
Insider Insights

A Practical Iterative Framework for Qualitative Data Analysis

Prachi Srivastava, DPhil,
Assistant Professor,
School of International Development and Global Studies,
University of Ottawa,
Ottawa, Ontario, Canada.

Nick Hopwood, DPhil,
Research Fellow,
Department of Education,
University of Oxford,
Oxford, United Kingdom.

© 2009 Srivastava. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

The role of iteration in qualitative data analysis, not as a repetitive mechanical task but as a reflexive process, is key to sparking insight and developing meaning. In this paper the authors presents a simple framework for qualitative data analysis comprising three iterative questions. The authors developed it to analyze qualitative data and to engage with the process of continuous meaning-making and progressive focusing inherent to analysis processes. They briefly present the framework and locate it within a more general discussion on analytic reflexivity. They then highlight its usefulness, particularly for newer researchers, by showing practical applications of the framework in two very different studies.

Keywords: data analysis, reflexivity

Introduction

Some have depicted qualitative analysis as craftsmanship, others as an art, and still others as a process of detective work (Patton, 2002). In any case, the qualitative data analyst is constantly on the hunt for concepts and themes that, when taken together, will provide the best explanation of “what’s going on” in an inquiry. The process requires a skillful interpretation and handling of the data, and relies on a systematic and rigorous method.

However, the assertion “We have few agreed-on canons for qualitative data analysis, in the sense of shared ground rules for drawing conclusions and verifying their sturdiness” (Miles & Huberman, 1984, p. 16) undoubtedly presents the qualitative researcher with an unwanted realization. Nonetheless, there are many well-known texts outlining general procedures for conducting qualitative data analysis (e.g., Lincoln & Guba, 1985; Miles & Huberman, 1994; Patton, 2002; Strauss & Corbin, 1998). We do not intend to provide an in-depth discussion on existing procedures. Rather, we present practical applications stemming from some of these through a simple iterative framework that was devised (Srivastava, 2005) to engage with the process of continuous meaning-making and progressive focusing inherent to analysis processes.

We believe that the framework is applicable across a range of studies using qualitative methods and would be useful for novice and more experienced researchers alike. However, in this article we hope to speak to newer researchers who might be facing challenges similar to ones we did in the analysis of qualitative data. We discuss why we feel the framework is useful by showing how we used it in two very different studies: a case study on low-fee private schooling in Uttar Pradesh, India (Srivastava, 2006a, 2007, 2008), and a study on the ways a group of 13- and 14-year-old English schoolchildren experience and conceive of geography as a subject (Hopwood, 2006, 2007a, 2007b, 2007c, 2008).

Reflexive analysis and the framework

In its purest form qualitative analysis is led by an inductive approach (see Strauss & Corbin, 1998). Simply put, “Inductive analysis means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior to data collection and analysis” (Patton, 1980, p. 306). From our experience, however, patterns, themes, and categories do not emerge on their own. They are driven by what the inquirer wants to know and how the inquirer interprets what the data are telling her or him according to subscribed theoretical frameworks, subjective perspectives, ontological and epistemological positions, and intuitive field understandings. In short, rather than being an objectivist application of analysis procedures, the process is highly reflexive (Bruce, 2007; Harper, 2003; Mauthner, 2003).

Berkowitz’s (1997) following characterization of qualitative analysis is apt:

a loop-like pattern of multiple rounds of revisiting the data as additional questions emerge, new connections are unearthed, and more complex formulations develop along with a deepening understanding of the material. Qualitative analysis is fundamentally an *iterative* set of processes. (emphasis added)

The role of iteration, not as a repetitive mechanical task but as a deeply reflexive process, is key to sparking insight and developing meaning. Reflexive iteration is at the heart of visiting and revisiting the data and connecting them with emerging insights, progressively leading to refined focus and understandings.

