

Using Sensemaking as a Diagnostic Tool in the Analysis of Qualitative Data

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Analysis of qualitative data is a process which novice researchers must learn as they progress, and which experienced researchers must negotiate and adapt to suit the study they are undertaking and the data they are collected. The purpose of this paper is to demonstrate how researchers can use sensemaking to diagnose and explain phenomena in ordinary situations, and how it can be added as an analysis and interpretation tool in their toolkit. This paper describes the use of sensemaking employed as a tool for diagnosis of the processes which take place when a manager encounters perceived declining performance in an older volunteer. It outlines how the “What is going on here?” reaction to surprise or interruption of her analysis stimulated researcher sensemaking, as patterns detected among anomalous data led to deeper data interpretation, and an important finding relating to the phenomenon under investigation. Evidence is presented which demonstrates the value of employing sensemaking as a diagnostic tool in qualitative analysis and interpretation. Keywords: Sensemaking, Data analysis, Manager Sensemaking, Volunteers, Ageing

Introduction

Analysis of qualitative data is a process which novice researchers must learn as they progress, and which experienced researchers must negotiate and adapt to suit the study they are undertaking and the data as they are collected. This process is akin to viewing through a kaleidoscope (Dye, Shatz, Rosenberg, & Coleman, 2000) or navigating a maze, to the extent that researchers may reach a point where they think that data gathering is more fun than analysis (Cole 1994). As masses of data can be gathered over the course of a study, Silverman (2010) advocates an early start to the analysis process to avoid the situation where the researcher is always in catch up mode. Moving beyond such steps as coding and thematic analysis, researchers must determine how best to interpret the data they are examining, and adopt an approach which suits the phenomenon under investigation, the paradigm in which they are operating, their own personal styles as researchers, and the data with which they are working.

Sensemaking has been used by researchers (e.g., Weick, 1993, in his exploration of the Mann Gulch disaster) to explore and explain the behaviour of individuals and groups in complex or unusual situations. Chenail and Maione (1997) described sensemaking as a valuable lens for researching clinicians who must simultaneously make sense of their experience, make sense of the literature of others and make sense of data collected in their current research. More recently, Browning and McNamee (2012) used it to explore leaders in temporary situations, and Rouleau and Balogun (2011) to understand middle level managers in the context of strategic change. What seems to be common to these is the consideration of sensemaking in unusual or “organisational shock” situations (Weick, 1995, p. 85). The

purpose of this paper is to demonstrate how sensemaking can be used by researchers to diagnose and explain phenomena in ordinary situations, and how qualitative researchers can use it as an analysis and interpretation tool in their toolkit.

The paper commences with an overview of sensemaking, followed by a brief summary of a study undertaken by one of the authors which led to the consideration of the value of sensemaking as a diagnostic tool for qualitative researchers. It then goes on to draw on that study to offer a view of how it was used, and what it helped to yield in terms of key findings. This is followed by a discussion of the way sensemaking contributed to data analysis, and consideration of the implications for future research. It concludes with the assertion that sensemaking is a valuable tool in qualitative research that can expand the researcher's analytical options.

Sensemaking

Sensemaking (Weick, 1993, 1995) describes the processes by which individuals interpret and reinterpret events which take place, and put them in a context to make sense of what is happening. This process occurs at the sub-conscious and conscious levels. At the sub-conscious level, it is an instantaneous process, enabling individuals to cope with equivocal situations and contexts (Craig-Lees, 2001). In organising their understanding of what is happening, individuals create plausible, but not necessarily correct, explanations, which lead to action. At the sub-conscious level, sensemaking occurs in the background, and is usually recognised in hindsight due to feelings of surprise (Pezzo, 2003), where judgments of 'should have known better' or 'could not have known better' are made. Hindsight bias arises as a result of efforts to make causal attributions or create plausible explanations for undesired events (Roese, 1999). Pezzo suggests that surprise triggers conscious sensemaking. This is consistent with Weick (1995) who identifies three elements which trigger conscious sensemaking – a frame, an extracted cue, and a connection.

Frames (or frames of reference) are created by past moments of socialisation where the sensemaker finds out what to expect. Social constructionists, influenced by Berger and Luckman (1966), argue that this socialisation influences thinking and behaviour and creates a shared reality. These frames provide and shape both perspective and data (Klein, Moon, & Hoffman, 2006; Senge, Kleiner, Roberts, Ross, & Smith, 1994).

