QUALITATIVE METHODS, TRANSPARENCY, AND QUALITATIVE DATA ANALYSIS SOFTWARE: TOWARD AN UNDERSTANDING OF TRANSPARENCY IN MOTION

by

KRISTI JACKSON

B.A., Kenyon College, 1987

M.Ed., University of Vermont, 1990

A dissertation submitted to the School of Education, University of Colorado

Dissertation committee

Margaret Eisenhart, Chair

Ken Howe

Susan Jurow

Ben Kirshner

Stefanie Mollborn (Sociology), outside member

Dissertation defense

March 3, 2014, 1:30 P.M.

University of Colorado, Boulder

Education room 142 (Dean's Conference Room)

This dissertation entitled:
Qualitative Methods, Transparency, and Qualitative Data Analysis Software:
Toward an Understanding of Transparency in Motion
written by Kristi Jackson
has been approved for the School of Education

_____
Margaret Eisenhart

_____
Ken Howe

_____
Susan Jurow

_____
Ben Kirshner

_____
Stefanie Mollborn

Date: March 3, 2014

The final copy of this thesis has been examined by the signatories, and we
Find that both the content and the form meet acceptable presentation standards
Of scholarly work in the above mentioned discipline.

IRB protocol # 13-0326

ABSTRACT

Jackson, Kristi (Ph.D., Education)

Qualitative Methods, Transparency, and Qualitative Data Analysis Software: Toward an Understanding of Transparency in Motion

Dissertation directed by Professor Margaret Eisenhart

This study used in-depth, individual interviews to engage seven doctoral students and a paired member of their dissertation committee in discussions about qualitative research transparency and the use of NVivo, a Qualitative Data Analysis Software (QDAS), in pursuing it. The study also used artifacts (an exemplary qualitative research article of the participant's choice and the student's written dissertation) to examine specific researcher practices within particular contexts. The design and analysis were based on weak social constructionist (Schwandt, 2007), boundary object (Star, 1989; Star & Griesemer, 1989) and boundary-work (Gieryn, 1983, 1999) perspectives to facilitate a focus on: 1) The way transparency was used to coordinate activity in the absence of consensus. 2) The discursive strategies participants employed to describe various camps (e.g., qualitative and quantitative researchers) and to simultaneously stake claims to their understanding of transparency.

The analysis produced four key findings. First, the personal experiences of handling their qualitative data during analysis influenced the students' pursuit of transparency, long before any consideration of being transparent in the presentation of findings. Next, the students faced unpredictable issues when pursuing transparency, to which they responded *in situ*, considering a wide range of contextual factors. This was true even when informed by ideal types (Star &

Griesemer, 1989) such as the American Educational Research Association (2006) guidelines that

provided a framework for pursuing the principle of transparency. Thirdly, the QDAS-enabled

visualizations students used while working with NVivo to interpret the data were described as a

helpful (and sometimes indispensable) aspect of pursuing transparency. Finally, this situational

use of visualizations to pursue transparency was positioned to re-examine, verify, and

sometimes challenge their interpretations of their data over time as a form of self-

interrogation, with less emphasis on showing their results to an audience. Together, these

findings lead to a new conceptualization of *transparency in motion*, a process of tacking back

and forth between situated practice of transparency and transparency as an ideal type. The

findings also conclude with several proposals for advancing a *transparency pedagogy*. These

proposals are provided to help qualitative researchers move beyond the often implicit, static,

and post-hoc invocations of transparency in their work.

DEDICATION

In loving memory of my dear friend, Kenneth Lee Goodwin (August 17, 1948 – August 17, 2013).

My life and work are better because of his curiosity and support.

ACKNOWLEDGMENTS

This research benefitted tremendously from the sound guidance and sharp intellect of Margaret Eisenhart, my advisor and chair. I thank her and the rest of my committee members – Kenneth Howe, Susan Jurow, Ben Kirshner and Stefanie Mollborn – for bolstering the research design and engaging in an interesting discussion of the merits and limitations of the findings. During my pursuit of this doctorate, friends and family tolerated lengthy gaps in communication and a general lack of attention. Despite this, they consistently and lovingly supported me; I am aware of my good fortune in this regard. In particular, I am thankful for the consistently well-timed encouragement from Leslye Steptoe. Finally, I thank the many QDAS pioneers, critics, and proponents for more than twenty-five years of lively experimentation with – and discussion about – the role of software in qualitative analysis. In particular, I owe a great deal to Lyn Richards, Tom Richards, and Pat Bazeley for their long-lasting contributions to my work with and understanding of QDAS.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: PURPOSE

Push to Pursue Transparency

Many scholars invoke the principle of transparency in discussions of education research standards. According to this principle, aspects of the data and research process must be made visible to allow scholars to assess the merits of education research findings and recommendations. In Scientific Research in Education (Shavelson & Towne, 2002), expert panels are given a directive to "adhere to scientific principles of transparency of method, assessing uncertainty, and subjecting findings to the skeptical eye of the broader scientific community" (p. 155). Similarly, in Standards for Reporting on Empirical Social Science Research in AERA Publications, the preamble states that the standards are "intended to promote empirical research reporting that is warranted and transparent" (American Educational Research Association, 2006, p. 33).

However, when scholars mention "transparency," they rarely define the term. This is also true when narrowing the focus to discussions about transparency in qualitative research methods texts. In the section on "transparency" in the Sage Encyclopedia of Qualitative Research Methods (2008), Hiles states that the "need for transparency has become most urgent" even though it is "often simply taken for granted" (p. 891). According to Hiles, researcher reflexivity and the dissemination of results to a target audience are the two focal points for transparency. Researcher reflexivity entails the "conscious examination of paradigm assumptions, research strategies, selection of participants, and decisions made in collecting and interpreting the data, pointing to the fact that the researcher has a participatory role in any inquiry" (p. 891). The transparent dissemination of results to a target audience depended on a

replicability of methods (not necessarily the replicability of the findings, which he contrasts with quantitative methods) and thereby an assessment of the credibility, confirmability, dependability and transferability of the findings and conclusions. Hiles also provides a very general definition regarding the "need to be explicit, clear, and open about the methods and procedures used" (p. 890-891). Such general definitions are typical of the attempts to address transparency. As a result, little progress has been made to clarify its meaning or to detail ways to achieve it in education research.

The increased interest in the use of software to facilitate qualitative data analysis complicates the issue. Many scholars who use Qualitative Data Analysis Software (QDAS) claim that software enhances the transparency of qualitative research (Bringer, Johnston & Brackenridge, 2004; Gibbs, Friese & Mangabeira, 2002; Johnston, 2006; Sinkovics & Alfoldi, 2012). Di Gregorio and Davidson (2008) conclude that transparency and portability, "coupled with the ensuing need for standards, changes business as usual for qualitative researchers. The E-Project[1] allows us to 'see into' the researchers' process, throwing light into the darkest corners of data collection and interpretation" (p. 214). In contrast, some qualitative scholars who do not use QDAS contend that the application of this genre of software compromises the integrity of qualitative research (Blismas & Dainty, 2003; Coffey, Holbrook & Atkinson, 1996; Schwandt, 2007).

This brief introduction to transparency requires consideration of three dynamics:

1) A commitment to the principle of research transparency among many qualitative researchers.

---

[1] An E-Project, a term introduced by di Gregorio and Davidson (2008), is a specific study managed within a QDAS database.

2) The failure of qualitative researchers to specify what transparency means.

3) Claims by QDAS experts and counterclaims by other qualitative experts about the methodological contributions of QDAS, including (but not limited to) transparency.

In this study, transparency was examined in the literature and through the perspective of qualitative researchers in education by independently interviewing doctoral students and a member of their committee (regarding an exemplary research article of their choosing, the use of NVivo in their dissertation, and a quote regarding qualitative research transparency). These individuals provided insider perspectives on the pursuit of transparency, and in doing so they troubled the common and implicit invocation of it. The results and implications, discussed in chapters 4 and 5, raise important questions about the meaning and use of transparency in qualitative research. The study should be of interest to qualitative education researchers, qualitative methods instructors, doctoral students engaged in qualitative dissertations, and QDAS experts; these groups jointly shape our understanding and construction of qualitative research (generally) and qualitative research transparency (more specifically).

A Working Understanding of Transparency

As a starting point for this study, transparency is a stated principle that provides the foundation to develop more specifically articulated guidelines. For example, in Standards for Reporting on Empirical Social Science Research in AERA Publications (American Educational Research Association, 2006), *transparency* is one of two over-arching principles driving the development of the standards. The other is *sufficiency of the warrants*. Several foundational priorities are also invoked in the opening sections of the document, including *promoting methodological diversity* and *fostering excellence*. Standards for reporting education research

differ from principles by providing more concrete expectations or "rules of thumb" (p. 33).

Examples of standards from the same AERA document include the expectation that authors will

provide a rationale for the relevance of a measurement or classification and an interpretive

commentary that provides a deeper understanding of the research findings.

The difference between principles and standards is not always clear-cut or static, but I

make this heuristic distinction in the study for one primary reason: A researcher might adhere

to research standards by tracking changes in research design or writing reflexive field notes, for

instance, yet never show these research processes to others. Such practices might be rigorous

according to some standards, but they are not transparent. While standards played a role in the

review of the literature and were raised during the interviews with participants, transparency

was the specific focus of this study. Although the principle of research transparency was

generally supported in the relevant literature, some scholars critiqued transparency as

untenable or problematic. The strongest objections came from researchers in feminist, post-

modern, post-structural, critical theory, and constructionist perspectives. These concerns will

be discussed in greater detail later (in chapter 2), they contributed to the methodology (in

chapter 3) and they influenced the interview questions (in Appendix F).

The History of QDAS

In the qualitative research community, the development of QDAS divided the group into

two sub-communities regarding the pursuit of transparency: QDAS adopters and those who do

not use QDAS. Before identifying some of the similarities and differences between these

groups, a history of QDAS provides initial grounding and a partial explanation of current views

on this genre of software. Alongside the various strands of qualitative methods applied and

refined in the 1980's, university faculty from Australia, Germany, and the United States began

independently developing software programs to facilitate the analysis of qualitative data.

Initially, these early developers were working in isolation, unaware of parallel developments by

other researchers (Fielding, 2008, Davidson & di Gregorio, 2011).

 After networks of researchers began informally sharing their experiences about

software in qualitative analysis, the first Surrey Research Methods Conference was held at the

University of Surrey in the United Kingdom (UK) in 1989. This conference established a dialogue

between developers and early users (Fielding & Lee, 2007). The early software packages such as

Ethnograph and NUD*IST (now known as NVivo) were later joined by many others. Around the

time of the conference, Nigel Fielding and Ray Lee coined the term Computer Assisted

Qualitative Data AnalysiS (CAQDAS). This label was used alongside the more popular though

also erroneous label, Computer Assisted Qualitative Data Analysis Software (also CAQDAS)

(email communication with Nigel Fielding, December 21, 2011[2]). Because CAQDAS can currently

refer to the entire software genre as well as a specific organization currently operating in the

UK, and because Computer Assisted Qualitative Data Analysis Software is a redundant phrase, I

use the more parsimonious Qualitative Data Analysis Software (QDAS) or QDA software. The

QDAS acronym was first introduced by Yuen & Richards (1994) and is also commonly used

today.

---

[2] In this communication, Fielding said that the addition of "Software" at the end of the phrase was never
something that he or Lee proposed, and that subsequent scholarship perpetuated the inaccurate
addition of this word to the acronym. In my review of the literature, very few scholars use the
appropriate explanation of the acronym (for exceptions see di Gregorio & Davidson, 2008; Gilbert,
Jackson, & di Gregorio, 2013; Lewins & Silver, 2007).

By 1990, Renata Tesch catalogued over 26 of these software programs that were mostly MS-DOS based at the time, although she also discussed other platforms. Tesch framed the software capabilities in terms of the different qualitative approaches each software was intended to support (e.g., content analysis, interpretational analysis, structural analysis, text retrieval, and theory-building). In the conclusion of the book, she candidly acknowledged that because of the rapidly changing field of software development in the 1990's, combined with the lag time between conceptualizing and distributing paper publications, "This book is no longer up to date" (p. 299).

This sentiment helped explain the creation, in 1994, of The Computer Assisted Qualitative Data AnalysiS (CAQDAS) Networking Project in the UK (http://caqdas.soc.surrey.ac.uk). By establishing an internet presence and a location where more recent advancements could be posted without the delays of paper publishing, CAQDAS became a cutting edge source of information for researchers to learn about software options (from a resource without formal financial ties to any developer). The project was funded by the UK Economic and Social Research Council (ESRC) from 2008-2011, and the web site is currently supported by the University of Surrey and is referred to as CAQDAS as well as Qualitative Innovations in CAQDAS (QUIC).