So, how exactly do we do that? Whereas more recent scholarship has taken “a reflexive turn” (Mauthner, 2003, p. 415) on issues related to data collection and fieldwork (e.g., Coffey, 1999; Finlay & Gough, 2003; Hopwood, 2007c; Srivastava, 2006b), discussions on analytic reflexivity are scarce. Perhaps this is because of the difficulties associated with “getting inside one’s head” and effectively communicating highly abstract processes. Patton (2002) has provided a useful set of three categories of reflexive questions for triangulated reflexive inquiry throughout the research process for self-reflexivity (e.g., What do I know? How do I know what I know?), reflexivity about those studied (e.g., How do those studied know what they know?), and reflexivity about the audience (e.g., How do those who receive my findings make sense of what I give them?) (p. 495). In a similar vein, I (Srivastava) devised the following framework comprising three basic questions (Table 1) to provide me with specific reference points to explicitly engage with the data analysis process.

In line with taking an explicitly reflexive approach, it is important to recognize the role of the “I” in each question. Q1 was used to clarify the lenses (i.e., theoretical, subjective, ontological, epistemological, field) through which I viewed the data. Q2 was meant to connect identified subjective lenses with research objectives. Q3 was used to continually refine insights and sharpen the focus for analysis by identifying gaps in my understandings of what was going on in the case. This was so that I could return to the data with a clearer understanding of how to employ them, and begin engaging once again with Q1 of the framework.

Applications of the framework

Application 1: Using the framework for refining focus and making explicit a substantive research question

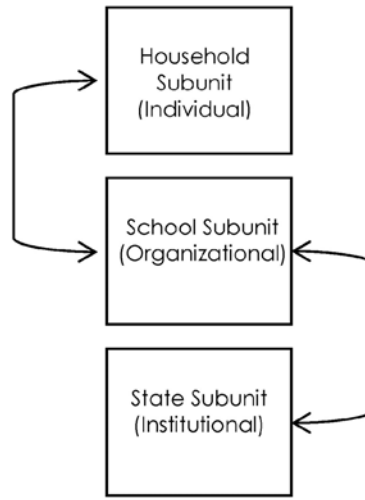
My (Srivastava’s) study was on the phenomenon of low-fee private schooling in Lucknow District, Uttar Pradesh, as a case. It was designed as a single-case embedded case study (Yin, 2002) and, accordingly, had three interrelated analytical levels: (a) the individual, examining school choice processes and household schooling behaviors; (b) the organizational, analyzing the internal administrative structure of low-fee private schools, their internal operations, and household-school relationships; and (c) the institutional, examining the regulatory framework guiding the operation of low-fee private schools and how they mediated or interacted with it to gain advantage. As shown in Figure 1, each analytical level corresponded to a subunit of the case.

I collected data mainly through 100 semistructured and numerous informal interviews with parents, low-fee private school principals/owners, and government officials; nonparticipant observation at schools and government offices; school documents on internal school procedures and policies; and official and unofficial documents relating to state policy and regulations on

Table 1. Questions that served as the framework for the data analysis

Q1: What are the data telling me? (Explicitly engaging with theoretical, subjective, ontological, epistemological, and field understandings)
Q2: What is it I want to know? (According to research objectives, questions, and theoretical points of interest)
Q3: What is the dialectical relationship between what the data are telling me and what I want to know? (Refining the focus and linking back to research questions)

Figure 1. Case subunits, analytical levels, and the interrelated nature of data across subunits



private schooling and primary and secondary education. The research design necessitated that data from one subunit of the case inform analysis at connected subunits. For example, interview data from the school subunit on how principals/owners set internal school policy were also used in the state subunit to determine how schools mediated state-level policies. Table 2 gives an example of how I applied the framework to use data from the school and state subunits in an integrated way for a more complete understanding of how low-fee private schools gained state recognition in practice, which was quite different from the official procedures in principle.

Point of interest: The process whereby low-fee private schools get official recognition

→ Initial point of interest/focus

Q1: What are the data telling me?

Data from the *state subunit*:

What are the interview data from state officials telling me about the recognition process for private schools?

What are the interview data from principal/owners telling me about the recognition process for private schools?

What are observation data from government offices telling me about the recognition process?

Q2: What is it I want to know?

I want to know what the actual process is for schools to get official recognition by the state (i.e., in practice vs. in principle).

→ Refine point of interest/focus

Q3: What is the dialectical relationship between what the data are telling me and what I want to know?

