collection and analysis to explore the complex context of healthcare systems can be a challenge, especially for novice researchers (Markey, Tilki, & Taylor, 2014). Although researchers in health care increasingly use methodologies such as Grounded Theory (GT) to explain complex social processes (Marks, Huws, & Whitehead, 2016), a persistent problem is the difficulty that lies in conducting such unstructured research (as opposed to hypothesis testing studies), especially for novice researchers. In this article I, the first author, present my experience of using convergent interviews in the context of GT research. My co-authors were my PhD supervisors and contributed to the decisions I made when modifying convergent interviewing for use in my GT research.

Having an interest in understanding how Health Information Technology (HIT) innovations are led in this context, I decided to follow GT as the main methodology of my research to allow open exploration of this context without having a pre-defined hypothesis. I used Classic Grounded Theory (Glaser & Strauss, 1967) which, unlike other forms of GT (Charmaz, 2008; Strauss, 1987) does not make use of hypotheses. After I decided on the four stages of my PhD study, and the objectives of each stage, I realised that applying ordinary in-depth interviews in the third stage of data collection and analysis was not the best approach.

The first three stages prepared me for the main (fourth) data collection stage, which required time, depth, and clarity of scope and content for data collection and analysis.

Deciding on an appropriate method, then, required examining existing GT studies and comparing their application with my context. The problem for me, and other new researchers to GT, though, lies in the lack of explicit explanations of the justifications of methods and modifications used in the existing literature (Markey et al., 2014; Suddaby, 2006). Therefore, I decided to provide a clear description of an adaptation of a convergent interviewing technique I used in my GT study in a HIT context for those who might find their research purpose similar to mine.

Grounded Theory methodology intends to provide a new way of data collection and analysis that respects both quantitative and qualitative data, for under-researched areas where it is hard to frame a research question (Urquhart, 2013). GT does not apply a-priori assumptions (Glaser & Strauss, 1967). Instead, it describes how to use an emergent iterative process in which data collection and analysis will inform theory and vice versa (Charmaz, 2013; Glaser, 1978).

My PhD was in the HIT field focusing on leadership associated with the use of information technology (IT) innovations. I intended to understand how innovation development and leadership of the innovation are inter-related. In doing this study, I assumed that both innovation development and leadership are social processes and therefore are best studied in their social context. The existing literature on leadership of innovations in HIT lacked a theory incorporating the connections between these two social constructs. It was then not possible, with limited literature on the subject area, to follow a positivist approach using deductive hypotheses and testing them. This was the main reason for choosing GT as the overall methodology of the study.

Researchers who have studied contextual factors such as leadership associated with innovations have mostly applied a positivist approach. Consequently, their studies are limited to existing theory and testing of predefined hypotheses. For instance, many researchers have used theories that describe traits and behaviour of leaders and tried to measure individuals' effect on the innovation processes or successful adoption of HIT (Balasubramanian & Spurgeon, 2012; Fickenscher & Bakerman, 2011; Malloch, 2010; Szydowski & Smith, 2009; Tang, 2017). Other studies used either a descriptive methodology to provide advice on leadership of Health innovations especially to improve adoption of technology (Cresswell, Bates, & Sheikh, 2017; Ingebrigtsen et al., 2014) or were explaining their study of health-IT innovations without focusing on leadership (Greenhalgh et al., 2017; Sheikh, Sood, & Bates, 2015). Therefore, theory building and GT, as an inductive process, was seen to be appropriate for the purpose of my research to provide a deep insight of leadership in case of health IT innovations.

To conduct this research, I decided to take advantage of different types of data available, as encouraged in the Classic Grounded Theory approach. Hence, the research methods consisted of four stages of observation, document analysis, convergent interviews, and in-depth interviews (Figure 1). The data collected and analysed in each stage provided insights and theoretical sensitivity for the stage that followed. In this article, I will focus on a variation of convergent interviewing that I developed in the third stage of my study, where I queried the main issues raised during the innovation development process that was core to my research. The purpose is to help researchers, specifically in the innovation development area, to develop their own research design (as described by Creswell, 2009), while using GT methodology, that best applies to their research question and available data.