While Tesch's 1990 book focused on the types of analysis that a particular software was designed to address (considering an entire software program and its paired analytical strategy as the entity to study), Weitzman and Miles' (1995) book was dedicated to the comparison of 20 software programs by focusing on the many analytical strategies and tools available in each. In the five year period between these two publications, the tools in one software were adopted

by developers of another software, so the comparison became a check-list of the range of tools and the *multiple* analytical strategies available in each.

For the most part, program developers promoted and sold their own products via companies they started, and they offered workshops on how to use the software. Although the early presence of these programs represented great diversity of features, purposes, and software platforms, the software development arc since then has been fairly typical (Gilbert, Jackson, & di Gregorio, 2013; Norman, 1998). The early diversity of programs and their notable limitations in handling only a narrow methodological approach or data type gave way to programs that contained more features. This allowed for more diverse applications via any one software. In other words, as the software became more standard it simultaneously became more versatile, although this versatility was often missed by critics (e.g., Coffey et al., 1996) who associated the standard tools in QDAS with a trend toward a homogeneous research process. Some of the current QDAS experts (Gilbert et al., 2013) critique this common conflation between standard software tools and homogeneous method, a critique usually lodged by researchers with limited QDAS experience. A few products with this common set of features took the lead (in terms of market share) by 2005, and as of today the CAQDAS networking web site provides reviews of only ten software programs (http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/support/choosing/).

To more fully investigate the influence that different QDAS options had on the research process, and to re-examine whether the choice of one of the current software programs over another had a different influence on research findings, organizers of the Netherlands Association for Qualitative Research (KWALON), designed a comparative investigation (Evers,

Silver, Mruck & Peeters, 2011). Experts in several of these software packages (ATLAS.ti,

Cassandre, MAXqda, NVivo, and Transana) independently analyzed a common data set. These

participants were in widespread agreement that they emerged with very similar conclusions

about the primary research questions. This suggested that the overall impact of a particular

QDAS in analyzing the data was negligible[3].

Lewins and Silver (2007), two of the senior scholars at the CAQDAS Networking Project,

articulated the core features available in each program that could help account for the

KWALON findings, which I have summarized below:

1) Assign themes or codes to particular pieces of text/audio/video/image.

2) Assign multiple codes to a single portion of text/audio/video/image.

3) Cross-reference the relationships among codes to investigate constellations or patterns.

4) Import quantitative or demographic data as a means of comparing subpopulations in the data.

5) Track researcher ideas through the use of memos and links.

6) Provide output in the form of reports and visualizations that can be used to present findings.

This kind of description provided a simple grounding in software capabilities, without delving

into the requirements of particular research methodologies. Avoiding methodological

differences was one way of encouraging adoption by an array of qualitative researchers using a

range of research approaches. However, this strategy perhaps contributed to a problematic

---

[3] A primary weakness of the comparison was the failure to include an analysis by researchers who did not use QDAS.

separation of software and method (a division that is detailed in a subsequent section of this chapter).

This history of QDAS informs an understanding of the current trajectory of software development, and it also partly explains researcher perceptions of the advantages and disadvantages of software, depending on when some of the current qualitative research experts chose to try to use – and in some cases subsequently abandon – QDAS. Chapter 2 will provide additional detail about the claims in the literature regarding the benefits and disadvantages of using QDAS, and the influence these claims have on conceptualizations of transparency. At this juncture it suffices to state that some QDAS experts claim that this genre of software enhances the transparency of the research process. In contrast, some qualitative researchers who do not use QDAS claim that it contributes to the problematic association of transparency with an audit culture.

Common Enterprises Among QDAS and Methods Experts

Although QDAS divided qualitative researchers into two sub-communities (with respect to transparency), the groups have a common enterprise. Scholars in these groups specify similar components of research such as gaining rapport, collecting data, journaling, interpreting the data and presenting results (Patton, 2002; Richards, 2005). The two sub-communities also independently acknowledge that different research circumstances require a customized application of a range of available qualitative approaches (American Educational Research Association, 2006; di Gregorio & Davidson, 2008). Finally, both sub-communities emphasize the importance of articulating the chain of reasoning or logical connections among the components of the project (AERA, 2006; Richards & Morse, 2007).

Consider the following two passages from these two sub-communities about the importance of articulating a logical chain of reasoning:

> Research reporting should follow a **clear logic of inquiry** that allows readers to trace the path from the initial statement of the problem, issue, or interest; to the review of the relevant scholarship and intellectual orientation of the study; to the research questions initiated and/or developed in the study; to the description of the site, group, and/or participants (demographic information); to the methodology guiding collection and analysis of evidence; to the interpretation and presentation of outcomes and understandings gained from the research process. There should be a coherent presentation of these aspects of the study, and it should be clear how the different parts of the study are related to each other. (AERA, 2006, p. 4, emphasis in original)

In a book for NVivo (and other software) users, similar guidelines were provided regarding the need to present clear and coherent connections between the various phases of the research:

> A clear statement of your purpose and goal – why you proposed the project, what you asked and have found or concluded, with assessment of how (and to what extent) it answered the research question. This statement should include the way the research question shifted, and why. . . A coherent account of the steps to your conclusion, the ways those steps were validated, the processes used to explore and question the data and how you know it is satisfactory. (Richards, 2005, p. 191)

This is evidence that the sub-communities use a similar repertoire to describe at least one understanding of research transparency: Documenting the logic of the research process and findings.

Separate Sub-Communities

Despite the above similarities, when software is included in mainstream qualitative research literature it is usually described by researchers who lack QDAS expertise. Examples include: *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (Creswell, 2014), *Collecting and Interpreting Qualitative Materials* (Denzin & Lincoln, 1998), and *Doing*

Qualitative Research, (Silverman, 2010)[4]. In each of these widely used texts on qualitative

methods, software is positioned as a tool to consider long after making major methodological

decisions and is not credited with making a meaningful methodological contribution. It is

primarily discussed as an expeditor of mundane research tasks, such as organizing one's data

and speeding up the retrieval of coded passages.

In the third edition of Patton's *Qualitative Research and Evaluation Methods* (2002),The

brief section on "Computer-Assisted Qualitative Data Management and Analysis" begins by

emphasizing that software simply eases ". . . the old drudgery of manually locating a particular

coded paragraph" (p. 442), while the real methodological work occurs outside of the software.

This section of Patton's book demonstrates the segregation of software from methods in two

ways. First, the section is separated from the methodological emphasis of the rest of the

textbook. Next, the section carefully distinguishes the researcher's use of software from the

researcher's methodological choices. In their study of eleven introductory qualitative texts,

Paulus, Lester and Britt (2013) pointed to a similar separation of qualitative analysis and

technology.

Even in Given's (2008) *Encyclopedia of Qualitative Research Methods*, where QDAS is

described in more detail, the methodological choices are still segregated from the discussion of

software. In the section of the encyclopedia on "Computer-Assisted Data Analysis," Maietta

states that software allows researchers to "simulate off screen approaches," and that it is

simply a "basic toolkit" that facilitates but does not alter conventional (off-screen) practices (p.

---

[4] For an exception, see Bazeley's (2013) recent text on *Qualitative Data Analysis: Practical Strategies.*

891). Researchers make their important research choices outside of the software and then use the software instrumentally.

QDAS Iterativity and Flexibility

It has been over a decade since Richards (2002) articulated the increasingly relevant role software could play in qualitative methods. "The image of qualitative computing as only coding remains even in recent literature. . ." but software is now "far more varied," allowing for new methodological approaches (p. 426). One such approach is "systems closure," which allows researchers to keep search results and researcher ideas inside the database and to use them in subsequent searches or investigations. In earlier versions of the software, the database was "open" because it pushed the results outside of the database for review. Richards argued that the introduction of "systems closure" gave researchers the ability to pursue additional questions efficiently, accurately, and iteratively. Pursuits they might intentionally or unintentionally avoid if not for the recursive capabilities of software (Tesch, 1990). The example I turn to momentarily about the relationship tool in NVivo will demonstrate several turns of interpretation that are supported by systems closure, iterativity, and flexibility.
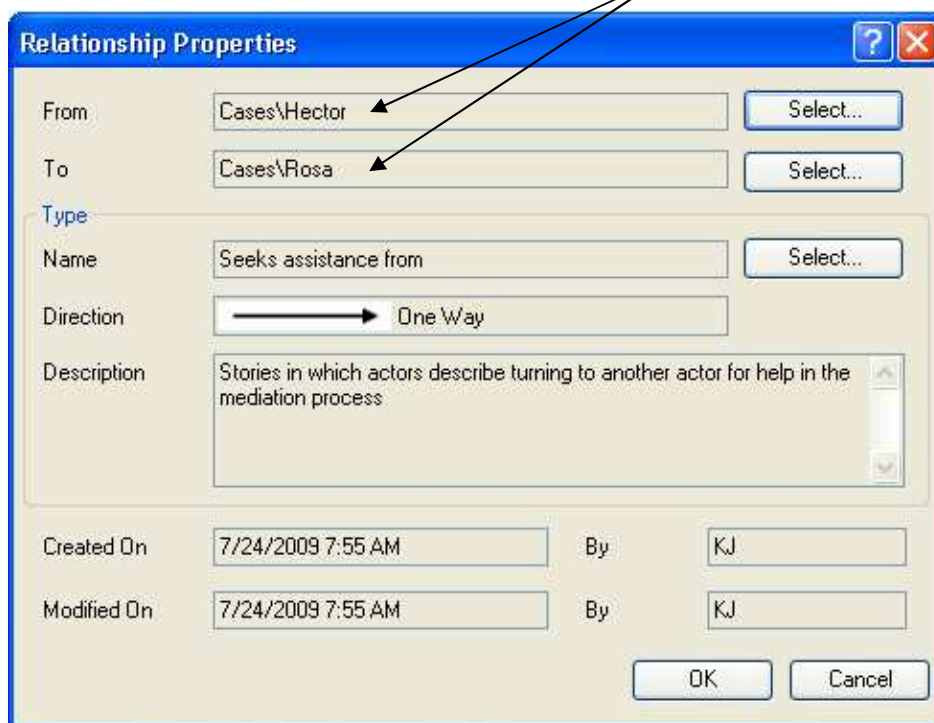
As Miles and Huberman (1994) argued, the flexible, recursive and iterative capabilities of software (promoted by characteristics such as systems closure) provided unprecedented opportunities to challenge researcher conceptualizations. In support of this claim, Garcia-Horta and Guerra-Ramos (2009) detailed their use of MAXQDA and NVivo in two different research projects, concluding that, among other things, the programs helped push researchers past the powerful and often unwarranted influence of first impressions of the data. Lyn and Tom Richards (1994) agreed, and stated that as they began developing NUD*IST, their analysis

"became far surer, with provision for constant interrogation of themes. The processes of building and interrogating themes gave an impression of constant working at theory built up and peeled back in onion skin layers" (p. 164). Lyn and Tom Richards (1994) also stated that one of their primary goals during the early development of NUD*IST and NVivo was to encourage researchers to consider alternative explanations for patterns in the data.

The r*elationship* tool, developed by Tom Richards for NVivo, is a good example of QDAS features that foster new approaches to the data. The following vignette of a bully-proofing project in a middle school demonstrates the ways in which NVivo promotes alternative explorations and explanations. In this example, Rosa is a peer mediator. Hector, one of her peers, is interviewed to ascertain which peer mediators he turns to, and the characteristics of mediators that either encourage or discourage him from asking for help:

Interviewer: Tell me about the peer mediators you are comfortable turning to when there is a problem with another student.

Hector: Well, I like Rosa because she cares about people, you know? Like, she'll listen and she doesn't ever want to see anyone's feelings hurt or nothing, and she's sometimes like a class clown so she can make people laugh.

This data might be handled in several ways to answer the primary research questions, and is likely to be flagged (or coded) as "Positive characteristics: Listening" and "Positive characteristics: Humor". In the end, the researcher might present a claim (assuming a more comprehensive dataset and more detailed examination) that peer mediators in this school who are known as humorous and outgoing tend to be more actively sought than more introverted mediators. The relationship tool, however, provides opportunities to look at alternative explanations. The following screen shot demonstrates how a relationship can be interrogated by the researcher in NVivo. Hector seeks assistance from Rosa, and the direction is one-way.

Figure 1.1: Construction of a relationship between two items in NVivo.

When this relationship is placed in the modeling tool in NVivo, the researcher obtains a graphic

display (below).

Figure 1.2: Visualization of a relationship in the Modeler within NVivo.