The extracted cue is the present moment of experience where the expected does not happen, or the unexpected happens (e.g., surprise), or at least the individual believes (or senses) this to be the case. The collision of the frame and the cue - the connection - interrupts the normal sub-conscious flow of sensemaking, causing the individual to focus on the interruption. This prompts the individual to ask "What is going on here?" and "What action is needed?" This is the heightened level (or incipient state) of conscious sensemaking (Weick, Sutcliffe, & Obstfeld, 2005, p. 411). Increasingly, sensemaking is seen to be a vital precursor to achieving situation awareness prior to decision making, particularly in dynamic environments (Ancona, Kochan, Scully, Van Maanen, & Westney, 2005; Ntuen, 2009). In this vein, sensemaking is defined by Klein, Moon, and Hoffman (2006) as "a motivated, continuous effort to understand connections (among/between people, places, and events) in order to anticipate their trajectories and act effectively" (p. 71, text in brackets in original). This suggests that trajectories are inferred, and so may in fact be flawed. In the study referenced in this paper, it was managerial social construction of age that seemed to affect the management of volunteer workers. Understanding how the researcher came to this finding requires a brief overview of the study and its processes.

The research which spawned this discussion was conducted by the first author. Her scholarly investigations of volunteering have been consistent over ten years, with the focus

being increasingly on difficult aspects of volunteer management. The issue of performance in older volunteers as a matter of concern for managers arose from a previous study on the management of poor volunteer performance (Paull, 2000). Managers in that study expressed a view that management of older volunteers was somehow different from management of younger volunteers, and indicated that, as managers, they felt constrained and unable to help when an older volunteer's performance began to decline as a result of ageing (Paull, 2000). The first author's experience led her to the view that qualitative methods of research provided more opportunities to explore difficulties faced by managers and volunteers in complex situations.

The other two authors came to this paper with different perspectives. One of the co-authors brought an interest and understanding in human resource management along with a more quantitative orientation to research, while the other contributed depth of understanding about the sensemaking literature, and about naturalistic decision-making. Discussion of how sensemaking had been used as a diagnostic tool became a shared interest, which led to this attempt to capture and understand the processes involved and the outcomes reached.

The Study

The study referenced in this article developed out of research suggesting that management of older volunteers was different from management of younger volunteers (Paull, 2000). The research was undertaken to investigate what happens when a manager of volunteers considers that the performance of an individual volunteer is declining as a result of ageing (hereafter the older volunteers study; Paull, 2007). It is useful to provide a brief overview of the older volunteers study to offer some context to this discussion of the employment of sensemaking in the analysis process.

The research was conducted within an interpretivist framework and relied on a modified abductive approach similar to grounded theory for the qualitative component of this two-phase mixed methods study. Ethics committee approval from the university and board approval from participating organisations was obtained before the study was conducted.

In the first phase, survey data were collected from samples of two populations: managers of volunteers, and older people (over 50 years of age as defined by one of the agencies whose role was to promote positive ageing). These data provided contextual information for the development of the in-depth, and more central, qualitative phase of the study. The discussion here relates to this second phase, which involved six organisations.

I (first author) employed a purposive theoretical sampling process to identify and involve the six organisations. In each participant organisation, I conducted an interview with the manager of volunteers, and held a discussion with a group of volunteers. I undertook data collection and analysis as one iterative process, identifying and exploring key themes as data were collected. This thematic analysis identified a range of recurring patterns and themes which I needed to consider at a higher level.

Grounded theory is an evolving method, but the "use of essential grounded theory methods results in the development of concepts that are initially low level and subsequently developed to a higher level as ... analysis progresses" (Birks & Mills, 2011, p. 91). Key to the grounded theory approach is the idea that it is iterative; data collection and analysis occur at the same time in a consistent and repetitive process. It is the constant comparison of data with data and then codes with codes and categories with categories which leads to theory generation from the ground up; "typically iterative, cyclical and nonlinear" (Gioia & Pitre, 1990, p. 588). In this way a process of induction and abduction produces new theories (Ezzy 2002), or new thinking, about the phenomenon under investigation. At the lower level the analysis is largely thematic, but at the next level the researcher must assign meaning, and

form higher order general interpretations (Locke, 2001). In a modified abductive approach, the like elements, which form patterns in the data, are set aside, while anomalous data are clustered and re-examined with a view to trying to explain or make sense of the anomalies.