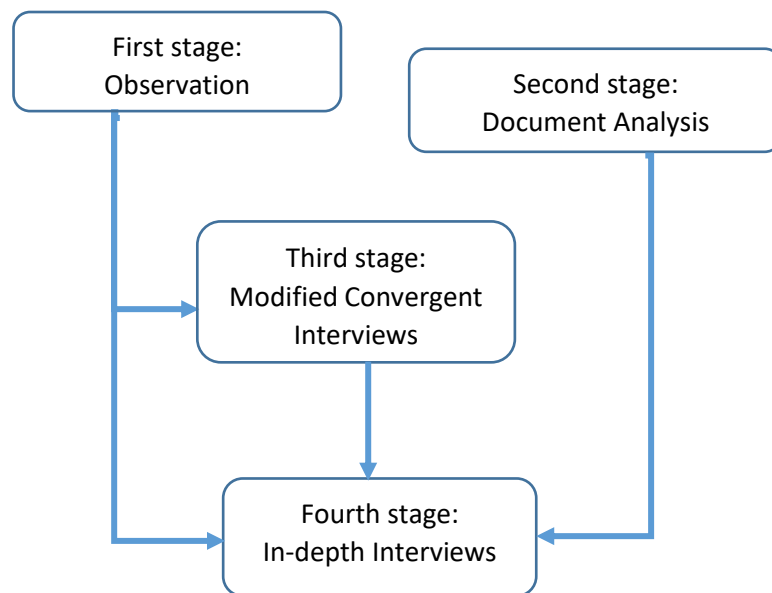


Figure 1: Stages of data collection and analysis, with data flows

Over time GT itself has been described and developed in three main ways. Strauss and Corbin (1990) deviated from the Classic GT and followed a restrictive way of analysing qualitative data using a coding paradigm, and a framework to map concepts that emerged from data into higher-level coding categories and definitions of category relationships. This approach was criticised by Melia (1996, p. 370) as being “overformulaic” and Glaser (1992, p.5) called it “forced, full, conceptual description.” Later, Charmaz (2002) developed a constructivist revision of GT using an ontological stance between realist and postmodernist (Bryant & Charmaz, 2007).

Although these deviations have been used with different theoretical assumptions by Grounded Theorists, some researchers have recently invited others to explicitly describe the theoretical framework that underpins their theory building (Charmaz, 2008; Redman-MacLaren, 2015). It aims to prevent misuse or misinterpretations of this methodology that are observed in some studies when the researcher is not familiar with qualitative research (Suddaby, 2006). Hence, I decided to include a clear account of the philosophical assumptions of my adapted convergent interviewing technique, to help researchers find a suitable GT design according to their research purpose (as Crotty, 1998 discusses).

In the next section, I provide the reason behind choosing convergent interviewing as the data collection and analysis method in the third stage of my study. To describe it, I refer to the theoretical assumptions and research characteristics that affected this selection. Later, I demonstrate the modified convergent interviewing technique I applied. These two sections cover what other researchers need to know about my GT adaptation and its theoretical assumptions.

Why Choose Convergent Interviewing?

Convergent Interviewing (CI) is an in-depth way of interviewing participants, but in a more structured way to reach to a convergence point around important issues within a few sets of interviews (Driedger, 2008). It is an effective interviewing process that allows convergence on the main issues by interviewing key informants or experts (Driedger, 2008; Rao & Perry, 2003). There is a process of constant comparison between interviews, in addition to theoretical sampling (Driedger, 2008), similar to what is defined in GT (Strauss & Corbin, 1998). It also

provides the opportunity to be open in the earlier questions (similar to original in-depth interviews), and then become more focused on the issues raised (reaching a convergence). In other words, the convergence happens by finding main issues discussed by different interviewees. The interviewer starts from a very open question to allow participants to raise their priority issues without any prompts. Then the analysis of the first interview allows the researcher to find some main issues to be checked in the next interview. However, the interviewer still needs to start from the open question and see how similar issues may be raised by the next interviewee and how they might introduce new ones. Then the researcher can refine and narrow down interview contents gradually as more interviews are conducted (Dick, 1998). Therefore, I decided to examine if CI or any adaptation of it is useful for my research on HIT innovations.

Convergent interviewing, as Dick (1998) describes, refers to going from open-ended questions to focused ones rather than reaching agreements on main issues. Some researchers, though, including Riege and Nair (2004), and Rao and Perry (2003), have associated convergence with achieving agreements among experts and explaining disagreement. It is suggested to find patterns of convergence or divergence (agreements or disagreements) in what participants describe (Riege & Nair, 2004). Building conceptual categories from both agreements and disagreements will help illustrate dimensions of the issues discussed (Riege & Nair, 2004). Therefore, concepts found in one interview need to be followed in the others to discern a pattern that indicates agreements or disagreements between participants.

The reason I used convergent interviewing for the third stage of my study lies in both theoretical assumptions and characteristics of the research at this stage. In order to see how this method can be applied in similar GT studies, I will explain the theoretical assumptions of my study first. Then it can be seen how CI is useful and appropriate. Next, I will describe the characteristics of the research including research purpose in the third stage, to indicate how CI was beneficial.