There seems to be a gap/mismatch between what official interview data from officials and principals/owners are telling me and what observation data at government offices are telling me.

Must follow this through and cross-check; need to look at other data

What do informal interview data from owners/principals and observation data from the school subunit tell me about the actual recognition procedure? What do informal interview data from officials at the state subunit tell me?

→ Integrate observation data and informal interview data from the school subunit and informal interview data from the state subunit

→ Re-examine formal interview data in the state subunit

Repeat process again with Q1

Table 2. An example of applying the framework to refine focus and integrate data

The dialectical relationship (Q3) between my initial point of interest on recognition procedures and continuous rounds of integrating school and state data eventually led to a more refined focus on explicitly articulating the discrepancies between official state procedures for recognition and actual practices employed by schools and education officials. These later became major research findings (Srivastava, 2007, 2008).

Engaging with the framework allowed me to better analyze the set of low-fee private schools in my study as a whole group, rather than as fragmented and independent. This allowed me to make explicit a substantive research question at the institutional level that I realized I had implicitly about how the schools interacted (see Table 3). I also refined my initial research questions by further engaging with the data, and with conceptual literature on new institutional theory and literature on private provision of schooling in India.

For me, with each iteration of the framework the interaction between what the “data are telling me” (Q1) and “what I want to know” (Q2) helped me to identify gaps in my understandings of what was going on in the case, and how to proceed. As I outline in the examples above, this often meant using data in a more integrated way and sharpening my focus of inquiry. Q3 alerted me to connect my thinking between the data and my continually refined foci in order to produce a series

Initial Institutional-Level Research Questions

What is the policy framework guiding the operation of low-fee private schools and how do they interact with it?

1. *What is the state policy framework for low-fee private schools?*

- Is it explicit or implicit?
- Is it clear-cut or fraught with interpretation and uneven application? How?

2. *How do low-fee private schools interact with/mediate the state policy framework for education?*

- Do they change it?
- Do they bypass it?
- How does the state policy framework, in turn, react?

Refined Institutional-Level Research Questions (1 & 2) and Research Questions Made Explicit (3)

What is the policy framework guiding the operation of low-fee private schools and how do they interact with it?

1. *What is the formal institutional framework for low-fee private schools?*

- Is it implicit or explicit?
- How is it applied by institutional actors and interpreted by organizational actors?

2. *How do low-fee private schools interact with/mediate the formal institutional framework?*

- Do they change it?
- Do they bypass it?
- How do institutional actors in turn react?

3. *How do low-fee private schools interact with each other?*

- Do they have a specific set or code of procedures of working?
- How is the code structured?

Table 3. Refining and making explicit research questions

of low-level temporary working hypotheses (Lincoln & Guba, 1985, p. 122) to explain “what was going on.” I continually checked these against emerging data patterns to refine, make explicit, and challenge the relationships that I saw developing.

Application 2: Use of the framework in relation to researcher roles and identifying new research questions

My (Hopwood’s) study was of six 13- and 14-year-old English schoolchildren and their experiences of geography lessons and conceptions of geography as a subject. I observed more than 80 geography lessons and conducted 11 or more one-to-one interviews with each pupil. I conceived of data as generated through interactions between the pupils and me in which they might articulate things for the first time, reflect on, or refine their views. Analysis was initially pursued as a means to address the following research question (which is what I wanted to know at that stage): What descriptive and evaluative ideas and opinions are brought to bear when each case pupil experiences, talks about, and thinks about school geography?