At first, it appeared that, based on the managers' views, older volunteers indeed needed to be managed differently from younger volunteers, specifically due to cognitive and physical factors leading to performance decline. There was a third category, *behavioural change*, applied by the researcher during this initial coding. At this point, the researcher could have accepted this thinking and commenced analysis of the strategies managers employed to manage each of the types of change in performance. In keeping with the research approach employed, further examination of the evidence highlighted some contradictions and apparent anomalies which could have been set aside, or subsumed under their original category of behavioural change (King & Horrocks, 2010). This was unsatisfactory as it was puzzling and, for want of a better term, annoying to the researcher. Researcher contemplation of these data (a sensemaking reaction in itself) led to reflection on the value of digging deeper to understand the reason for the perceived difference between younger and older volunteers that interrupted the analysis. It was this reflection by the researcher that led to the decision to employ sensemaking as a diagnostic tool in a conscious examination of the sensemaking of the participants. The manner and style of the application of the tool is discussed below along with further explanation of the data in the older volunteers study.

Sensemaking as a Diagnostic Tool

For the managers in the older volunteers study, management of performance was seen as a crucial part of their roles and the difficulties they perceived in managing older volunteers was an area of concern to them. For the researcher, the nature of the interruption was different.

Thematic analysis led to identification of a range of themes, including types of perceived performance decline in older volunteers reported by managers and volunteers. Performance decline was attributed by managers to physical and cognitive changes associated with ageing. An example of observing a physical change was a manager (or the volunteer or peer) noticing that a volunteer was less able to lift heavy boxes, or was less steady climbing a ladder than he or she had been previously. In the case of a cognitive changes, examples included forgetting to turn up for a rostered duty, reverting to an old way of completing a task without being aware of this error, or taking a long time to learn a new skill when this had not previously been a problem for the volunteer. Volunteers responded to these changes with actions including withdrawing from volunteer activity, asking for reassignment to new or easier tasks, reorganising duties or counselling. At times, volunteers did not respond to, or appeared to be unaware of the changes in their behaviour. It appeared at this point that many of the examples provided by managers and volunteers were physical or cognitive changes, and were apparently associated with ageing; this was consistent with the extant literature on ageing and performance (e.g., Cuddy, Norton, & Fiske, 2005; Sterns, Sterns, & Hollis, 1996).

Some patterns evident in the data, however, were inconsistent with either the physical or cognitive changes already identified. The researcher developed a third category tentatively referred to as *behavioural*, a term applied based on the descriptions by managers and volunteers. Some behavioural incidents related by managers and volunteers as evidence of performance decline appeared to the researcher to be simple misbehaviour; such as breach of confidentiality or intransigence in the face of change. The manager responses to older volunteer misbehaviour were not in keeping with their responses to volunteers they categorised as younger, such as counselling or disciplinary action. Instead, manager

sensemaking appeared to associate these behaviours with ageing, causing them anxiety about managing perceived declining performance due to sensitivities about age.

Although saturation had been reached with respect to evidence of changes in performance associated with declining physical and cognitive capabilities, there was a need to decrypt the category coded as behavioural change. It was apparent that in order to diagnose the influences on managerial behaviour it was necessary to re-examine the data. As mentioned earlier, one of the reasons for exploring management of older volunteers was to investigate the claim that managing older volunteers was somehow different (Paull, 2000, 2007). It was also possible therefore, that this difference might be due, in part, to the view of some managers that ageing was the explanation for the situations they encountered. This line of thinking came, in effect, from researcher sensemaking of manager sensemaking. I, first author, noticed the anomalies in the data, - an interruption - asked “What is going on here?” and had to determine “What action is needed?”

In the vein of “how do I know what I think until I see what I say” (Weick, 1995. p. 12), sensemaking became an instrument to apply to the data gathered from the managers. Researcher analysis (sensemaking as an analytical tool) of what managers were doing, and their explanations of what was happening, was compared with an analysis of the sense managers appeared to be making when they experienced what they perceived to be declining performance in a volunteer they considered older even when the changed performance was not necessarily a product of ageing.