Theoretical Assumptions

The theoretical assumptions that guide actions (Guba, 1990) in a research project reflect the ontology (our view of reality) and epistemology (how we know what we know) of the researcher (Crotty, 1998). The ontological stance of a researcher is about his/her view of physical and social entities (Orlikowski & Baroudi, 1991). Orlikowski and Baroudi categorise theoretical stances into positivist, interpretive, and critical. Some have associated Glaser and Strauss's classic GT (1967) as positivist (Charmaz, 2013; Redman-MacLaren, 2015). Positivism asserts that reality can only be objectively ascertained. Objectivity refers to the idea that reality is independent of the researcher, and therefore it can be measured (positivist philosophy; Myers, 2013). In contrast, Goulding (2002) argued that positivism cannot capture the depth of human experience. Geertz (1994) similarly criticised positivism and associated ontologies of resulting in "thin" descriptions which lack depth and context. In other words, positivist assumptions that consider an independent reality for organisations do not seem to be appropriate for social science studies (Lincoln & Guba, 1985; Morgan, 1980; Orlikowski & Baroudi, 1991). It may cause loss of contextual factors, especially if all data is quantified (Myers, 1997). Therefore, I used an interpretive approach (Orlikowski & Baroudi) and extended the application of Classic GT to interpretive research. In an interpretive account both reality and knowledge making are considered social products (Orlikowski & Baroudi)

Researchers should think about their research question and elaborate on their reason to choose their ontological stance. In my study, I believed that innovation development, leadership of change, and organisations, cannot exist independently of us. These social processes and entities gain their own reality only after we create them and define their

properties. In my view, when something is socially constructed, it is then real. Crotty (1998) describes this type of reality as relational, that is, both realist and subjective (exists only via human interactions) (Orlikowski & Baroudi, 1991).

The relational ontology was also compatible with the lens I chose to study leadership. The traditional studies on leadership of change started with individuals and looked into traits and behaviours of leaders (Bass & Avolio, 1990). Subsequently, researchers considered leaders and followers to constitute reality together (Drath et al., 2008; Hosking, 2007; Ospina & Foldy, 2010). I subscribe to this perspective, more specifically to the relational leadership approach (Fairhurst & Uhl-Bien, 2012; Uhl-Bien, 2006). Using this ontological stance, our understanding of leadership comes from relations between people and is not only in our minds (Uhl-Bien, 2006).

In choosing the CI technique, I considered the appropriateness of this method for capturing relational reality in the context of human interactions (i.e., between me and the participants). I only applied the CI in the stage where I focused on finding important issues in innovation development. For example, issues around adoption of innovation, behavioural change, and leadership were among the main issues found in this stage. In this stage, the reality of the innovation development process was also perceived as relational, meaning that I believed innovation development issues will be found when interviewees are discussing what has happened in the process. Then the interviewee and I may consider those issues as objective realities constructed by us. The CI method is helpful in providing a space for interactions and interpretations. In addition, I will explain that in my modified CI that there is a process of giving controlled feedback (Bacon, Williams, Grealish, & Jamieson, 2015; Bowles, 1999; Kezar & Maxey, 2016; Rowe & Wright, 1999) that provides the constructed realities to the other participants and allows them to make another reality, or complement the properties of the constructed reality.

My research epistemology was also supported by conducting convergent interviews. Choosing a relational view of reality (for both leadership and innovation development), required having an interpretive stance, as this stance allows one to see how people make sense and give meaning to those social processes (Myers, 1997; Myers, 2013). In my study, I wanted to understand how people participate in making sense of (construct) the reality, i.e., social construction of reality (Orlikowski & Baroudi, 1991). Hence, I chose to use interpretive research to focus on these “intersubjective meanings” (Gibbons, 1987, p.3). It means that as I believed innovation development is a social process that exists in our interactions, I needed to see how people make sense of their innovation development process by interpreting what they described. Therefore, my epistemological stance was subjective and meaning-centred to allow me go inside the social context and interpret participants’ relationships. This way of knowledge making was possible by using CI as it allowed me to hear participants’ interpretations of each other’s viewpoints and see how they can converge on the main issues observed in their experience.

My interpretive stance was not purely subjective meaning that the reality was not only in my head (Crotty, 1998). It was something between positivist and subjectivist (Uhl-Bien & Ospina, 2012), that is called constructionist interpretivist (Crotty, 1998). It means that I believe that people or subjects come together and construct an additional reality with their interpretation of a phenomenon, experience, insight, or object. It was also supported by conducting CI that enabled me to co-construct the main concepts with participants.

Now that I have discussed how my philosophical perspective towards how my GT research supports using the CI method, I will explain the characteristics of my research that encourage the use of CI for data collection and analysis in the third stage of my research.