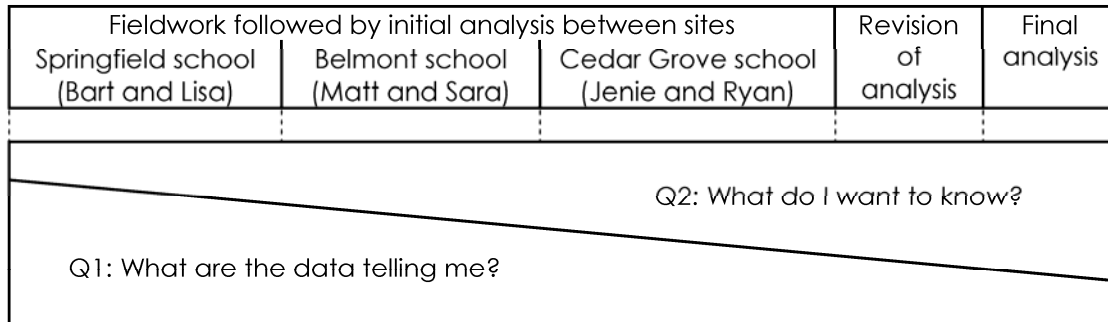
As I constructed initial portraits of each pupil, I attended to issues of what the data were telling me (Q1). I found data that were surprising, confusing, exciting, and contradictory. I considered issues to do with balance in the data and whether I could take what the data were telling me at face value. More abstractly, I asked what the data are telling me that they might not tell someone else: I questioned my role as interpreter. Asking what I wanted to know helped grapple with these issues while maintaining a focus on my reasons and ambitions in my research rather than worrying what others might “do” with my data.

Through this process a second research question emerged: How do the case pupils’ descriptions of school geography relate to aspects that they value? The data were telling me (Q1) not only that pupils describe and evaluate geography in different ways but that the relationships between any one pupil’s descriptions and evaluations were complex and varied. I wanted to know more (Q2).

Sometime later I returned to Q2 and reasoned that I needed to find a closer weave between data and theoretical positions or concepts from the literature. Eventually I realized that I wanted to know an answer to this, which led to my third research question: What themes emerge across the case pupils’ conceptions of school geography, how do their ideas and opinions relating to these themes vary, and how can concepts from geography education literature illuminate these variations? Here what I wanted to know (Q2) was strongest, and the relationship between this and what the data were telling me (Q1) was at its most intimate. I came to represent the process I engaged in diagrammatically (Hopwood, 2006), as shown in Figure 2. The response to Q3 is shown figuratively in the changing balance between Q1 and Q2.

For me, the framework set out a terrain in which my role as researcher, the importance of the data, and the sense of ownership and personal purpose in my research were explicitly foregrounded. As I worked more with it I found it to be (a) parsimonious: articulating important relationships in a simple way; (b) authentic to how analysis felt to me and my relationship with the data; and (c) fitting with the principles and practices I, and others in the literature (e.g. Brown & McIntyre, 1993; Dey, 1993), felt were important to the integrity of qualitative research.

Figure 2. Using the analytical framework over time



Note: Pupils' names are pseudonyms.

Conclusions and suggestions

The simplicity of the framework should not be confused with naïveté about the controversies and challenges in qualitative analysis; for example, the external validation of interpretation or the principles and criteria for determining the plausibility and credibility of results (Schofield, 1993). Hopwood (2006) drew on Dey's (1993) notions of data annotation, category creation, assignment of data to categories, and refinement of categories to convey the messy, nonlinear mechanics of analysis conducted in the context of the framework presented here. Srivastava applied a combination of existing procedures and techniques suggested by methodological texts (e.g., Lincoln & Guba, 1995; Miles & Huberman, 1994; Strauss & Corbin, 1998). She also deeply considered her positionality as a researcher of diasporic backgrounds conducting international research and analytical issues arising from the use of more than one language (Srivastava, 2006b). The purpose of the framework is not to efface these important considerations but to set a context in which discussion of such issues can be framed and related to a particular piece of research.

We feel that the framework is helpful in negotiating the tensions of reporting qualitative research in the compressed space of journal articles where theory, justification, and findings often compete for space and win. It offers a clear set of signposts that, when expanded briefly, can give a good feel for analysis in a particular study. Keeping the caveats above in mind, we would like to end with some suggestions that qualitative analysts, particularly those new to the process, may find useful.

1. Even if you are not using the framework explicitly, ask yourself questions Q1 to Q3. The process of articulating your response often clarifies your position and points to areas of uncertainty.
2. Consider how analysis "feels," and whether your writing about the analysis reflects this. The framework might offer one of the many ways of writing yourself into the narrative without being self-indulgent or distracting from the purpose of research.
3. Be critical about this and other frameworks for analysis. Do they fit how analysis feels to you, your stance, aims, purposes, and experiences?
4. Be creative and adapt the framework to your own contexts. We used it differently to varied but relevant effect in our research.