Because NVivo retains and can display all possible relationships (identified by the researcher) in

the project, it can generate a social network map based on all pairs:
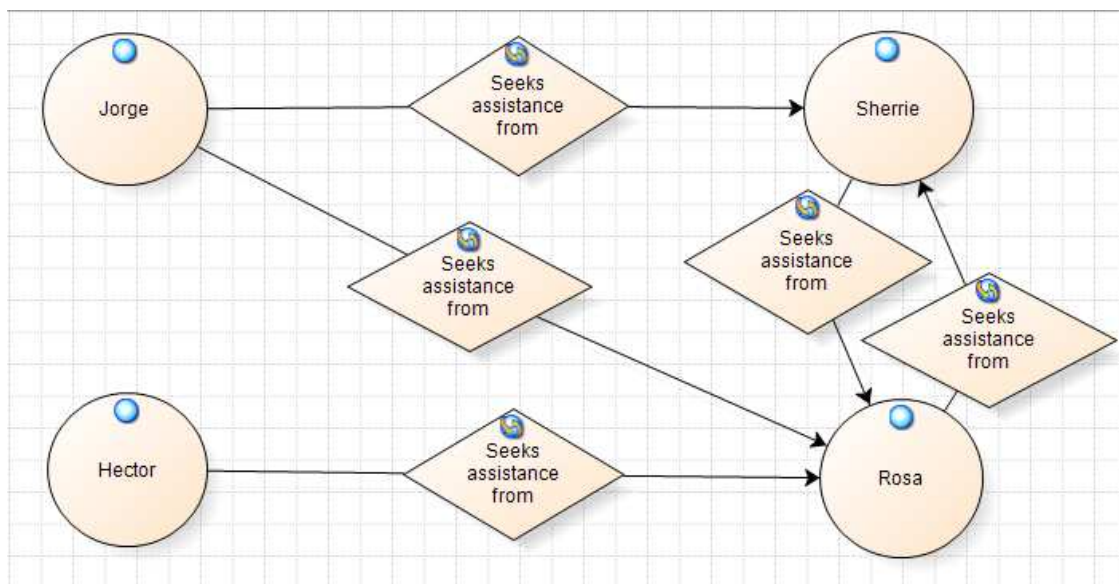
Figure 1.3: Visualization of multiple relationships in the Modeler within NVivo.

While the researchers were asking participants to identify positive mediator characteristics,

something new has become evident that was not articulated as a relevant characteristic by the

participants, themselves: gender. Among the four actors, the boys are never turned to for

assistance. Conversely, the two girls receive requests for assistance from at least two other

actors in the network. Again, this is an overly simplistic example, although the potential power

to reveal an unanticipated pattern is clear. This pattern might lead to additional data collection,

a re-examination of the coding structure, team meetings to gather new researcher

perspectives, etc.

The next unexpected pattern is revealed through an additional, two-step process that

Tom Richards engineered into the relationship tool: First, the relationship between Hector and

Rosa is a potential container for evidence, instead of a simple statement that "Hector seeks

assistance from Rosa." By using the "drag and drop" coding method (similar to dragging files

into folders within the file management system of a computer), a researcher can code text into

the relationship (below).

Figure 1.4: Coding a specific passage into a researcher-identified relationship in NVivo.

If the researcher returns to the model, and right clicks on the relationship between Hector and

Rosa, he or she can "Open Item":
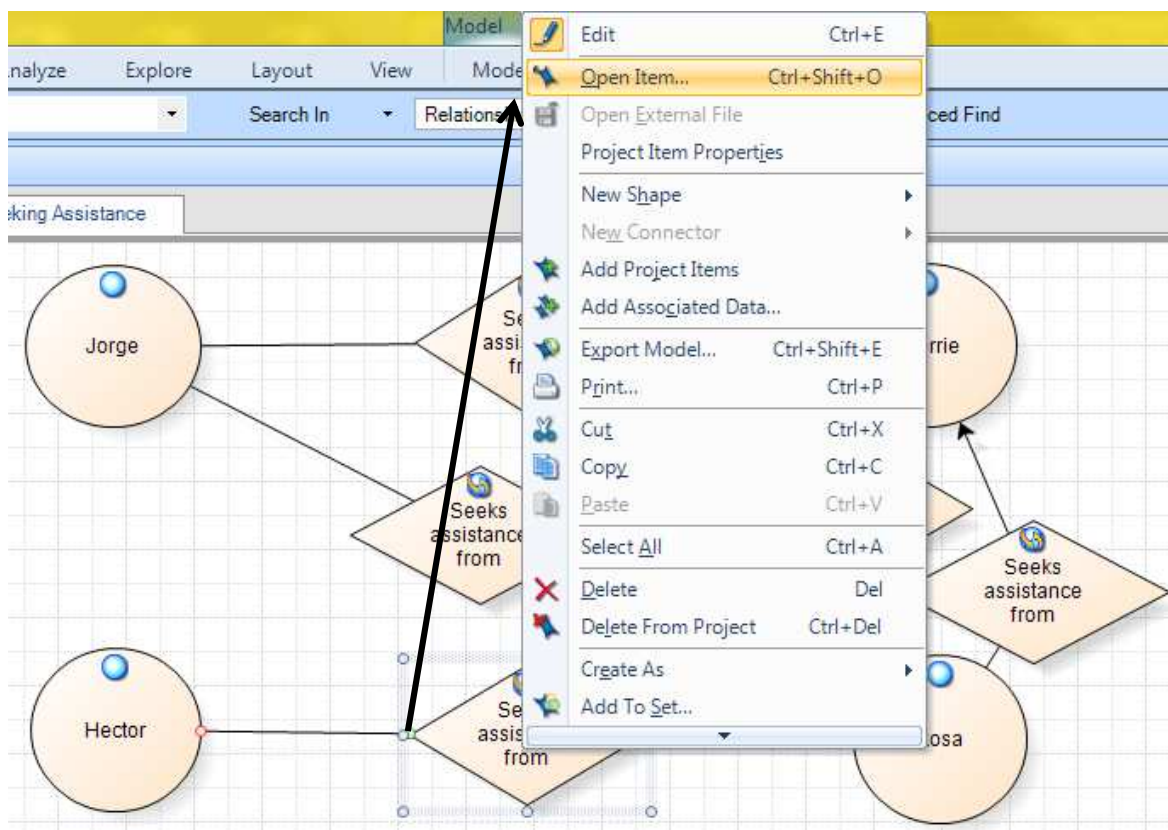
Figure 1.5: Opening an item in the NVivo Model.

Doing so, would present the relevant quote (below):
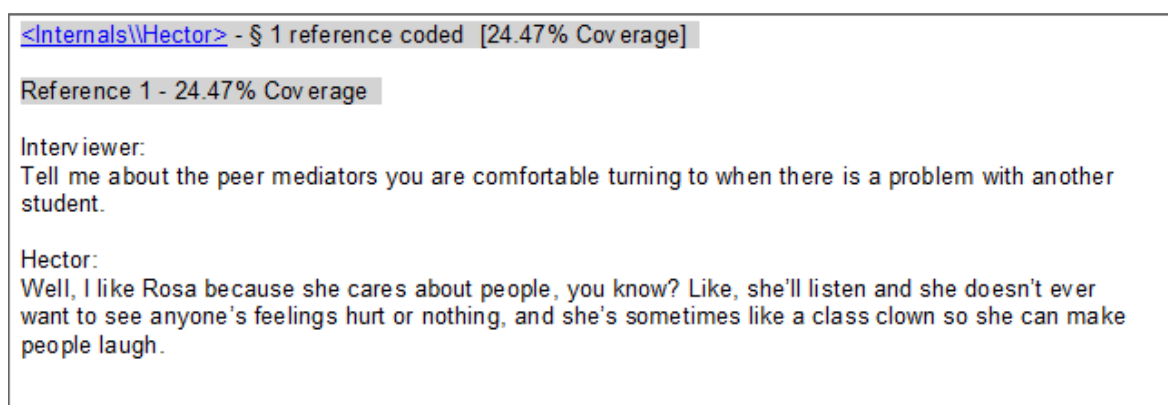
Figure 1.6: Examining the content in a model item in NVivo.

Instead of stopping here, there is a second step related to this tool that allows the researcher to

select the blue hyperlink to <Internals\Hector> (at the top of Figure 1.6, above) and then jump

immediately to this quote in the context of the full interview:

> **Hector**
>
> Interviewer:
> Tell me about the peer mediators you are comfortable turning to when there is a problem with another student.
>
> Hector:
> Well, I like Rosa because she cares about people, you know? Like, she'll listen and she doesn't ever want to see anyone's feelings hurt or nothing, and she's sometimes like a class clown so she can make people laugh. But it's not like when there's an issue, I can always just tap her shoulder, like if she's across the room or doing something. Maybe it's different if it's like an ongoing issue, and I can go to her when I see her in class or in the hall, but not just like when someone like Adam starts saying things, just to be a dick while we're working on a project in class. That would just make it worse. So, like if she were right there in the group on the other side of the table, I'd be like, "Yo, Adam, maybe we oughtta get Rosa's perspective on this," which I'd say like half-joking to bring it to the surface but to also give me a way to back down like I didn't really mean to get her involved if I didn't need to. But, I mean, the same things is true whether I'm in class or not, I guess, right? Like whether she's around and what to say if she is. Plus, like if it's guys around, I may not say anything, because they'd tease me for not sticking up for myself, but if it was mostly girls, then they're more likely to stick up for me for some reason, so they wouldn't pick on me if I brought in Rosa.

Figure 1.7: Jumping from a decontextualized quote to the source in NVivo.

An examination of the additional context below the yellow highlight reveals an alternative explanation: The presence of other boys in the social context might be a barrier to a boy who would otherwise seek assistance from a girl mediator. Again, this potential pattern might lead to additional data collection, a re-examination of the coding structure, team meetings to gather new researcher perspectives, etc.

In sum, a relationship in NVivo is a record by the researcher of how two entities or concepts relate – they might be people, objects, processes or abstract concepts. Optionally, it is

also a pointer to evidence for that relationship, such as text, audio, and video. Researchers can

easily obtain a visual of the interconnected relationships via NVivo's modeling tool (as in Figures

1.2 and 1.3). If a researcher codes evidence of the connection among items, this evidence can

be instantly accessed from inside the model (as in Figures 1.5 and 1.6), and examined in the

original context (as in Figure 1.7).

This example is intended to demonstrate some of the ways that QDAS can foster

opportunities for researchers to generate alternative explanations. The example is not intended

to imply that all such pursuits are only possible via software, but rather that these pursuits are

often made more practical with software, given the constraints of time and volume of data. As

Richards and Richards (1994) and Tesch (1989) stated, the efficiency of handling these tasks in

software provide more than the benefit of expediency:

> . . . the research team found an extraordinary lightening of clerical loads. . . less low-level
> clerical labour for cutting, filing, controlling the data. . . The result is a different experience
> of data processing, in which putting stuff in places is no longer a problem; so thinking about
> the relationships of those places is possible. (Richards & Richards, 1994, p. 155)

> These advantages should not be considered trivial; they may translate into financial savings
> and into greater attention to conceptual issues. In addition, flexible and powerful programs
> not only favor methodological researchers, but can help them to become more
> accountable. Used effectively, this software encourages a more thorough and refined
> analysis, and also invites the analyst to make the exploration of the data more extensive,
> and, therefore, the outcome more trustworthy. (Tesch, 1989, p. 137)

Combined with a flexible database system, the efficiencies of the software, it is argued,

promote iterative behaviors in the researcher. "Contrary to a common prejudice, a computer

can make the analysis process more flexible with the right software. It encourages 'playing

around' with the data" (Tesch, 1990, p. 135). Among experts in QDAS, features such as the

relationship tool promote discussions regarding the way software and methods influence one

another and allow researchers to "play" with data. However, as already stated, these

reflections are rarely articulated in mainstream qualitative methods literature.

The Problem of Separate Communities

In *Qualitative Research Design for Software Users*, di Gregorio and Davidson (2008)

stated their concerns about the lack of meaningful integration of QDAS in mainstream methods

texts:

> The current divide between QDAS users and non-QDAS users (often the most experienced
> analysts) means that our most significant commentators on methodological issues are
> failing to engage in the discussion of the new affordances and also pitfalls that QDAS offers .
> . . It needs to be integrated in the whole discussion on methodological practice. (p. 14)

They believed that this divide hindered thorough explorations in qualitative methodology.

Regarding qualitative methods courses, Johnston (2006) said that the methodological learning

curve for her students was more difficult because it was not being properly informed by the

relevance of software flexibility and iterativity.

Similarly, Carvajal (2002) critiqued QDAS training courses for failing to incorporate

methodology in a way that explored the relationship between software and methods. His

analysis of a number of training workshops advertised on the internet revealed that most were

one-day sessions and a prerequisite knowledge of qualitative methods was typically not

required. He raised concerns that this absence unintentionally contributed to the conflation of

software and method. A novice researcher might sign up for workshops in grounded theory,

discourse analysis, and NVivo, thinking they were all methods workshops. Furthermore, this

same researcher might leave the workshop without a clear understanding about the difference

between software and method. This is one of the dangers of presenting software training in a

"method neutral" or "method absent" mode. In response to the concerns about the separation of software and method, Jackson (2003) provided a guide for discussing methodological issues in a qualitative methods course that also incorporated NVivo. However, like Maietta (2008), this work emphasized how QDAS mirrored off-screen approaches.