Research Characteristics for Choosing Convergent Interviewing

Another reason I chose CI in the third stage of my GT study lies in the characteristics of the research. The research objective for the third stage of my PhD study was to find the main issues in innovation development within a HIT programme in New Zealand. The issues were planned to be used for further explorations in the last stage (Figure 1), which was the main stage, to answer the overall research question on leadership of HIT innovations. In fact, the third stage was a preliminary data collection and analysis to generate enough probing questions, and to allow a focus on the leadership relationships in this HIT initiative. Therefore, it was best to conduct a smaller series of data collection and analysis to allow the focus of the study to emerge in the last stage, i.e., on the leadership aspect. In addition, doing a PhD study had time limitations that required the careful planning of data collection and analysis methods. Therefore, I had to allocate less time for the third stage for the benefit of the last stage.

Considering the characteristics mentioned (i.e., requiring a smaller and shorter stage of data collection and analysis in the third stage than the last stage), conducting CI seemed to be an appropriate option as it provides an efficient and semi-structured way of conducting in-depth interviews. It is said to be an efficient method in change and development projects similar to my study (Riege & Nair, 2004). Convergent interviewing takes advantage of both unstructured and structured interviews (Dick, 1998). Similar to theoretical sampling in GT, CI starts from broad, open questions and then uses analysed data to find probing questions for the next data collection, i.e., the next interview. This technique increases efficiency and decreases bias (Dick, 1998). Hence, it could be conducted in less time than in-depth interviews while benefiting from the richness of the content.

The last point that supported appropriateness of CI for the third stage of my study is that CI requires a degree of understanding of the context of a study, so that the researcher can select appropriate participants, identify potential issues to discuss, develop suitable opening questions, and build rapport with interviewees (Driedger, 2008). This requirement was fulfilled in my study as I had a limited literature review and two stages of observation and document analysis (see Figure 1), before I started convergent interviewing.

Modified Convergent Interviewing

In this section, I describe how I took advantage of a variation of the convergent interviewing technique to maximise the effectiveness of data collection and analysis in the third stage of the study.

First of all, I tried to find out what analytical approach best matched my theoretical perspective and the data available at that stage. This analytical approach, which is called inferencing, can be different depending on the variation of GT that someone follows. Inferencing is a form of thinking or logical reasoning that helps researchers connect meanings and generate ideas (Reichertz, 2014). Induction, deduction, and abduction are different forms of inferencing. Therefore, as a Grounded Theorist, I needed to clarify this before I started analysing data collected through CI. While elaborating on the inferencing types, I describe my analytical approach, as a Grounded Theorist, and why I chose one of the inferencing types. Next, I explain how I modified CI for the purpose of my research and provide a short guideline for other researchers to follow this method.

In terms of data collection and analysis methods and to explore the social construction of reality, I generally followed Glaser's (1978) approach which reinforces an open-to-emergence procedure. Glaser encourages a purely inductive approach (Cooney, 2010). Induction, or more specifically qualitative inductions, are reasonings that are based on a number of qualitative properties found in data (Reichertz, 2010). These properties observed

can be a clue for existence of other features that help researcher toward a general conclusion. Strauss and Corbin's (1990) approach is more restrictive and focuses on procedures. However, in my PhD research, I have also taken advantage of Strauss & Corbin's approach in data collection and inferencing when it was more appropriate for the purpose of stages.

Some scholars have interpreted Strauss's GT as a deductive way of inferencing. Knowing that deduction happens based on existing rules that are only tested in the data to be verified, I do not believe Strauss's approach is deductive. Hence, I follow Reichertz (2010) in calling it abductive. Abduction means coming to an inference without any logical or probabilistic reason to infer (Reichertz, 2007). This reasoning happens when a researcher provides the best explanation for the existing evidence without being completely sure about its trueness. This process can be described as a best guess approach when there is not enough evidence to support the reasoning (Schwandt, 2014).

As can be seen in Figure 1, I started with a series of observations to build a base understanding of the context. Then, I analysed some of the documents of the programme to know more about the phenomenon. In the third stage, I conducted my modified convergent interviews, using the knowledge gained from previous stages and probing questions found in the observation stage. The concepts emerged from the third stage, in addition to inferences made during observation and document analysis were verified in the last stage, using in-depth interviews.

Based on the data available to me, and the stages of data collection, I took advantage of both abductive and inductive inferencing. During observation and document analysis (the first two stages of data collection), I found abductive inferencing helpful, because generating concepts inductively was not possible due to lack of evidence or instances of data. This lack of evidence was related to the limitations of the study at these two stages (time and the amount of data available). Therefore, the best inferencing possible was to come up with some non-necessary true hypotheses that may be verified during the next stages. In other words, I tried to draw some tentative inferences from incomplete data during my observation and document analysis in the hope that some of them will be verified during interviews. During the next two stages of interviewing, I used induction, as I had enough data and time to find emerging concepts based on their properties. The abductions made during the previous stages could also be verified during the analysis of the interviews. Therefore, during the third stage, I decided to analyse data collected using CI, inductively.