References

- Berkowitz, S. (1997). Analyzing qualitative data. In J. Frechtling & L. Sharp (Eds.), *User-friendly handbook for mixed method evaluations*. Arlington, VA: Division of Research, Evaluation and Communication, National Science Foundation. Retrieved February 7, 2007, from <http://www.nsf.gov/pubs/1997/nsf97153/start.htm>
- Brown, S., & McIntyre, D. (1993). *Making sense of teaching*. Buckingham, UK: Open University Press.
- Bruce, C. D. (2007). Questions arising about emergence, data collection, and its interaction with analysis in a grounded theory study. *International Journal of Qualitative Methods*, 6(1), Article 4. Retrieved February 3, 2009, from <https://ejournals.library.ualberta.ca/index.php/IJQM/article/view/467/453>
- Coffey, A. (1999). *The ethnographic self: Fieldwork and the representation of identity*. London: Sage.
- Dey, I. (1993). *Qualitative data analysis: A user-friendly guide for social scientists*. London: Routledge.
- Finlay, L., & Gough, B. (Eds.). (2003). *Reflexivity: A practical guide for researchers in health and social sciences*. Oxford, UK: Blackwell Science.
- Harper, D. (2003). Developing a critically reflexive position using discourse analysis. In L. Finlay & B. Gough (Eds.), *Reflexivity: A practical guide for researchers in health and social sciences* (pp. 78-92). Oxford, UK: Blackwell Science.
- Hopwood, N. (2006). *Pupils' conceptions of school geography: A classroom based investigation*. Unpublished doctoral thesis. Department of Educational Studies, University of Oxford, Oxford, UK.
- Hopwood, N. (2007a). Environmental education: pupils' perspectives on classroom experience. *Environmental Education Research*, 13(4), 453-465.
- Hopwood, N. (2007b). Pupils' conceptions of geography: issues for debate. In J. Halocha & A. Powell (Eds.), *Conceptualising geographical education* (pp. 49-65). London: International Geographical Union Commission on Geographical Education / Institute of Education.
- Hopwood, N. (2007c). Researcher roles in a school-based ethnography. In G. Walford (Ed.), *Methodological developments in ethnography* (pp. 51-68). Oxford, UK: Elsevier.
- Hopwood, N. (2008). Values in geographic education: The challenge of attending to learners' perspectives. *Oxford Review of Education*, 34(5), 589-608.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage.
- Mauthner, N. S. (2003). Reflexive accounts and accounts of reflexivity in qualitative data analysis, *Sociology*, 37(3), 413-431.
- Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Thousand Oaks, CA: Sage.

- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.
- Patton, M. Q. (1980). *Qualitative evaluation methods*. Beverly Hills, CA: Sage.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). London: Sage.
- Schofield, J. W. (1993). Increasing the generalizability of qualitative research. In M. Hammersley (Ed.), *Educational research: Current issues* (pp. 91-113). London: Paul Chapman.
- Srivastava, P. (2005). *The business of schooling: The school choice processes, markets, and institutions governing low-fee private schooling for disadvantaged groups in India*. Unpublished doctoral thesis, Department of Educational Studies, University of Oxford, Oxford, UK.
- Srivastava, P. (2006a). Private schooling and mental models about girls' schooling in India. *Compare*, 36(4), 497-514.
- Srivastava, P. (2006b). Reconciling multiple researcher positionalities and languages in international research. *Research in Comparative and International Education*, 1(3), 210-222.
- Srivastava, P. (2007). For philanthropy or profit?: The management and operation of low-fee private schools in India. In P. Srivastava & G. Walford (Eds.), *Private schooling in less economically developed countries: Asian and African perspectives* (pp. 153-186). Oxford, UK: Symposium.
- Srivastava, P. (2008). The shadow institutional framework: Towards a new institutional understanding of an emerging model of private schooling in India. *Research Papers in Education*, 23(4), 451-475.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Yin, R. K. (2002). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.