Some qualitative methods experts who do not use QDAS also raised concerns about the problematic separation between software and methods. In *The Dictionary of Qualitative Inquiry*, Schwandt (2007) cautioned his readers about the unexamined bias of tools in computer-assisted data analysis. By echoing Postman (Technopoly, 1993) and drawing from a theory of materialism, Schwandt argued that the creation and use of particular tools influenced the ways researchers saw (and created) themselves and their research environment. He claimed QDAS could foster unreflective processing of qualitative data because of the erroneous assumption that software was "more . . . systematic, . . . rigorous" and therefore, "better" (p. 35) than researcher judgment and intuition. He also stated that, "While developers and frequent users of qualitative data analysis tools may customarily reflect on these embedded predispositions," such as the assumption of software systematism, "it is not entirely clear that the casual user does" (2007, p. 35). Schwandt did not thoroughly detail the predispositions of QDAS, but he raised concerns about a common failure to examine the ideological and methodological associations between QDAS, rigor, and systematicity.

As already noted, most QDAS experts would agree with Schwandt that the common practice of segregating discussions of software and methodology in the literature (and in the instruction of novices) is likely to lead to unexamined researcher bias when software is used in analysis. However, according to many of the above-mentioned QDAS experts (di Gregorio and

Davidson, Johnston, Jackson, Carvajal, etc.) it is precisely the segregation of QDAS literature from mainstream methods publications that contributes to the lack of researcher reflection on the relationship between software and methodology (and the lack of reflection on researcher bias).

As final evidence of the problem created through the separation of software and methods, I turn to the very different perspectives of those who do and do not use software regarding the relationships between software, transparency, and the empirical research standards movement in education. QDAS experts explicitly claimed that, in response to the demands for transparency and the pressures of the standards movement, researchers were turning to software. "Government departments require accountability, and market research companies involved in this kind of research are required to make the evidence for their conclusions more transparent. This pressure has led a few market research companies to try using a QDAS" (di Gregorio & Davidson, 2008, p. 82). However, for some non-QDAS users, the software homogenized "representational modes and devices" (Coffey et al., 1996, p. 1) in a field such as ethnography where diversity of method was typically celebrated. The alleged narrowing of "representational modes" pertains to the perception that QDAS encourages grounded theory over other theories (a perception challenged by many QDAS experts, such as Lee and Fielding (1996). The narrowing of devices pertains to the use of computers and the perception that such technology emphasizes quantification, also challenged by many QDAS experts, such as Bringer et al. (2204), who argue that such data can also be easily quantified with manual methods and that a wide range of tools in QDAS have nothing to do with quantification).

These juxtaposing views indicated that there were different understandings of the influence QDAS had on the discussions of standards in qualitative research. In the first instance, the demands for standards drove the adoption of QDAS. In the second, the software problematically pushed standards on a field in which diversity of approaches was central. While some of these differences in opinion might be linked to a conflation of "standards" (guideposts that set parameters around a range of approaches) and "standardization" (repeating the same process the same way in all instances), it is clear that some fairly adamant and different claims were made regarding the relationship between QDAS, transparency, and the empirical research standards movement.

These different and often unsubstantiated claims are likely to continue and to limit our understandings of the capabilities of QDAS because little has been done to systematically examine the role of such software across individual research projects. This dissertation was developed alongside the observation that although they have similar enterprises, the two sub-communities both fall short of their potential for reflexivity, because they practice qualitative research without a bridge that provides a consistent and mutual way of sharing ideas and building on the contributions of one another.

As Wasser and Bressler (1996) observed, a complex and interesting "interpretive zone" exists, where researchers and technologies interact. The efforts of di Gregorio and Davidson (2008) to engage in discussions around this interpretive zone served as a recent move in the direction of integrating software and methods in qualitative research. However, as they noted, "QDAS can be threatening. It represents a major change in practice and, thus, in our identities as professionals and researchers" (2008, p. 77). In the next chapters I focus first on discussions

of transparency in the literature on qualitative education research (and other fields, when

relevant). I then describe my research on the practices of doctoral students who used NVivo

and the way these students and a member of their committee discussed two artifacts related to

transparency: The written dissertation and a qualitative research article of their choosing. I also

asked for their reaction to a quote about transparency from the AERA (2006) guidelines on

reporting empirical education research. The findings and implications in chapters 4 and 5 help

clarify the relationship between QDAS, qualitative methods, and transparency and generate

new conceptualizations of *transparency in motion* and a *transparency pedagogy* that may be

useful for qualitative education researchers.

CHAPTER TWO: LITERATURE REVIEW

Searching for and Categorizing Materials

A detailed narrative and log of the strategies used to find relevant materials for this literature review are provided in Appendix A. During the search, an item was identified as relevant if it contained either a discussion of qualitative research transparency (although these three terms did not necessarily occur together or in this sequence) or ideas about transparency that could inform qualitative research. All abstracts related to education were reviewed, and the original articles were accessed if there was any indication of relevance (a discussion of transparency as it related to qualitative research). In addition, items from other disciplines (e.g., peer review, political science, and technology) were also examined if they were cited in the education literature or provided a definition or detailed description of transparency (not necessarily related to qualitative research).

Roughly 3,000 items were considered for inclusion during the review, and despite the very common invocation of the word transparency (as anticipated in chapter 1), only four studies in education (Meira, 1998; Noss, Baker, Hoyles & Kent, 2007; Quinn, 2003; Wenger, 1991) and two studies outside of education (Bolter & Gromala, 2003; Henderson, 1999) purposefully examined transparency. In addition, transparency was tangential to the current inquiry in most of these studies because they usually pertained to student and employee perceptions of how effectively items such as graphs, forms and winches transparently represented (or conveyed) information from science, math, engineering and technology. In other words, while there was evidence that at least four studies focused on transparency, the researchers did not apply their strategies of inquiry on themselves or the practice of qualitative

research. This presented a significant gap in the research and literature about qualitative research transparency.

Among the 50 relevant books, chapters and articles, 44 were expository. Expository work included guides for best practices, claims grounded in personal experience, and literature reviews. In addition, because transparency was commonly invoked in a research narrative but not addressed as the primary research subject, these studies were also categorized as "expository" (in order to separate the material that specifically engaged in research about transparency from the research material that simply invoked the term[5]). Appendix B provides an annotated bibliography of the 50 items organized into four types of literature on transparency (research in the field of education; expository materials in the field of education; research in other fields; expository materials in other fields). While some of these materials have a more prominent role than others in this chapter, they all informed the analysis of the literature and my understanding of transparency.

Using NVivo to Examine the Literature

After organizing the literature in EndNote, a reference management software, I imported the materials into NVivo, one of the most popular QDAS programs[6]. While the

---

[5] For example, in Levacic's (2008) historical inquiry into the English school finance system, transparency was one of three criteria used to assess the system (along with efficiency and equity). While transparency played an important role in the research, it was not the primary subject of the study. Transparency was briefly defined as "easily available information" and issues regarding researcher conceptualizations of transparency were not addressed. In this context, the literature was categorized as expository.

[6] I am also one of a handful of experts on the software who consults, teaches and presents at conferences on the relevance and repercussions of using QDAS (generally) and NVivo (specifically). The implications of this expertise in the current proposal will be addressed in greater detail in chapters 3 and 5.

software is typically used in the analysis of interview or focus group transcripts, it is equally well suited for the examination of literature. In addition to the most relevant literature (Appendix B), I also imported a large corpus of other items (112) that briefly and implicitly invoked transparency. I did this in order to search for discursive patterns that might reveal associations with (or dimensions of) transparency. Although the examination of these additional 112 items did not yield information that informs the current research proposal, it affirmed the salience of the 50 core materials by contrast.

To help me identify and articulate the patterns in the literature, I used several strategies in NVivo. First, I created journals (known as memos in NVivo) to gather information that was dispersed across articles but conceptually related and to write about the relevance and implications of this material. For example, I created a journal called, "Questions and interpretations" to keep track of the ideas that emerged during the coding of the literature. Some of the reflections in this memo pertained to unresolved tensions (e.g., between transparency of the research and maintaining confidentiality with study participants [Spickard-Prettyman & Jackson, 2006]) and others explored the relationship between transparency and other phenomena (e.g., the relationship between democracy, transparent governance, and education [Waddington, 2010], or the relationship between transparency and action research [Milofsky, 2000]). While some of these memo entries helped inform the current research proposal, others did not.

I also created "nodes" (i.e., codes) to collect thematically related portions of the content across articles. Some of these were *a priori* categories driven by practical demands. For instance, I knew I would need to look at research and expository literature independently, even

though a single article or book might make use of both types of materials. I therefore coded the content of the relevant books and articles to these mutually exclusive nodes. In addition, using the constant comparative method (Glaser & Strauss, 1999), a wide array of nodes were generated while reading the literature (e.g., audit culture, confidentiality, IRB, journaling, learning, phenomenology).

This coding helped me pursue some of the patterns in the data. For instance, after coding roughly 60 books and articles, I became aware of two issues in the discourse: First, a large proportion of data critiquing transparency pertained to concerns about the potentially standardizing, homogenizing, or hegemonic influence of the pursuit of transparency on the handling of qualitative data (Denzin & Giardina, 2008; MacLure, 2005; Strathern, 2000). In this literature, transparency was negatively associated with an audit culture. Furthermore, as will be detailed in a later section of this chapter, the concerns were not limited to qualitative research scholars in constructionist, feminist and postmodern traditions, nor were they limited to scholars in education.

Second, as a counter-argument, a large proportion of the literature that promoted the pursuit of transparency in qualitative research positioned it as a protector of methodological diversity precisely because it was not inherently methodologically restrictive (Hiles, 2008; Meyrick 2006; AERA, 2006; di Gregorio & Davidson, 2008). While the thematic coding structure helped organize the literature according to the most common patterns, it did not help generate relevant research questions or provide guidance on how to study qualitative research transparency in education. Ultimately, five pieces of literature that did not fit nicely into the coding structure – and initially seemed only tangentially related to the current inquiry – proved

to be the most salient for both understanding and studying transparency. I will turn to these

five items momentarily.

Literature Review Findings

The scholarship analyzed in this chapter was separated into three categories and will be

presented in this order:

1) Materials in which transparency was approached as a complex, socially constructed concept with diverse and negotiated meanings that achieved salience for community members in and through every day practices; this material did not directly address qualitative research transparency but the theories and methodologies in it will be adapted to do so (four items[7]).

2) Any book or article in which the concept of qualitative research transparency was framed with models, checklists, or items to be considered as part of a transparent account of the research (28 items[8]).

3) Literature from a range of disciplines that specifically addressed the way power was leveraged in and through transparency (17 items[9]).

One of the key findings from the literature review was the contrast among these three

categories of literature, which had implications for the research questions and methodology.

---

[7] Henderson, 1999; Meira, 1998; Noss, Baker, Hoyles & Kent, 2007; Wenger, 1991.

[8] Among this literature, 12 items discussed QDAS and the other 16 did not. QDAS literature was from Beekhuyzen, Nielsen & von Hellens, 2010; Blismas & Dainty, 2003; Bringer, Johnston & Brackenridge, 2004; di Gregorio & Davidson, 2008; Friese, 2011; Hutchison, Johnston & Breckon, 2009; Johnston, 2006; Ryan, 2009; Sin, 2007; Spickard-Prettyman & Jackson, 2006; Thompson, 2002; Wickham & Woods, 2005. The other 16 items were: American Educational Research Association, 2006; Auerback & Silverstein, 2003; Dale, 2006; Gambrill, 2007; Green & Skukauskaite, 2008; Harry, Sturges & Klingner, 2005; Hiles, 2008; Meyrick, 2006; Milofsky, 2000; National Center for Social Research, 2003; Nolen & Talbert, 2011; Ortlipp, 2008; Skukauskaite & Green, 2012; Strathern, 2000; Suri & Clarke, 2009; Tilley & Powick, 2002.

[9] Baker & Williamson, 2000; Bob, 2000; Brin, 1998; Denzin & Giardina, 2008; Finel & Lord, 2000; Goodwin, 1994; Government Accountability Office 2010; Levacic, 2008; Livingston, 2000; Lord, 2006; MacLure, 2005; Mitchell, 2000; Quinn, 2003; Solove, 2004; Taylor, Downs, Baker & Chikwa, 2011; van Vught & Westerheijden, 2010; Waddington, 2010.

Category 1: Transparency in practice

In Meira's (1998) study of an eighth grade math classroom, he observed students

working with a winch, a spring, and a number machine as part of a linear function lesson. The

primary research question was, "How do people (e.g., students) interpret and make use of the

material displays (e.g., instructional devices) that are part of a cultural practice (e.g., the

mathematics classroom)?" (p. 122). Meira cited Wenger (1991) and Lave and Wenger (1991) to

propose that tools such as the winch, spring and number machine were cultural artifacts that

provided access to specific knowledge, activities, and practices of a particular social group.