I reconsidered the stories told by managers about declining performance in older volunteers, and the stories told by volunteers about manager responses. What managers cited as evidence of declining performance, which had been categorised as behavioural, were re-examined and weighed against the managers’ explanations of their dilemma and the decisions they took in response. What emerged was my understanding of the sensemaking of the manager, including the context of their sensemaking, their training and support, and their attributions of the causes of performance change. Application of sensemaking as a tool constituted several steps which are set out in Table 1 below:

Table 1: Researcher Sensemaking of Manager Sensemaking: Dealing with Anomalous Data

Forming a Diagnosis	Step	Example
Decision point – do I need to employ this tool?	Is there a group/theme or set of data which is still not fitting the analysis as it currently stands? Do I need to do something with it? Or can I set it aside as unimportant or an anomaly to be noted?	Two themes have been identified which are fairly clear in the data. Clusters of anomalous data remain. The loose label is <i>behavioural change</i> .
Separate the anomalous data	Search for all the data pertaining to the element/theme/idea or issue which does not fit dominant themes	What are the things which are identified by managers and volunteers as being “declining performance due to age” which do not fit “cognitive” or “physical”? Which of the stories related by managers are the ones which do not seem to fit and are puzzling or anomalous because

		they are not clearly associated with evidence of physical or cognitive decline?
Analyse the anomalous data to create the story	Look for evidence/context/symptoms and interpretations to explain the anomalies; look at things like grounded in identity construction, plausibility, frame (See Weick, 1995, Ch. 2).	Look at social aspect and make comparisons with other themes, what is different? Look at other situations for consistency (e.g., management of younger volunteers).
Examine the explanations of “What’s going on here?”	What are the common elements of the explanations which do not seem to fit?	What do managers say and do? What do volunteers say managers say and do?
Look at the action or inaction which resulted from sensemaking (i.e., look at the evidence of the response to “What action is needed?” and “How do I see what I think, until I see what I say?”)	What are the common elements of the action or inaction, and the explanation for these?	What decision did the manager make about action, and how did managers explain it?
Identify the elements of the context which might be contributing to the puzzling aspects of the phenomenon. Seek to understand the shared reality.	How do these common elements fit into the context in which they are happening?	What are the contextual factors across those same explanations and stories as told by the managers? The contextual factor which kept emerging was the reference by the manager to the age of the volunteer.

Examining the data led me (first author) to conclude that manager sensemaking of declining performance appeared to involve an assessment which included the age of the volunteer. Older volunteers are considered by managers to be an invaluable resource, bringing with them a wealth of knowledge and experience, and more importantly, time. Managers of volunteers are often very aware of the value of volunteers to the organisation. The shared social construction of age, however, brings with it certain understandings and sensitivities about the ageing process including awareness of the possibilities of declining capabilities.

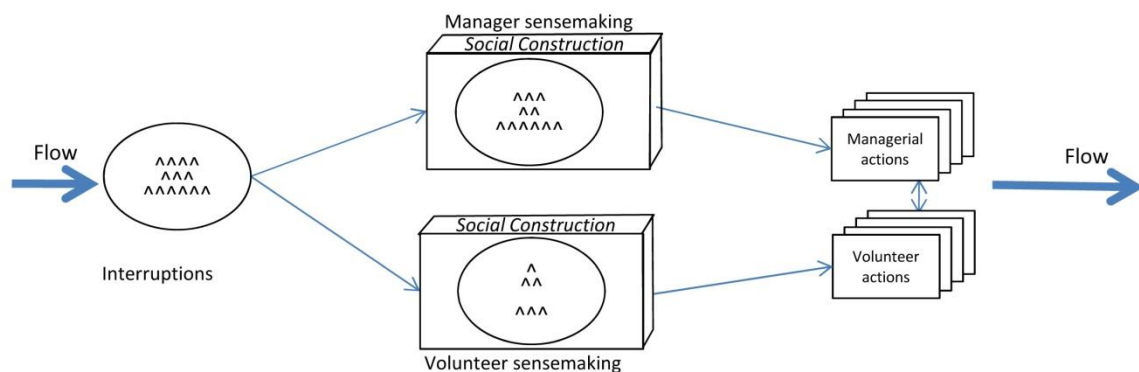
Manager sensemaking takes place in the context of managers’ own experiences, reflects their particular knowledge, and may also reflect organisational culture and values. In this context (or frame) a manager of volunteers may conclude, rightly or wrongly, that a change in performance is age-related. The manager is then likely to experience both cognitive and affective responses, which can paralyse the “What action is needed?” stage of sensemaking. The anxiety experienced by managers when they need to manage the performance of any volunteers, often an uncomfortable experience, may be compounded if the manager attributes the changed behaviour to age-related diminished cognitive or physical capacity. The puzzle in this study of older volunteers was that the behaviours reported as examples of decline due to age were not necessarily age-related (Paull, 2007).