Although the convergent interviewing technique appeared to be appropriate as the main data collection method for the third stage, I found that combining it with the well-known decision-making technique, Delphi (Rowe & Wright, 1999), I could leverage the effectiveness of the data collection and analysis (i.e., theoretical sampling), and increase the possibility of reaching saturation quicker.

The Delphi technique inspired me to create an effective variation of convergent interviews. It is a structured decision-making technique among experts (Bowles, 1999). Similar to convergent interviewing, Delphi is a process of consensus making among key informants where lack of data prevents prediction of a future state (Rowe & Wright, 1999). In this technique, rounds of structured interviews are required until consensus among participants is achieved. In the first round, the interviewer can use open-ended questions to make the base analysis of this iterative process and find issues to be discussed in the next rounds. In the following rounds, controlled feedback of the issues raised will be given to each participant with relevant quantitative data that indicates agreements and disagreements (Bowles, 1999; Rowe & Wright, 1999). The feedback includes a summary of responses to each topic and can accompany statistical information (such as mean/median and standard deviation) to show a participant's answer in respect to the others' answers (Hasson, Keeney, & McKenna, 2000).

I realised combining CI with Delphi can increase efficiency in reaching saturation point. In my study, the reason for conducting convergent interviews was to identify the issues and characteristics (of the innovation) raised by most of the experts, even if they did not agree on reasons, or solutions based on their experience. The original convergent interviewing technique requires conducting a number of interviews with new participants to reach to the convergence point for all the raised issues (Riege & Nair, 2004). To identify this convergence, the researcher needs to analyse participants' data and conceptualise the issues raised, and form abstract categories. The idea of going back to the same participants and giving feedback to them about the other experts' opinions, i.e., the Delphi technique, seemed promising for conducting this stage more efficiently. It could give a chance to the earlier interviewees to change their idea or indicate their opinion about issues raised by others. Therefore, the convergence point could be reached sooner, and a better balance could be seen in the issues discussed by participants.

The ultimate purpose of my research was to build a theory rather than decision-making based on controlled feedback (used in the Delphi technique). Given that, instead of giving statistical feedback to the participants about their opinion and its situation among others (Hasson et al., 2000; Rowe & Wright, 1999), I decided to interview a number of key informants, then go back to some of them and provide a summary of the raised issues (controlled feedback) and ask them to comment about their agreement or disagreement with the new issues. In that case, they had the opportunity to review their answers and elaborate on the emerging concepts or help me add new properties to the concepts. Hence, I decided to modify my CI with the logic of the Delphi approach by providing some feedback to a number of participants and promoting convergence.

It made sense to me to enrich the data gathered from early interviews and add to the balance of the content discussed by doing at least two rounds of interviews with some of the participants (if they were willing). This variation of the convergent interviewing technique helped me perform an effective data collection and analysis stage. It means I was able to generate the concepts required about the innovation development process in a reasonable time to pursue the next stage of theoretical sampling. In the next stage I was able to focus on the leadership relationships in this programme using the emerged issues in the previous stage.

The steps taken in the modified convergent interviewing technique can be summarised as below:

1. Decide about your inferencing type;
2. Acquire preliminary data to get to know the context;
3. Identify your key informants with a range of diversity of knowledge (including different groups of stakeholders where possible);
4. Prepare opening questions (general topics as suggested by Dick, 2014), and probing questions from previous stages (if applicable);
5. Start with the most informed people from the list to find more concepts as early as possible;
6. Conduct one interview (start with open-ended questions and allow participant-driven probing, plus ask probing questions from previous stages where relevant);
7. Analyse the interview (including conceptualisation and constant comparisons of emerging concepts) and find probing questions that are more focused;
8. Conduct the next interview providing controlled feedback from last interviews (a summary of the raised issues), and asking to comment about their agreement or disagreement, in addition to presenting more focused questions (probes);
9. Continue interviews with a number of participants and then do the next round with those willing to participate again;

10. Stop when saturation happens (i.e., if there is no significant new information in the current data analysed, there is no need to continue data collection; Dick, 1998, 2014) and a clear pattern of agreements/disagreements occurs (Riege & Nair, 2004).