Furthermore, an individual's understanding of the object might be largely determined by his or

her membership in this group. In this regard, transparency was contextualized as an *index of*

access to knowledge. Instead of viewing a spring as an object with concrete, stable, and agreed-

upon characteristics, a child's view of the spring was mediated by whether he or she had ever

played with a Slinky, seen exposed springs in a mattress, or disassembled a spring-loaded ball

point pen. Therefore, the way a child understood the spring was conceptualized as an indicator

of his or her situated experiences, not as a direct result of identifying concrete characteristics of

the spring. This view was contrasted with *epistemic fidelity*, the correspondence between

tangible features of physical objects and a target knowledge domain, a more traditional and

narrow view (Roschelle, 1990).

To compare these two views, Meira first mapped the features of the winch, spring and

number machine according to an expert's understandings of tangible relations between the

devices and the underlying mathematical principles (the epistemic fidelity view). He then

ranked the devices from most transparent (winch) to least transparent (spring). After observing

and videotaping the students as they worked on the activity, he concluded that despite the

ranking from the expert point of view, students working with the winch and spring found it

difficult to deal with features of high epistemic fidelity.

Nonetheless, as they worked with one another, the students gradually came to

understand the relationship between the tools and the linear functions.

> This interpretation suggests that the students' participation in specific mathematical
> practices in school (and arguably not just knowledge acquired or constructed therein)
> allowed them a cultural reading of the displays used in the research study. That is, the
> devices were made meaningful in different ways as the children experienced the cultural
> significance and transparency of each. (p. 136)

The students engaged in what Meira called *transparency in the making* (p. 136), which was the

gradual construction of the meaning of the devices through interaction; the items did not arrive

in the classroom with an intrinsic quality of transparency, they acquired transparency as

students worked with them.

Meira recommended that designers of instructional tools consider the contexts in which

the displays were meant to function (the perspectives and histories of the users), as well as the

physical characteristics of the tools, themselves. Although he did not mention the way

qualitative researchers conceptualize transparency, he raised an important implication for

understanding it: From a situated learning perspective, qualitative research transparency is

constructed in and through practice and interaction, as researchers simultaneously shape and

understand the tools by which they might pursue transparency. In this study I asked, how do

qualitative researchers engage in transparency in the making while they work with data and

communicate their results?

Noss et al. (2007) took a different approach to understanding transparency, though in a similar field. As part of their study on techno-mathematical literacies in industrial workplaces, their paper analyzed data collected over a 12 month period (observations, interviews, e-mail exchanges and telephone conversations) and focused on the ways knowledge was negotiated and transformed across boundaries in a workplace. The findings were presented via the construction of two vignettes regarding the struggle for shared meaning.

In the vignettes, the shift leader and the process engineer were faced with several graphs from the production line. In one of the vignettes, the factory worker became aware of a problem in production and then looked at a graph to help diagnose the location of the problem. Even though this helped the engineer give corrective instructions to the mechanics, the elements in the graph would not normally indicate a problem. In other words, the factory worker combined an awareness of the problem with the data in the graph to diagnose the situation; the engineer combined that information with an understanding of the process of production to correct the problem. The graph was neither simply a representation of a problem, nor was it similarly transparent to the worker or the engineer. Furthermore, it required multiple perspectives in order to be useful in the specific context. Therefore, despite the lack of agreement regarding transparency, the graphs were identified as useful and adequate.

The authors concluded that a full account of techno-mathematical knowledge in the workplace required a more complex understanding of a *spectrum of transparency*. They pointed to potential elements of such a spectrum via Peirce's (1976, 1992) semiotics:

1) Indices: Visualizations that did no more than draw attention to an aspect of a system for further investigation.

2) Diagrams: Visualizations that presented complex signs of relations (or models).

3) Depth of sign: The layers of interpretation made from a sign that helped explain the way individuals generated different interpretations from the same visual.

While these additional ways of conceptualizing transparency pointed to its complexities (particularly via depth of sign), the authors raised Peirce's ideas in the conclusion and as ideas for future research; they did not apply these conceptualizations to the vignettes.

The research by Noss et al. (2007) also raised an important implication for studying transparency among education researchers: An account of qualitative research transparency needs to consider that differences among researchers regarding their perceptions of transparency might not be a problem and, in fact, these differences might improve understanding. Transparency might operate along a spectrum or continuum, and individuals might agree that a research project is good and transparent, though they might see this transparency (and use the research findings) in different ways (just as the graphs were non-problematically seen and used in different ways). Therefore, to contribute to an understanding of qualitative research transparency in education (and also to the discussion of qualitative research standards) I also asked, what types and amounts of diversity regarding qualitative research transparency were discussed, and what were the implications of this diversity?

A third study from the field of engineering also informed my conceptualization of qualitative research transparency. In her book, *On Line and On Paper: Visual Representations, Visual Culture, and Computer Graphics in Design Engineering*, Henderson (1999) studied the visual representations used by engineers to shape the structure of their work and how these representations related to collected ways of knowing in an organization. Using examples from

engineering drawings, group meetings, and observations, Henderson argued that coordination

of (and conflict in) engineering work took place over and through drawings.

Concepts and theories used in the book include:

1) Social constructionism: Our ideas and perceptions do not map an objectively known external reality (Latour & Woolgar, 1979).

2) Practice theory: All knowledge in everyday work is grounded in practice within cultural, technical and organizational constraints (Hutchins, 1995; Lave, 1988; Suchman, 1987).

3) Actor-Network theory: A symmetrical treatment of human and non-human, mutually influential actants, because durable and interconnected links tie them together (Callon, 1986; Latour, 1987; Law, 1987).

4) Boundary objects: Objects that allow different groups to come together for a common endeavor in the absence of consensus, such as the aforementioned graphs in Noss et al. (2007). The objects have some common identity across groups, but are flexible enough to adapt to local needs and constraints (Star, 1989; Star & Griesemer, 1989).

5) Inscriptions: Intentionally arranged verbal or visual devices such as instructional diagrams (Latour & Woolgar, 1979).

6) Conscription devices: A term Henderson (1999) developed as a subgroup of inscription devices. These exert a powerful influence over the process (i.e., it becomes hard to communicate without them). She contrasted conscription devices with boundary objects, because the latter focus on the product, while the former "enlist group participation and are receptacles of knowledge that is created and adjusted through group interaction with a common goal" (p. 53).

Based on these concepts and on her research, she claimed that:

. . . messy, interactive practices contribute to the mutual and simultaneous construction of technological outcomes and the conscription network that produces them. Visual representations are both the product of and resources for situated practice . . . that are part of engineering new technologies. (p. 13)

Henderson observed that visualizations in engineering work had a *meta-indexical* quality (a

locus for multiple ways of knowing) because of "their ability to be a holding ground and

negotiation space for both explicit and yet-to-be-made-explicit knowledge" (p. 199).

She therefore made a case that the role of visual representations in the pursuit and expression of transparency could be understood through the concept of *boundary objects*. She was reaffirming that by definition, boundary objects sustain these meta-indexical qualities as part of their flexibility across contexts. However, she was also pointing to the ongoing negotiation within a community regarding the local meaning. Visual representations could become arenas where local dilemmas were introduced, manipulated, and resolved within a community. This pointed to an additional question that I asked in this research, how were conceptualizations of qualitative research transparency negotiated as researchers discussed and debated visual representations of their data and/or analysis?

As the final piece of literature in the current category, Wenger's (1991) dissertation explored transparency in depth, and although his understanding of transparency was related to the subsequent books on *communities of practice* (Lave & Wenger, 1991; Wenger, 2008), it received only a passing mention in them. While his dissertation was aligned with Henderson's work in many ways (the use of boundary objects, the negotiation of the boundary objects and associated inscriptions, etc.), Wenger (1991) placed a greater emphasis on the way individuals gained and retained membership in order to be able to participate in the negotiation about boundary objects. Wenger's dissertation relied on observations and interviews at an insurance claims division to examine the ways employees learned about and made sense of institutional artifacts (such as documents). The relationship between person and object was mediated by a person's forms of membership in specific communities and by an object being part of the social practices of these communities. To the extent that the communities were different, Wenger said the item could be considered a boundary object (Star, 1989; Star & Griesemer, 1989).

For Wenger, *cultural transparency* was the act of seeing the cultural significance of visible objects, acting on this significance, and potentially challenging either the interpretations of these objects or the way they were produced. Wenger claimed that an individual's understanding of the various objects used to shape and express this situated world depended on participation in the context (and not as a distanced outsider). In addition, this understanding of one's world could not simply be imparted by elders or experts. Like Meira's (1998) eighth graders, Noss et al.'s (2007) workers and Henderson's (1999) engineers, understanding was acquired through participation.

Wenger concluded that both the objects produced in this sociocultural world as well as the processes used to create them were held together by two simultaneous tensions. On one hand, there were cultural trajectories at work that pressed individuals toward a more static and rigid persistence according to pre-existing forms (reifications) and activities (practices); Henderson (1999) refers to these more static and persistent forms and activities as *conscription devices*. On the other hand, there might be moments of individual creativity or cultural flux (depending on the context) that modify the forms, the activities, and/or the way they were interpreted by participants. Wenger's idea of cultural transparency was the process by which participating individuals were able to navigate the tension between constancy and change while sustaining membership in their communities of practice. Cultural transparency, as I describe later, is analogous to research transparency because research transparency also requires that successful qualitative researchers navigate changing understandings of the way transparency is enacted in practice.

The two dualities that comprised cultural transparency were 1) invisibility (participation)
and visibility (reification) as well as 2) stability and change, and they were expressed in the
following table along with Wenger's subsequent narrative:

	Stability	*Change*
Invisibility: **Configurations of participation**	confluence of continuous trajectories of participation and coherence of membership	fluidity of renegotiation and emergent restructuration
Visibility: **Configurations of reification**	physical rigidity of representational objectification and localization through proceduralization	reflection of practice and dislocation through perspectival reinterpretation, realignment and redesign

Table 2.1: Unlabeled table from Wenger, 1991 (p. 162)

Configurations of participation are sources of stability by renewal of the awareness that
gave rise to the community of practice to start with; this reproductive process is located in
the continuity of trajectories of participation and in the coherence of membership that
characterize a community. Configurations of participation are sources of change by the
fluidity that is inherent in the direct engagement in the renegotiation of meaning and by the
restructuration that emerges from the configuration of this fluidity. Configurations of
reification are sources of stability through the rigidity of the physical world, including the
memory of forms, and through the localization of interpretation around rigid
representational forms that proceduralization enforces. Configurations of reification are
sources of change by the fact that reified reflection of practice always needs
reinterpretation in practice, but that this need for reinterpretation can dislocate practice or
force realignment of perspectives; such dislocation can be made intentional through design.
(p.156)

To understand the meaning of artifacts[10] (so they became culturally transparent), one must also

understand how an individual acquired membership (later known as *legitimate peripheral*

---

[10] An artifact is an item made by people, usually with a specific purpose in mind. This artifact might or
might not be considered a boundary object, depending on the degree to which it helps coordinate
activity among different communities without consensus. An item might be both an artifact and a
boundary object, although this is not always the case.

participation [Lave & Wenger, 1991]). Membership subsequently provided access to "the understanding that underlies the production of the visible" (p. 3).

Although Henderson observed the negotiation of transparency during discussions of engineering drawings, Wenger conceptualized larger social processes that provided access to the negotiations. He did so by relating the tension between reification and participation to the tension between constancy and change and connected these to the way individuals gained, claimed and retained membership in order to be able to participate in the negotiation. Negotiations about the transparency of artifacts were related to negotiations about membership in the community. Therefore, in this study of qualitative research transparency I also asked, what are the dynamics surrounding the way qualitative researchers negotiate who had a metaphorical "seat at the table" during the discussion of transparency?

Taken together, the research by Henderson (1999), Meira (1998), Noss et al. (2007), and Wenger (1991) pointed to the utility of examining how qualitative education researchers made sense of transparency in everyday practice through the boundary objects they used to discuss it. Noss et al. (2007) stated that diversity of perceptions regarding transparency were an inevitability, given different personal backgrounds and sociocultural positions (such as the line worker and process engineer) and these differences might not be problematic. When differences in perceptions regarding transparency became problematic or contested within a community of practice, they could be understood in and through the inscriptions and boundary objects that were leveraged to negotiate claims to knowledge (such as Henderson's [1999] engineers). It is important to remember, however, that these negotiations are not available to

everyone, and that significant work must occur for participants to gain and retain a seat at the table during negotiations (as described by Wenger [1991]).