The “aha! moment,” showing the value of sensemaking as a diagnostic tool, came when the explanation for managers treating older volunteers differently was suddenly evident

as the answer to a research question advanced in the Paull (2000) study. One of the purposes for exploring the management of older volunteers in the 2007 study was the managers' view, which had emerged in the 2000 study that managing older volunteers was somehow different from managing younger volunteers. The data in the 2007 study showed that there was an awareness of the ageing process which appeared to colour managerial thinking. It was when managers were trying to make sense of performance problems that the social construction of age seemed to play a role. Heightened awareness about the value of older volunteers and the possibility of age contributing to declining performance, seemed to influence their sensemaking. So, in looking to explain older volunteers being perceived as somehow different, I (first author) discovered something in manager sensemaking: their social construction of age influenced their perception of performance.

In looking at the behaviour of individuals reported in the older volunteers study, if the scenario did not have age attached to it, or if the age which was attached was that of a younger volunteer, the manager appeared to adopt an approach different from their approach to the same situation involving an older volunteer. Confidentiality issues, for example, such as the volunteer talking about client business without the client's permission or about internal organisation matters to people outside the organisation, seemed to be treated differently depending on whether the volunteer was younger or older. A manager reacted with puzzlement that an older volunteer did not recognise this breach of confidentiality. That puzzlement fused with issues around respect for elders, length of service in the organisation, and taboos about discussing cognitive decline and dementia. The manager, in determining "What is going on here?" appeared to be adding age into the evaluation of the situation, influencing actions. In some cases managers identified that they worked around the volunteer to accommodate what they saw as a product of age, rather than a deliberate act. Managers also indicated that they experienced a level of anxiety which at times paralysed them or caused them to delay action. Figure 1 depicts manager sensemaking alongside volunteer sensemaking showing the process at that level.

Figure 1. Manager and Volunteer Sensemaking in Older Volunteer Study.



Of importance to this discussion are the next two levels up which show firstly the thematic analysis I (first author) conducted, and then secondly the sensemaking I applied to the manager sensemaking. Figure 2 depicts these processes.