To conduct the adaptation of convergent interviews, I started with open questions, as suggested by Dick (2014). Instead of using structured questions, I allowed participants to discuss their viewpoints freely. For instance, I started by asking them to talk about how they got involved with this innovation and their motivation in being part of it (as it was voluntary involvement). To follow the points mentioned by participants, I took note of probes and tried to recognise them if mentioned by others (participant-driven probing) (Kajornboon, 2005; Milne & Oberle, 2005). I also followed the process of convergence by building next interviews based on earlier interviews and asking more focused questions (Dick, 2014). Participants reflected on the raised issues and indicated their agreement or disagreement. In my adaptation, though, apart from using probes and narrowed/focused questions, I reported a summary of other interviewees' opinions to each participant (controlled feedback). Moreover, similar to the original convergent interviewing, I asked for explanations where a participant disagreed with others, rather than only seeking the common issues raised (Dick, 1998, 2014). The emerging issues also needed to be approved by most of them to become part of the theory. Therefore, similar to the constant comparison technique in GT, the concepts needed to be compared against previous data. The end point for the modified CI was a combination of the saturation point defined by Dick (1998) and Riege and Nair (2004). It means I stopped when no significant new information was found (Dick, 1998, 2014) and there was a clear pattern of agreements/disagreements (Riege & Nair, 2004).

I followed the steps provided and found 7 main issues (concepts) in the HIT innovation under study. Among these concepts were adoption and behavioural change, cracks in the innovation, innovation properties, and leadership. This modified CI enabled me to do the third stage using 11 interviews conducted with eight participants. All the concepts were validated in the stage that followed, using in-depth interviews. However, the categorisation of the concepts was modified as I gained more insight. For instance, cracks in the innovation was referring to issues such as variety of assumptions about the change that affected the innovation development process. This concept was then validated in the last stage as belonging to the "conflicts of health system" category.

Discussion

Researchers can benefit from reviewing clear explanations of methods and methodologies used by the others. However, there appears to be a neglect among Grounded Theorists to explicitly demonstrate the theoretical and methodological grounding of their research; it is not possible to recognise these critical points by reading their manuscripts. They need to find their own theoretical perspective, as GT can be used with a range of philosophical assumptions (Urquhart, 2013). Using an adaptation of GT requires that the core principles or techniques in it remain consistent, that is, theoretical sampling, detailed coding, constant comparison, and theoretical sensitivity (Richards & Morse, 2007).

Moreover, Glaser and Strauss (1967) have encouraged researchers to develop their own research design and methods for theory building, considering limitations and conditions specific to each research field and the question at hand. Their philosophy is to allow researchers to be creative and open in their research design, and to develop an appropriate model for research purposes. To do this, the researcher may take advantage of appropriate methods that

best serve the question at hand, and better generate probing questions for the next steps (theoretical sampling).

What I did in this paper was explain the modified CI technique that I used in data collection and analysis, in addition to referring to my theoretical assumptions underpinning this study in the hope that it helps others justify and build their own research design. In similar research conditions, where it is required to do a quick and effective step of in-depth interviews to find out key informants' ideas on an under-researched phenomenon, the modified CI will be applicable. The variation of CI is useful in interpretive studies, where giving feedback to participants is viable to see how they make sense of their ideas, and thereafter to co-create some objectified concepts as a result of this interpretation of reality.

For GT researchers who want to collect as much data as possible using different methods, but in a limited time, this CI can be a middle stage where they use their preliminary knowledge of the phenomenon and its context and build an enriched conceptualisation of the main issues. This conceptualisation is not the ultimate theory building stage of a GT study; the researcher should use the concepts emerging for further validation within the next data collection and analysis step. The validated concepts will be in the emergent theory if there are enough incidents of them in data. Moreover, in case the researcher aims to do a thematic analysis (Ryan & Bernard, 2000) rather than build a theory, this method can be applied, but perhaps with more participants or rounds of interviews to make sure enough depth is achieved to cover the main categories and their properties.

Conclusion

In this article, I have responded to the need for paying respect to Grounded Theory by making explicit a description of the GT theoretical framework and the adaptation of convergent interviewing technique that I used in my research. The results can be used by other researchers in different contexts especially when there is a need for quick and efficient way of determining main issues by interviewing key informants. This method enables researchers to converge on the main concepts even in the case of a short list of key informant availability. The modified CI process is provided in detail to help other grounded theorists take advantage of this efficient way of finding important issues by interviewing a limited number of key informants, and build a base of understanding for the rest of their research. Grounded Theory was an originally open rather than restrictive methodology and continues to find its place in different fields. Therefore, encouraging and helping new researchers to take advantage of this methodology will not easily happen if we do not provide enough examples of the existing studies and adaptations applied according to the research purposes.

My study benefited from the modified convergent interviewing technique to maximise the diversity of data collected (adding the third stage of data collections), while affected by the time constraints of my PhD study, resulting in clear theoretical concepts (e.g., cracks in the innovation) toward building a theory in leadership of HIT innovations. The results of applying this method were validated in the subsequent stage of data collection and analysis indicating the usefulness of the approach. It is hoped that the justifications and reasoning provided regarding the implication considerations help other researchers to build their own version of GT study that best matches their research question and data available to them.