The current research focused on two primary artifacts created as part of the qualitative education research process: Qualitative dissertations and E-Projects (a specific corpus of data within a QDAS program). Although the detailed rationale for focusing on these two artifacts is provided in chapter 3, I introduce them here to point to two primary characteristics that also make them boundary objects (items that coordinate activities across communities of practice in the absence of consensus). First, the structure of qualitative dissertations and the structure of QDAS are widely agreed-upon in terms of their general features (chapter structure and primary tools, respectively). Next, across different communities of practice, there is great variety in the application (or use) of these artifacts through a range of data formats (e.g., text, video, and pictures) and methodologies (e.g., ethnography, phenomenology, and hypothesis testing) – among other characteristics. This variety reflects the ability of researchers to leverage aspects of these boundary objects to suit their particular enterprises, though they would generally agree that they are all conducting qualitative research.

In addition, I argue that when they intersect, qualitative dissertations and E-Projects can serve as particularly viable sites for examining the complexities of qualitative research transparency. This intersection presented an opportunity to observe the way novices (doctoral candidates) as well as experts (one of their committee members) framed or negotiated the way an E-Project, the associated written dissertation, and the culminating oral defense either contributed to or detracted from the pursuit of transparency in specific contexts. This included an examination of specific instances when the participants perceived tensions, parallels,

synergistic relationships, etc. between the E-Projects and the dissertations. The rationale and process for selecting and studying these intersecting boundary objects will be detailed later in chapter 3.

Category 2: Accounts of and guidelines for pursuing transparency

<u>Transparency as a boundary object</u>

Up until this point, transparency in qualitative research has been positioned as a phenomenon that can be understood through the two boundary objects (dissertations and E-Projects) used to leverage, explore and create it. At this juncture, I also propose that transparency, itself, can be conceptualized as a boundary object. In *Sorting Things Out: Classification and its Consequences* (1999), Bowker and Star acknowledged the convincing claims made by Clarke and Fujimura (1992a, 1992b), Engstrom (1990) and others, that "an idea, or something that has been learned, can also be considered as having material-objective force in its consequences and mediations" (Bowker & Star, 1999, p. 298). An "'Object' includes all of this—stuff and things, tools, artifacts and techniques, and ideas, stories, and memories—objects that are treated as consequential by community members" (p. 298). In her most recent article, Star (2010) also acknowledged that a boundary object's "materiality derives from action, not from a sense of prefabricated stuff or 'thing'-ness. So, a theory may be a powerful object" (p. 603). She also stated that while this was one of the original facets of the concept, researchers applying the approach have largely focused on the materiality of boundary objects. This raises the possibility of considering transparency as a boundary object.

In transitioning to consider transparency as a boundary object, it may be helpful to use an example from Derry, Pea, Barron, Engle, Erickson, Goldman, Hall, Koschmann, Lemke, Sherin

and Sherin (2014). In their examination of the way video segments are selected and analyzed, the authors raised issues around collaborative video research that entailed the use of boundary objects, including technologies, methods, and the video segments, themselves. However, as they detailed, sharing video segments raised ethical, technical, and practical difficulties. They positioned the ethical difficulties as boundary objects, because no one researcher could do all of the analysis or handle all of the ethical issues. So, they collaborated despite their potentially different localized experience of addressing ethical issues in the use of video. Collaboration in the absence of consensus (as the definition of a boundary object states) brings especially challenging decisions when the boundary objects are the ethics, themselves. In addition, the authors concluded that their research, "must include programs of work that will create infrastructures—boundary objects allowing us to become an adaptive, distributed, collaborative, expert community" (Derry et al., 2014, p. 41). Here, they identify another potentially non-physical boundary object, collaborative infrastructures for conducting research.

By anchoring transparency in a boundary object perspective, it becomes possible to more purposefully examine the underlying assumptions about transparency in different contexts and the ways researchers leverage transparency to make their claims; the boundary object perspective can potentially focus on the dynamic relationship between 1) widespread acceptance of the pursuit of transparency, and 2) the absence of a standardized meaning across contexts. Rather than conceptualize these differences as a problem, a boundary object approach can reveal the circumstances in which these differences further the dynamic construction of transparency in practice. As I detail in the next subsection, qualitative researchers from diverse disciplines invoke the term and they tend to use it most often in

reference to published reports of research findings. These scholars generally agree that the purpose of pursuing transparency is to ensure that the research findings and implications can be trusted, and while they tend to support this broad meaning, there is evidence that they also use the term for local, customized purposes; transparency might look different, for instance, in an ethnography, a phenomenological study, or an evaluation research project. However, because no current research applies a boundary object approach to the study of qualitative research transparency, an additional research question addressed by the current study is, how well does a boundary object conceptualization inform an understanding of qualitative research transparency?

Regardless of whether a boundary object is a physical item, a concept, or a process, it always implies a more-or-less coordinated, socially situated activity, with a common understanding across groups, but a flexibility in application to specific, local contexts. Understanding the interplay of these three boundary objects (dissertations, E-Projects, and transparency) and the way they were leveraged by qualitative education researchers to stake claims to knowledge was one of the goals of this study. Considering transparency as a boundary object, I now turn to the expository literature about transparency in qualitative research that promoted the pursuit of transparency and in which there was evidence that transparency was being used as a boundary object.

Local use of transparency a boundary object

Evidence of local adaptations of transparency in the qualitative methods literature was demonstrated by the way some scholars directed attention to the transparency of a single aspect of the research. The majority of these researchers emphasized a transparent account of

their coding processes. In their book on qualitative coding and analysis, Auerbach and

Silverstein (2003) emphasized transparency of coding as one of the criteria for communicating

results. Hoover and Koerber (2011) added that the access to codes in NVivo enabled the

researcher:

> . . . to efficiently show others what data were collected and how those data were
> interpreted. The screenshots . . . suggest how researchers can provide readers with visually
> clean snapshots of their interpretive work. Although snapshots could be provided if the
> researcher were coding by hand (or using digital means), the process would not be nearly as
> easy, and the resulting visuals would not be as clean and well suited to the task. (p. 76)

This emphasis on the explication of the coding process as a critical component of transparency

was also reflected in four of the articles that connected transparency to the use of QDAS in a

specific study (Bringer et al., 2004; Friese, 2011; Sin, 2007; Thompson, 2002; Thompson,

McCaughan, Cullum, Sheldon & Raynor 2004; Wickham & Woods, 2005). In a few instances

(both with and without QDAS), the focus of transparency was on another aspect of the

research, such as sampling (Green & Skukauskaite, 2008), transcription (Tilley & Powick, 2002),

journaling (Bringer, et al., 2004; Johnston, 2006; Ortlipp, 2008), or reflexivity (Bazeley, 2013;

Harry, Sturges & Klingner, 2005; Hiles, 2008; Skukauskaite & Green, 2012; Suri & Clarke, 2009;

Taylor, Downs, Baker & Chickwa, 2011). In addition, one article sought to transparently

demonstrate a grounded theory study (Hutchison, Johnston & Breckon, 2009).

The visuals used to demonstrate various portions of the process by QDAS researchers

often took in the form of screen-captures (pictures of the visible interface on the monitor) that

were subsequently inserted into their narrative (Beekhuyzen, Nielsen, von Hellens, 2010;

Bringer, et al., 2004; Friese, 2011; Hutchison, Johnston, Breckon, 2009; Ryan, 2009; Wickham &

Woods, 2005). This resonated with Henderson's (1999) conceptualization of engineering

drawings; like Henderson's engineers, QDAS users provided screen-captures of their databases

(as inscriptions), often with associated narrative, which simultaneously shaped and reflected

perceptions of transparency in practice. Whether the researchers cited above did or did not use

software, each of them simultaneously staked a claim to transparency (by detailing a particular

application of the principle), while participating in the collective pursuit of transparency as

qualitative researchers.

<u>More stable and consistent features of transparency across contexts</u>

At a more general level of abstraction, transparency was also invoked in the guidelines

about how to report empirical qualitative education research. These guidelines served as a

reification of transparency by presenting models of this abstract principle in a manner that

resembled Star and Griesemer's (1989) "ideal types". These boundary objects were fairly vague

because they were abstracted from particular domains to provide a good enough roadmap for

all participants. Meyrick's article on "What is Good Qualitative Research?" (2006), the AERA

"Standards for Reporting on Empirical Social Science Research in AERA Publications" (2006),

and di Gregorio and Davidson's book, *Qualitative Research Design for Software Users* (2008),

were the three most relevant examples of ideal types of transparency. Each of them discussed

the concept of transparency across a range of research activities and methodological

approaches, and provided guidance about how to transparently represent empirical research.

Meyrick's (2006) article was a culmination of a literature review across several research

disciplines (bio-medical, health services research, health promotion and public health,

psychology and health psychology, sociology, and how-to guides) in an attempt to find

commonalities among descriptions of qualitative research rigor. While not exhaustive, Meyrick

identified the twenty frequently cited articles and books she used in her review and also listed

the twenty individuals invited to participate in a subsequent "health education authority expert

panel." (See Appendix C for both lists.) From this investigation, Meyrick said that two core

principles of qualitative research were consistently identified: transparency and systematicity.

Like most other scholars who discuss transparency, she positioned it in the context of

research reports, so readers could assess the merits of the research:

> Using the key reference points of systematicity and transparency, readers are led through
> the stages of a qualitative study and asked to check whether studies attempt to
> demonstrate elements of each principle under the key headings of researcher
> epistemological and theoretical stance, process and analysis (methods, sampling, data
> collection, analysis) and results and conclusions (applicability). (Meyrick, 2006, p. 804)
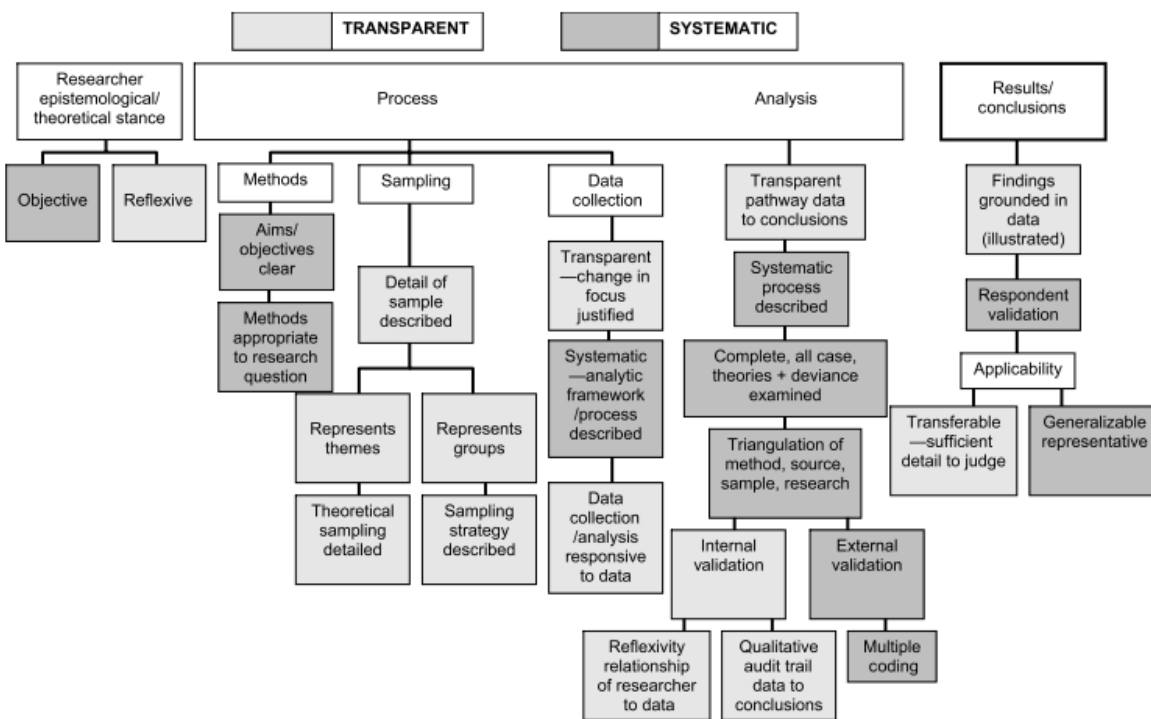

Figure 2.1: Meyrick's quality framework for qualitative research (2006, p. 803)

The framework contained six main components (researcher epistemological/theoretical stance, methods, sampling, data collection, analysis, and reports/conclusions[11]) and within each of these components, she identified the areas that required explanation in order for a qualitative research report to be considered transparent (e.g., "theoretical sampling" and "internal validation").

The main stages identified by Meyrick provided a framework and were similar to other guidelines, such as the one produced by AERA (2006) on "Standards for Reporting on Empirical Social Science Research in AERA Publications." The AERA document focused on both qualitative and quantitative designs, and made the claim that the principle of transparency could be pursued by clearly explicating the following seven areas in empirical research reports:

1) Problem formulation: The issue or question that serves as a motivation for the study.

2) Design and logic: The selection of appropriate methods and procedures (parallels Meyrick's methods).

3) Sources of evidence: The data collected to address the research question, including a discussion of the researcher position and his/her relationship to the data (parallels Meyrick's sampling, data collection, and researcher stance).