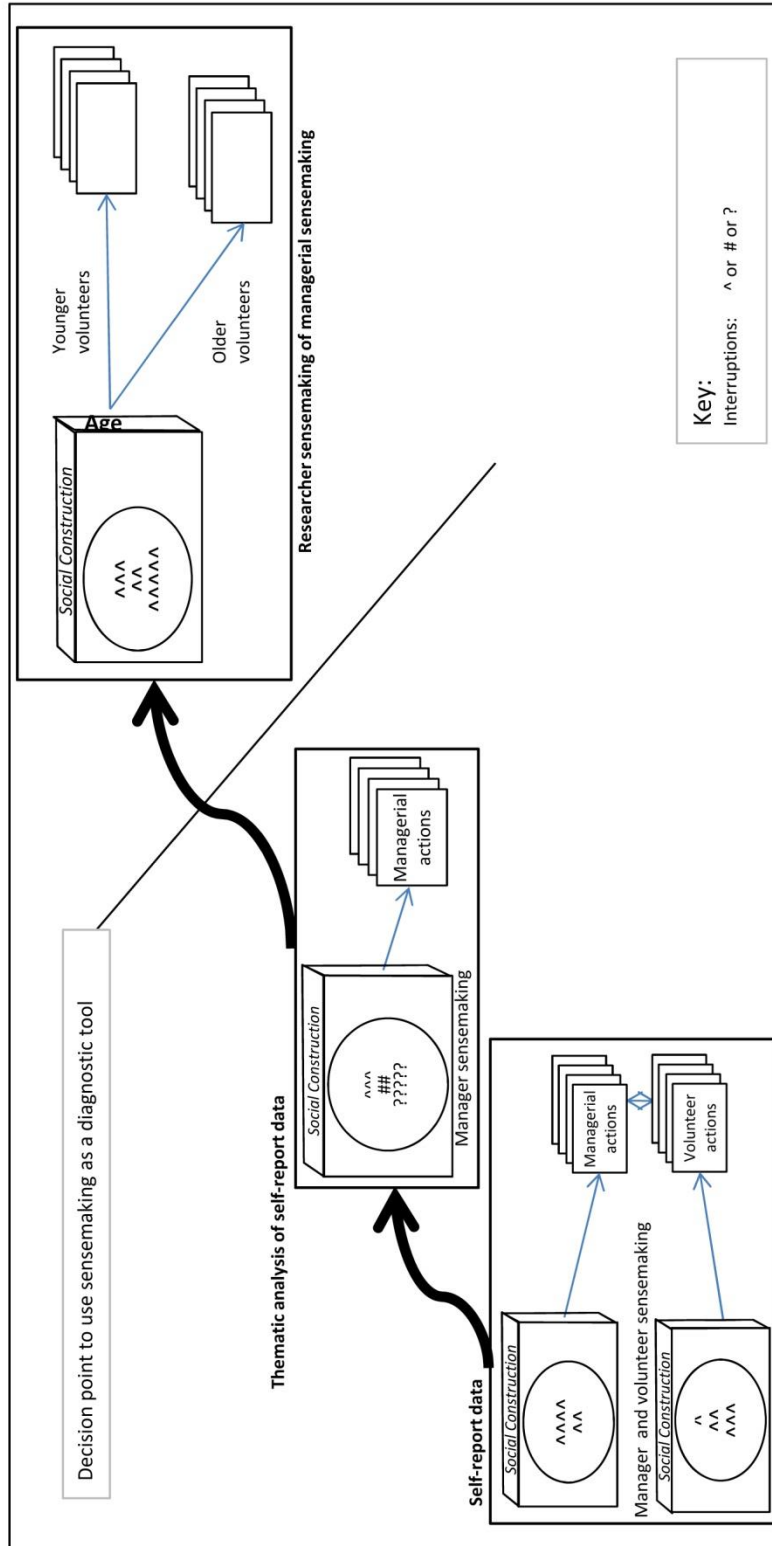


Figure 2. Researcher sensemaking in older volunteer study.

When qualitative data are analysed, participant sensemaking may be useful to explain some of the responses, whether sensemaking is related to social construction of aging, as in this study, or other social constructions or cultural mores. Qualitative research in the interpretive paradigm has at its core the exploration of the experiences of individuals, in particular their interpretation of the world, the sense they make of what is happening and how this influences their actions. In the older volunteer study, the active employment of sensemaking, as explained by Weick (1995), as a tool to undertake this task provided the researcher with a systematic tool for examining manager sensemaking. In effect, identifying my own (first author's) interruption (researcher sensemaking) of my analysis of the "What is going on here" and the "What action is needed" stages of manager sensemaking in the context in which it occurred, led to examination of the data in a particular way. This particularised approach led to researcher sensemaking of manager sensemaking, that is, interpretation and action, consistent with the investigation of sensemaking processes in other settings (e.g., Browning & McNamee, 2012; Helms Mills, Thurlow & Mills, 2010). One difference is that usually sensemaking processes are employed when an event or events have "disrupted the existing organisational routines" (Helms Mills, Thurlow & Mills, 2010, p. 191). The evidence in this study is that managers are confronted with these situations on a daily basis, so it is not a "break" or "shock" (Weick, 1995, p. 85) in the larger sense of some of the other phenomena investigated by employing sensemaking. Choosing to apply sensemaking in this context represented a choice by the researcher to apply a diagnostic tool to facilitate data interpretation.