References

- Bacon, R., Williams, L., Grealish, L., & Jamieson, M. (2015). Credible and defensible assessment of entry-level clinical competence: Insights from a modified Delphi study. *Focus on Health Professional Education: A Multi-Disciplinary Journal*, 16(3), 57-72.
- Balasubramanian, S., & Spurgeon, P. (2012). Integrated care for chronic pain management in the National Health Service: Barriers and possibilities for service development— A survey. *The International Journal of Clinical Leadership*, 17(4), 201-210.
- Bass, B. M., & Avolio, B. J. (1990). *Transformational leadership development: Manual for the multifactor leadership questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Bowles, N. (1999). The Delphi technique. *Nursing Standard*, 13(45), 32-36. doi: 10.7748/ns1999.07.13.45.32.c2650
- Bryant, A., & Charmaz, K. (Eds.). (2007). *The Sage handbook of grounded theory*. London, UK: Sage.
- Charmaz, K. (2002). Qualitative interviewing and grounded theory analysis. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of interview research: Context and method* (pp. 675-694). Thousand Oaks, CA: Sage.
- Charmaz, K. (2008). Constructionism and the grounded theory method. In J. A. Holstein & J. Gubrium (Eds.), *Handbook of constructionist research* (pp. 397-412). New York, NY: The Guilford Press.
- Charmaz, K. (2013). Grounded theory methods in social justice research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (4th ed., pp. 291-336). Thousand Oaks, CA: Sage.
- Cooney, A. (2010). Choosing between Glaser and Strauss: An example. *Nurse Researcher*, 17(4), 18-28.
- Cresswell, K. M., Bates, D. W., & Sheikh, A. (2017). Ten key considerations for the successful optimization of large-scale health information technology. *Journal of American Medical Informatics Association*, 24(1), 182-187.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London, UK: Sage.
- Dick, B. (1998). *Convergent interviewing: a technique for qualitative data collection*. Retrieved from <http://www.aral.com.au/resources/iview.html>
- Dick, B. (2014). *Convergent interviewing*. Retrieved from <http://www.aral.com.au/resources/coin.pdf>
- Drath, W. H., McCauley, C. D., Palus, C. J., Van Velsor, E., O' Connor, P. M., & McGuire, J. B. (2008). Direction, alignment, commitment: Toward a more integrative ontology of leadership. *The Leadership Quarterly*, 19(6), 635-653.
- Driedger, S. M. (2008). Convergent interviewing. In L. M. Given (Ed.), *The Sage encyclopedia of qualitative research methods* (pp. 125-127). Thousand Oaks, CA: Sage.
- Fairhurst, G. T., & Uhl-Bien, M. (2012). Organizational discourse analysis (ODA): Examining leadership as a relational process. *The Leadership Quarterly*, 23(6), 1043-1062. doi:10.1016/j.leaqua.2012.10.005
- Fickenscher, K., & Bakerman, M. (2011). Leadership and governance for IT projects. *Physician Executive*, 37(1), 72.
- Geertz, C. (1994). Thick description: Toward an interpretive theory of culture. In M. Martin, & L. C. McIntyre (Eds.), *Readings in the philosophy of social science* (pp. 213-231). Cambridge, MA: The MIT press.