4) Measurement and classification: Usually used to segment, categorize, or code data (parallels Meyrick's data collection and analysis).

5) Analysis and interpretation: Evidence for the conclusions including procedures and techniques. For qualitative studies this usually entails evidence for patterns through iterative processes (parallels Meyrick's data collection and analysis).

6) Generalization: When relevant, a justification and logic for extending the interpretations beyond the local research context (parallels Meyrick's results and conclusions).

---

[11] While the model contains four top-level stages, her narrative attends to the three "process" stages (methods, sampling, and data collection) separately.

7) Ethics: Ethical factors in the design, implementation and reporting of the research and the rationale for any choices made in the event of ethical conflicts or dilemmas.

The AERA document added two aspects to Meyrick's framework: the problem formulation and ethics. While there were a few other guidelines for reporting qualitative research that specifically addressed transparency (e.g., Gambrill, 2007; Nolen & Talbert, 2011), these two documents made the most comprehensive attempts to tie the guidelines to the principle of transparency.

In a similar discourse, QDAS experts such as Ryan (2009) often claimed that the purpose of pursuing transparency was to allow others to assess the merits of research reports.

> The intricate processes of organising, coding and analysing the data are often rendered invisible in the presentation of the research findings, which requires a 'leap of faith' for the reader. Computer assisted data analysis software can be used to make the research process more transparent, without sacrificing rich, interpretive analysis by the researcher. (p. 142)

The importance of transparency in the production of qualitative research reports was also echoed by other experts in QDAS (Beekhuyzen et al., 2010; Johnston, 2006; Wickham & Woods, 2005), and received the most attention from di Gregorio and Davison (2008) in their book on *Qualitative Research Design for Software Users*.

Di Gregorio and Davidson (2008) detailed eight research projects in order to describe the adaptability of QDAS to different research designs and to make a claim regarding the enhanced transparency that QDAS affords. The authors introduced the genre of an E-Project to make a distinction between QDAS (the genre of software) and an E-Project (a specific corpus of data within a QDAS program). The eight E-Projects occurred in four sectors (higher education, basic science, government, and commercial) with a focus on single organizations as well as multi-organizational networks. The researchers applied various methodologies (ethnography,

traditional evaluation, case study, etc.) and used one of four QDAS programs (ATLAS.ti,

MAXqda, NVivo, and XSight). The range of materials and QDAS options was designed to

emphasize the diversity in qualitative research to which the principal of transparency could be

applied, a stance that paralleled most of the scholars who do not use QDAS.

Within this diversity, di Gregorio and Davidson (2008) described four core elements to

be made transparent in a qualitative study, regardless of whether a researcher used QDAS or

not. The four core issues were:

1) Research topic/problem: An articulation of the motivations or purposes for exploring
   the research topic, which might include intellectual, personal, political, practical or
   theoretical factors (parallels AERA's problem formulation).

2) Research questions: The what/why/how questions and the relationship between
   these questions and the epistemology, theory and methods used (parallels Meyrick's
   researcher stance and methods; AERA's design and logic).

3) Data collection: The sources, research location, sampling strategy, and duration of
   data collection (parallels Meyrick's sampling and data collection; AERA's sources of
   evidence).

4) Data handling and analysis: Organizing the data into a filing system that could be
   cross referenced (organization) and analyzing the data (a combination of
   disaggregating, contextualizing and memoing) (parallels Meryrick's data collection
   and analysis; AERA's measurement and classification, analysis and interpretation,
   and generalization).

Similar ideal types that promoted transparency were also developed by organizations in the UK.

The National Center for Social Research (2003) conducted an in-depth literature review,

interviews, and a workshop to produce a guide for the conduct of qualitative research. One of

the principles in the guide was the "the systematic and transparent collection, analysis and

interpretation of qualitative data" (p 6). A similar guide from the Economic and Social Research

Council (Dale, 2006) identified transparency as a principle that transcended particular methods (qualitative or quantitative).

While these ideal types served as guideposts, generated by qualitative researchers, no one has published research that investigates how well the proposed elements of a transparent account do or do not align with perceptions of qualitative education researchers regarding their own research and their attempts to pursue transparency in specific studies. Nor has anyone examined the relationship between the three boundary objects (written accounts of the research in the form of a dissertation, an E-Project, and transparency). In this dissertation, by studying the way researchers engaged in transparency in the making (Meira, 1998) with these three boundary objects, the various elements of the ideal types were informed by actual research practice.

Category 3: The power of transparency

Before detailing the design that addressed some of the aforementioned gaps in the research, I turn to the category of literature that attended to the relationship between transparency and power. Although power was an implied factor in both Henderson's (1999) and Wenger's (1991) descriptions of the way boundary objects were leveraged, other scholars paid more attention to this aspect of transparency and provided cautions and criticisms about the potential problems with this power, particularly when it went unexamined.

One example of research on transparency and power in the education literature was from Quinn (2003), who studied the way women conceptualized the transparency of the physical space of higher education campuses. Quinn used interviews, focus groups, diaries and observations to examine the way 21 diverse women in two universities in the UK understood

and navigated the campus. Because they positioned the university as a haven from external threats, the women conceptualized the physical space in emotional terms, rather than rational terms that simply described the physical lay-out of the grounds.

However, their control over this interpretation was tenuous, and Quinn observed that the conceptualization of a safe, emotional space for women repeatedly came up against limits, such as patronizing instructors and male-dominated science courses. In addition, the durability of the safe space was compromised by their awareness that unsafe spaces awaited them in the labor market upon graduation. In this regard, even the physical space of the campus was not transparent and was constantly in flux as women confronted larger power structures that also shaped the meaning of their physical surroundings. The implication of Quinn's work for the current research was to point to the merits of a critical approach to transparency by investigating the way power operates in and through conceptualizations of transparency to shape perceptions of taken-for-granted objects (such as a campus map, a qualitative dissertation, or an E-Project). Quinn's study was the only research that placed transparency as the primary subject within a critical theory approach, and the remaining literature in qualitative methods that addressed the troublesome relationship between power and transparency was expository.

The expository literature outside of QDAS regarding transparency and power was produced by scholars who either raised concerns about the influence of transparency on the culture of research or identified epistemological problems with pursuing transparency.[12]

---

[12] While a few QDAS experts also raised concerns with transparency (Spickard-Prettyman & Jackson, 2006), their cautions related primarily to the ethical tension between transparency and confidentiality, not to any epistemological or ideological problems with it.

Regarding the former, Strathern (2000) asserted that an "audit culture" might use the rhetoric of openness or transparency while ignoring alternative ways of understanding. From this perspective, "Transparency is in turn embedded in certain practices (artefacts, technologies) of accountability, epitomised by the notion of 'audit'. . ." (p. 313). Echoing Giddens (1991), she argued that a counter-productive paradox might be at work: The typical annual implementation of bureaucratic technologies that foster an ever-increasing volume of data collection in an audit culture might actually limit certain forms of understanding. For example, a culture of research creativity could be critical to institutional excellence, take generations to show itself, and be potentially overlooked during annual assessments of productivity. The transparency tools promoted by van Vught and Westerheijden (2010) to better inform stakeholders about the university's performance were examples of the way transparency could be associated with an audit culture in education; simultaneously holding one group accountable to a powerful other through technologies that might not fully measure academic contributions.

MacLure (2005) raised a similar critique against systematic reviews and their "mix of old-style scientific positivism (systematicity, reliability, rigour, replicability) and the now-familiar rhetoric of the 'audit culture' (transparency, quality assurance, standards)" (p. 23). This rhetoric places a formalized, logical limit on measuring research contributions through a synthesis or a meta-analysis. She argued that these systematic reviews were often assessed via pre-determined and easily quantified criteria. The alternative – an evolving and context-dependent interpretation among experts/colleagues regarding what it meant to contribute to knowledge – was abandoned as less rigorous. She also argued that the form of systematic reviews promoted by powerful agencies (such as the EPPI Centre at the University of London) did not hold up to

their own criteria of transparency, because they did not make all of their processes open to scrutiny (e.g., criteria used to exclude particular studies from a review).

Lodging the most critical expository arguments against transparency in qualitative research (because of ideological and epistemological concerns), some scholars claimed there will always be a purposely deceptive Foucauldian power structure behind the pursuit of transparency (Foucault, 1991). According to these critics, the governmentally appropriate conceptions of transparency will always carry the intent to concentrate power among those who already possess it. While the Government Accountability Office (GAO) produced a document that claimed to promote public awareness of federal programs via transparent reporting (2010), the document might be more reflective of the GAO's power to construct measures of transparency than the public's power to respond to or engage with the information in it.

With the power of governmentality in mind, Denzin and Giardina (2008) attacked the way transparency threatened to standardize the reporting of empirical research. In their direct response to the AERA document on "Standards for Reporting Empirical Research in AERA Publications" (2006), they positioned transparency as part of the "new managerialism" (p. 24) that threatened to transform rigorous qualitative research into a mechanized and unreflective process. Denzin and Giardina critiqued transparency as the new objectivity, purposefully and malevolently engineered to limit the contributions of qualitative researchers.

This was also a fairly common stance among post-modernists. As Rosenau (1992) explained, "According to the skeptical, post-modernists, representation is politically, socially, culturally, linguistically, and epistemologically arbitrary" (p. 94). The scholars Rosenau

referenced also perceived an indivisible connection between representation, transparency, and objectivity. They saw calls for transparency as an encroachment of scientific method (with the trappings of randomized controlled trials) on the qualitative research endeavor, an endeavor that purposefully pursued alternative ways of understanding. In summary, these qualitative researchers discussed the power of transparency to divide the discourse into two camps: Those who made claims about the merits of transparency (a clear majority in the published literature), and those who vehemently opposed it. In both instances, very little research was available to investigate the claims, and neither camp articulated or incorporated the conceptualizations of the other viewpoint into their scholarship. Therefore, the fourth research question is, how did researchers enact power relations in their use of us/them boundaries (or other discursive strategies) when discussing transparency?

Research Questions

In summary this literature review provided a foundation to pursue the following five questions from the perspective of qualitative education researchers:

1) How did researchers engage in transparency in the making?

2) What were the perceived flexible (locally adaptable) and rigid (standardized across contexts) aspects of the three boundary objects?
   A. Two physical boundary objects: E-Projects and dissertations.
   B. One conceptual boundary object: Transparency.

3) What were the relationships among these boundary objects and how were they negotiated?

4) How did researchers enact power relations in their use of us/them boundaries (or other discursive strategies) when discussing transparency?

By pursuing these questions, one additional theoretical question was also added:

5) In what ways could a boundary object[13] conceptualization inform an understanding of qualitative education research transparency?

---

[13] I add the conceptualization of boundary-work to this theoretical question in the next chapter.

CHAPTER THREE: METHODS

Positions

Reflection on my position

I expected a radical shift between 1995 and 2005 toward widespread adoption of QDAS in the culture of qualitative research. Instead, this shift has been very gradual and limited, and I am not clear if the direction of the trajectory will continue in the coming years, or if it will reverse. This research was developed through my search for an explanation for the slow adoption and uncertain future of QDAS. Although the primary focus of the dissertation was not the trajectory or history of QDAS, my observations of that history for nearly twenty years served as the starting point.

In addition to the relatively slow adoption, which has been professionally disappointing to me, I am concerned about the lack of rich discourse on the use of QDAS in published literature; many critics of this genre of software continue to cite the expository piece by Coffey et al. (1996) to launch their unsubstantiated claims about the problems with QDAS, and while I would agree that this type of technology deserves a critical examination, most of the complaints from qualitative researchers are fairly superficial and fail to examine the complicated interaction between researcher and software in practice. I am also sometimes disappointed by my colleagues with expertise in QDAS for failing to ask more difficult and challenging questions about the role of QDAS (e.g., How is this shaping my practice? What are the trade-offs when I use QDAS? How do I position myself in different settings depending on the audience's view of QDAS? What are the future challenges in the development of QDAS? What implications does the digital age have on the role of QDAS in qualitative research? What

power structures are involved in the support of QDAS and the resistance to QDAS?). Instead, many QDAS experts focus their manuscripts on promoting software use and adoption. This study was, therefore, also intended to contribute to existing research by investigating substantive questions about the challenges and benefits of using QDAS.

Researcher qualifications

I earned a Masters of Education in 1990, began using QDAS in 1993, and started my career as a professional program evaluator in 1996. After a two-year position as Vice President of OMNI Research and Training (an evaluation research firm in Denver, Colorado), I founded Queri, Inc. in 2002. Queri is a qualitative research and consulting company that provides services in qualitative software coaching, qualitative research grant-writing, and qualitative project management. In my seventeen years as an evaluation researcher, I served as principal investigator or co-investigator on a diverse array of qualitative studies in community development, criminal justice, education, public health, and public policy. My current and former clients consist of entities as large as the Centers for Disease Control, the Government Accountability Office, the National Institutes of Health, and the World Bank. They also include many small, nongovernmental organizations in rural and urban settings. These clients primarily rely on my knowledge of qualitative methods and QDAS to help them pursue their research goals.