What I (first author) realised through interpreting data in the older volunteers study was that research participants (managers of volunteers) could be taking mistaken actions on a regular basis because their sensemaking of the situations they encountered, was, in part, based on flawed assumptions. In practical terms, this knowledge can help participants recognise and allow for this potential bias in deciding how best to respond to situations they encounter. Participants may then consider other causes and address their situation from more considered perspectives.

Implications for Sensemaking as a Diagnostic Tool

Diagnosis of a particular problem or situation employs a range of methods which identify signs and symptoms, and test the possibilities which these signs and symptoms point toward. In the interpretation of data, qualitative researchers commence with coding data and move on to thematic analysis where the data are clustered according to recurring themes and patterns. Once this phase of analysis is complete, researchers seek to interpret the data and build theory based on evidence. In the older volunteers study, I (first author) used the emergent understanding of dual levels of sensemaking (both the participant managers' sensemaking and my own as researcher) to analyse the emerging patterns in the data. The thematic analysis served to tease out physical, cognitive, and anomalous behavioural changes noted by managers. It was the concept of interruption of analysis, "What is going on here?" and "What action is needed?" that led to my discovery that managers' social constructions may influence their thinking.

The concept of sensemaking (Weick, 1995; Weick et al., 2005) and the social construction of reality (Berger & Luckman, 1966) are perspectives within which data are understood. The value of sensemaking as a diagnostic tool is emphasised by the fact that examining managers' responses to "What is going on here?" brought to the surface an understanding that social construction of age was part of the context. This influenced their "What action is needed?" judgment, because once they had added "ageing" into their interpretation of the situation, their determination of required action changed from that

associated with a younger volunteer to something they reserved for older volunteers. Instead of following the managers into errors or associated with social construction of age, I (first author) moved to a position of awareness of the likely forces at play by sensemaking manager sensemaking. This position of awareness was possible, because, unlike the individual manager or volunteer attempting to make sense of a single situation or event, an accumulation of evidence across a range of settings from the different perspectives of participants, made it possible to separate the anomalous data for reconsideration.

At a practical level, the value of uncovering the role of social construction of age in the evaluation of volunteer performance in manager sensemaking is the possibility of educating managers to a greater level of self-awareness. For researchers, it highlights the importance of applying a tool for diagnosis that considers the potential impact of the context in which the data were collected, achieved by applying sensemaking as a diagnostic tool.

The generation of theory is the process by which data lead to findings which describe and explain phenomena under investigation. Although theory-building can take on many forms, the older volunteers study followed a modified version of the abductive approach (Blaikie, 1993; Ezzy, 2002). In the abductive approach, reality is the world as it is perceived and experienced by individuals who may be considered as insiders. The role of the researcher is to describe and explain the views of the insiders. The researcher is in search of the explicit and tacit knowledge, shared mutual understandings of reality and the insiders' underlying beliefs, assumptions and meanings of their actions. In the older volunteers study, managers' actions, when they believed a volunteer's performance decline was age-related, were examined from volunteer and manager perspectives. This researcher application of sensemaking as a diagnostic tool led to the development of new understanding of the usefulness of sensemaking in analysis.

Conclusion

This paper shows that by examining the data collected using sensemaking, a qualitative researcher can identify participants' contextual frames, even though these frames may lead, on occasion, to mistaken classification. This example demonstrates that sensemaking employed by participants in a study is likely to contribute to the content and verisimilitude of the content of what they report. In the older volunteers study, there was a valuable thread in the data which emerged once managers' sensemaking was considered in the analysis of the data. In addition, applying researcher sensemaking of manager sensemaking enriched the analysis--thematic analysis alone would not have caused the central finding of this research to emerge.

Sensemaking as a diagnostic tool is presented in this paper as an approach to data analysis which aided understanding. Sensemaking was part of the process used by Weick (1993) in his examination of the Mann Gulch disaster where he concluded that sensemaking had contributed to the deaths of a group of firefighters in Montana in 1949. What this paper outlines is how the application of sensemaking, including the "What is going on here?" reaction to surprise or interruption, assisted the researcher to reach a particularly important finding about the phenomena under investigation. The value of sensemaking as a diagnostic tool is therefore evident in this study. This provides qualitative researchers embarking on data analysis and interpretation with an additional tool to consider guiding and enriching their data analysis and enhancing subsequent data interpretation.

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