- Gibbons, M. T. (1987). Introduction: The politics of interpretation. In M. T. Gibbons (Ed.), *Interpreting politics* (pp. 1-31). New York, NY: New York University Press.
- Glaser, B. G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.
- Glaser, B. G. (1992). *Basics of grounded theory analysis: Emergence vs forcing*. Mill Valley, CA: Sociology Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.
- Goulding, C. (2002). *Grounded theory: A practical guide for management, business and market researchers*. London, UK: Sage.
- Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., . . . Shaw, S. (2017). Beyond adoption: A new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies. *Journal of Medical Internet Research, 19*(11), e367.
- Guba, E. G. (1990). *The paradigm dialog*. Newbury Park, CA: Sage.
- Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015.
- Hosking, D. M. (2007). Not leaders, not followers: A post-modern discourse of leadership processes. In B. Shamir, R. Pillai, M. Bligh, & M. Uhl-Bien (Eds.), *Follower-centred perspectives on leadership: A tribute to the memory of James R. Meindl* (pp. 243-263). Charlotte, NC: Information Age Publishing.
- Ingebrigtsen, T., Georgiou, A., Clay-Williams, R., Magrabi, F., Hordern, A., Prgomet, M., . . . Braithwaite, J. (2014). The impact of clinical leadership on health information technology adoption: Systematic review. *International Journal of Medical Informatics, 83*(6), 393-405.
- Kajornboon, A. B. (2005). Using interviews as research instruments. *E-Journal for Research Teachers, 2*(1), 1-9.
- Kezar, A., & Maxey, D. (2016). The Delphi technique: An untapped approach of participatory research. *International Journal of Social Research Methodology, 19*(2), 143-160. doi:10.1080/13645579.2014.936737
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Malloch, K. (2010). Innovation leadership: New perspectives for new work. *Nursing Clinics of North America, 45*(1), 1-9.
- Markey, K., Tilki, M., & Taylor, G. (2014). Reflecting on the challenges of choosing and using a grounded theory approach. *Nurse Researcher, 22*(2), 16-22. doi:10.7748/nr.22.2.16.e1272
- Marks, M. R., Huws, J. C., & Whitehead, L. (2016). Working with uncertainty: A grounded theory study of health-care professionals' experiences of working with children and adolescents with chronic fatigue syndrome. *Journal of Health Psychology, 21*(11), 2658-2667. doi:10.1177/1359105315583367
- Melia, K. M. (1996). Rediscovering Glaser. *Qualitative Health Research, 6*(3), 368-378.
- Milne, J., & Oberle, K. (2005). Enhancing rigor in qualitative description. *Journal of Wound, Ostomy and Continence Nursing, 32*(6), 413-420.
- Morgan, G. (1980). Paradigms, metaphors, and puzzle solving in organization theory. *Administrative Science Quarterly, 25*(4), 605-622.
- Myers, M. D. (1997). Qualitative research in information systems. *Management Information Systems Quarterly, 21*, 241-242.
- Myers, M. D. (2013). *Qualitative research in business and management* (2nd ed.). London, UK: Sage.
- Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Information Systems Research, 2*(1), 1-28.

- Ospina, S., & Foldy, E. (2010). Building bridges from the margins: The work of leadership in social change organizations. *The Leadership Quarterly*, 21(2), 292-307.
- Rao, S., & Perry, C. (2003). Convergent interviewing to build a theory in under-researched areas: Principles and an example investigation of Internet usage in inter-firm relationships. *Qualitative Market Research: An International Journal*, 6(4), 236-247.
- Redman-MacLaren, M. (2015). Transformational grounded theory: Theory, voice, and action. *International Journal of Qualitative Methods*, 14(3), 1-12.
- Reichertz, J. (2007). Abduction: The logic of discovery of grounded theory. In A. Bryant, & K. Charmaz (Eds.), *The Sage handbook of grounded theory* (pp. 214-228). London, UK: Sage.
- Reichertz, J. (2010). Abduction: The logic of discovery of grounded theory. *Forum Qualitative Sozialforschung /Forum: Qualitative Social Research*, 11(1). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1412>
- Reichertz, J. (2014). Induction, deduction, abduction. In U. Flick (Ed.), *The Sage handbook of qualitative data analysis* (pp. 123-136). London, UK: Sage.
- Richards, L., & Morse, J. M. (2007). *Readme first for a user's guide to qualitative methods*. Thousand Oaks, CA: Sage.
- Riege, A. M., & Nair, G. (2004). The diversity of convergent interviewing: applications for early researchers and postgraduate students. *The Marketing Review*, 4(1), 73-85.
- Rowe, G., & Wright, G. (1999). The Delphi technique as a forecasting tool: Issues and analysis. *International Journal of Forecasting*, 15, 353-375.
- Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 769-802) Thousand Oaks, CA: Sage.
- Schwandt, T. A. (2014). *The SAGE dictionary of qualitative inquiry* (3rd ed.). Thousand Oaks, CA: Sage.
- Sheikh, A., Sood, H. S., & Bates, D. W. (2015). Leveraging health information technology to achieve the “triple aim” of healthcare reform. *Journal of American Medical Informatics Association*, 22, 849-856. doi:10.1093/jamia/ocv022
- Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.
- Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Strauss, A. L., & Corbin, J. M. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal*, 49(4), 633-642.
- Szydlowski, S., & Smith, C. (2009). Perspectives from nurse leaders and chief information officers on health information technology implementation. *Hospital Topics*, 87(1), 3-9.
- Tang, H. (2017). Effects of leadership behavior on knowledge management and organization innovation in medicine and health sciences. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(8), 5425-5433.
- Uhl-Bien, M., & Ospina, S. (2012). *Advancing relational leadership research: A dialogue among perspectives*. Charlotte, NC: Information Age.
- Uhl-Bien, M. (2006). Relational leadership theory: Exploring the social processes of leadership and organizing. *The Leadership Quarterly*, 17(6), 654-676. doi:10.1016/j.leaqua.2006.10.007
- Urquhart, C. (2013). *Grounded theory for qualitative research: A practical guide*. London, UK: Sage.

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