My conference presentations often address the implications of using QDAS, and I was a principal organizer of the Technology in Qualitative Research day at the International Congress of Qualitative Inquiry in 2008. In 2013, Sage Publications released *Qualitative Data Analysis with NVivo*, which I co-authored (as second author) with Pat Bazeley. I was also second author

of a chapter in the 4th edition of the *Handbook of Research on Educational Communications and Technology*, titled, "Tools for analyzing qualitative data: The history and relevance of qualitative data analysis software" (Gilbert et al., 2013). Given my experience in QDAS and qualitative methods, I was well-suited to conduct the study.

Assumptions

As a primary assumption, this study took a social constructionist position by claiming that transparency is not a universal principal with static characteristics and that it achieves meaning in and through social interaction. This assumption was supported by the scholarship in chapter 2 that attempted to study transparency (Henderson, 1999; Meira, 1998; Noss et al., 2007; Quinn, 2003; Wenger, 1991), and in accord with Schwandt's (2007) "weak" social constructionism, which does not deny reality in the ordinary, everyday sense. Schwandt's weak form of social constructionism includes a range of work in education theory, including Vygotsky's (1978) sociocultural learning theory and Lave and Wenger's (1991) situated learning theory. Weak social constructionism can be contrasted with Rosenau's (1992) description of post-modern constructionism, in which any representation is arbitrary.

Weak social constructionism also often intersects with a critical theory stance (Lave & Wenger, 1991) which attends to power relations in particular social contexts. This was evident in works such as, *Identity and Agency in Cultural Worlds*, by Holland, Lachicotte, Skinner and Cain (2001), where discourse and action were positioned as "tools that build the self in contexts of power" (Holland et al., p. 27). By taking a critical research stance, this study considered transparency to be a social phenomenon that was tied to personal identities, cultural practices, historical circumstances, institutions, and power structures.

Theories

Boundary objects

The primary approach to this dissertation was based on Star (1989) and Star and

Griesemer's (1989) boundary object theory, which is in close alignment with the first category

of literature in chapter 2, "Transparency in Practice". A boundary object is a concept or process

that coordinates activities of different communities in the absence of consensus. While

boundary objects share some meaning across communities, they can also be adapted to satisfy

local needs by specific communities. The three boundary objects at the center of this research

are qualitative dissertations (with a focus on education), E-Projects, and transparency.

Dissertations

As a boundary object, the qualitative education dissertation contains fairly standard

sections (e.g., problem, literature review, methods, analysis, and results), the meanings of

which have been shaped over time through ongoing use by the larger community of

researchers; these fairly broad but well-established features are part of what makes a

dissertation a boundary object. The structure of a dissertation in bi-lingual education is similar

enough to a dissertation in educational leadership so they can be identified as dissertations

rather than expository declarations. However, there can be differences in the way scholars

from these fields of study generate and apply certain concepts, methods, models, theories, etc.

Qualitative dissertations with an education focus were investigated in the current study

for three additional reasons. First, dissertations tend to provide considerably more detail than

published articles about the methodology of the study, which also seems to be the primary

location where researchers might invoke the importance of transparency and discuss the

various aspects of a transparent account (AERA, 2006; Meyrick, 2006). Next, the doctoral

candidates were engaged in legitimate peripheral participation (Lave and Wenger, 1991),

where the implicit understandings within a community often become explicit. While the

candidate worked with his or her committee members to complete and defend the final

product, some of the unstated perceptions of transparency were more likely to be articulated

or debated. This also made the dissertation a location from which to examine the negotiation of

power. Finally, dissertations provided opportunities to compare discursive strategies used in

the written and oral representations of transparency (by asking participants to reflect on these

differences).

E-Projects

As boundary objects, E-Projects provide a fairly standard architecture that organizes

source materials, codes, memos, searches, etc. (Lewins & Silver, 2007). However, researchers in

a range of traditions (e.g., ethnography, discourse analysis, evaluation research) have used

these tools according to the practices of their community (just as researchers do with

dissertations). Therefore, researchers could leverage the QDAS architecture to suit localized

and immediate purposes of their own E-Project. In addition, as mentioned above, studying

doctoral candidates who analyze their data in an E-Project provided an opportunity to consider

the intersections, complementary components, conflicts, and other types of relationships that

occurred where dissertations, QDAS, and transparency met.

Transparency

As stated in chapter 2, Star (2010) specifically identified concepts and processes as

boundary objects, in addition to physical artifacts. On this basis, I argued that transparency

could be considered as a boundary object. I also provided a rationale for the way in which a

boundary object conceptualization could inform an understanding of the relationship between

1) diverse applications of transparency and 2) widespread support of the pursuit of

transparency. I did so by reviewing the literature that describes local adaptations of the

principle of transparency (to coding, transcription, reflexivity, etc.). I also summarized the ideal

types that promote the pursuit of transparency in empirical reports, such as the AERA

"Standards for Reporting on Empirical Social Science Research in AERA Publications" (2006),

(and I briefly pointed to similar standards developed in the UK).

Nonetheless, the primarily implicit invocation of transparency in most of the literature

pointed to the need to examine transparency in reference to two other boundary objects

through which it might be discussed and negotiated. The process of becoming a professional,

according to Goodwin (1994), entails a form of inculcation that often turns strangely

conspicuous categories or events into taken-for-granted (i.e., invisible) phenomena. During the

planning stages of this dissertation, several highly-respected qualitative researchers (primarily

in education, and identified in Appendix A) agreed that transparency in qualitative research was

implicitly understood, rarely examined and worth investigating. Dissertations and E-Projects (as

boundary objects) provided concrete artifacts with which to explore conceptualizations of

transparency.

Unfortunately, however, the boundary object conceptualization has limitations. In Star's

(2010) clarification of the original framework regarding boundary objects, she identified the

under-theorized issue surrounding the growth and death of boundary objects. "We live in a

world where the battles and dramas between the formal and informal, the ill structured and

the well structured, the standardized and the wild, are being continuously fought" (p. 614).

Criticisms from scholars such as Fujimara (1992) and Lee (2007) asserted that these battles

were not adequately explained via a boundary object conceptualization, alone, and that

without an additional lens, a simple preponderance of information in a study from one

community or another was likely to dominate the interpretation of the boundary object. As

Wenger (1991) argued, the negotiation of the object and the negotiation of participation were

mutually constituting discourses. Therefore, the current proposal benefited from the addition

of a more explicit way of studying how power was leveraged as part of the negotiation of

participation.

Boundary-work

Thomas Gieryn (1983, 1999) examined the way boundaries were developed and

maintained across entire academic disciplines, and introduced the idea of *boundary-work* as the

written and verbal activities among scholars who purposefully attempted to demarcate science

from non-science and thereby create and maintain professional boundaries. He also applied

these professional demarcations to other fields:

> Put bluntly, a sociological explanation for the cultural authority of science is itself a
> 'boundary-work'; the discursive attribution of selected qualities to scientists, scientific
> methods, and scientific claims for the purpose of drawing a rhetorical boundary between
> science and some less authoritative residual non-science. (1999, p. 4-5)

According to Gieryn (1999), boundary-work was part of an ideological style that functioned to

promote a public image of authority. It was also part of an ongoing process of debates and

negotiations that shaped the way the public perceived academic authority.

Gieryn (1999) argued that because science was not (and could never be) one,

immutable thing, "The boundaries of science are ambiguous, flexible, historically changing,

contextually variable, internally inconsistent, and sometimes disputed" (p. 792). He also presented three main strategies that a group of scholars (scientists) often used to further their professional goals (that simultaneously shaped the boundaries of science): 1) Expansion: Acquiring intellectual authority and career opportunities (and thereby staking claims to additional authority and resources). 2) Expulsion: Denying these resources to non-scientists or pseudoscientists. 3) Protecting autonomy: Defending scientific research from political and religious interference. While Gieryn's goal was to examine how scientists worked to shape public perception, he acknowledged that the same rhetorical style was useful for the ideological boundary-work of disciplines, specialties or theoretical approaches. The use of QDAS is one such specialty.

As a QDAS expert, my perception is that the efforts to differentiate researchers who do and do not use this genre of software are coming primarily from those scholars in qualitative methods in education who do not use QDAS (and who are generally older and more widely published and referenced than those who do). However, I am also aware of some boundary-work by QDAS experts who talk about researchers who do not use this genre of software as luddites, lazy, behind the times, and widely uninformed about the capabilities of QDAS (i.e., "they don't know what they are talking about"). Because Gieryn (1999) identified these kinds of statements as examples of boundary-work, I also considered how QDAS users and non-users attempted to differentiate themselves from each other, and how recent PhD or EdD recipients navigated these differences while managing their legitimate peripheral participation (Lave & Wenger, 1991).

An Additional Research Question

At this juncture, I add boundary-work to the list of research questions presented at the end of chapter 2:

1) In what ways could a boundary object and boundary-work conceptualization inform an understanding of qualitative education research transparency?

Data Collection

Because of my expertise in NVivo, one of the QDAS options, and because it was the most popular QDAS option, I sought qualitative dissertations with a focus on education that also used NVivo. Although the potential problem with this focus on a single software was a lack of understanding across QDAS options, the KWALON (Evers et al., 2011) experiment demonstrated that the most commonly available software (Atlas.ti, MaxQDA, NVivo, HyperResearch) contained a set of fairly standard tools that could be applied to a range of qualitative approaches and that the differences among them were not likely to influence different interpretations of the data. This perception was confirmed in several expository publications by QDAS experts (Bazeley, 2013; Gilbert et al., 2013, Lewins & Silver, 2007). In addition, because I did not have a detailed understanding of the other QDAS options, the analysis of data from any individual was likely to be more comprehensive if it pertained to the QDAS with which I was familiar. The potential challenges in conducting the research that were associated with my insider perspective and expertise with NVivo will be discussed later.

Each of the six pairs in the study was comprised of one doctoral student (or recent PhD or EdD recipient) and one of their committee members. In addition, data from one additional student (whose committee member was unable to participate) was also included in the analysis. Each of the seven dissertations emphasized an education topic (although some were in

a discipline outside of education) and all dissertations were successfully defended no more than six months before the interview. Selection was not biased by a preference for a particular methodology, theory, or approach, including perceptions regarding the problems and benefits associated with the pursuit of transparency. All eligible students were accepted until the desired number of interviews was achieved, which took approximately two months. Participants were recruited via a message that was sent via QSR (the developer of NVivo) to 667 unique email addresses. In addition, I searched the dissertations available in ProQuest for individuals who would satisfy the criteria and I contacted them directly. I also used my professional network to extend the call for participants. In the interest of full disclosure, I had a prior relationship with one of the faculty members who chose to participate (primarily through conferences in which QDAS was emphasized), but none of the students. See Appendix D for the recruitment materials and screening questions.

The student and the committee member were made aware of each other's participation in the study, but I kept their identities confidential (via the use of synonyms, locked filing cabinets, password protection, and the opportunity at the end of the interview for the participant to identify portions of the interview or the dissertation to be excluded from the analysis). Each participant received $100.00 for their participation. After both individuals in the pair agreed to participate, they signed a consent form (see Appendix E). I then reviewed the student's dissertation in order to prepare for the interview. This entailed coding and writing memos about the portions of the dissertation related to QDAS (generally) or NVivo (specifically) and examining any related visualizations (charts, pictures, models, graphs, etc.). In addition, I reviewed and coded the article that was nominated by each participant as an exemplary piece

of qualitative research, because the interviews began with a discussion about why they chose the article. Complete interview protocols for the students and their committee members are provided in Appendix F. The interviews occurred over the telephone and were recorded and transcribed. The audio and transcripts were imported into NVivo for analysis, with the transcripts serving as the primary data (along with the dissertations and articles). The audio files were used to periodically stay grounded in the voices of the participants, especially when portions of the transcripts were used for quotes in this document. At the conclusion of the analysis, the audio tapes were removed from the NVivo database, which then contained only pseudonyms for all participants.

Analysis

Critical discourse analysis

Approaching the research from the lenses of boundary objects and boundary-work implied an attention to discourse, and the way language, ideology and power were connected. Therefore, to help focus the analysis, several approaches were adopted from critical discourse analysis. I use *discourse* to refer to any meaning-making through verbal or nonverbal communication (writing, speaking, drawings, etc.), and I assume that discourse is a central mechanism for constructing, maintaining and challenging social relations. I therefore paid special attention to the way individuals described groups to which they did and did not belong, and the ways they defined group membership. I also examined the way other features of language such as adjectives (e.g., rigorous, dumb, clear), similes/metaphors (e.g., heartburn, fingerprints), and arrangements of things (e.g., similar, equal, different) were evidence of and strategies for both subtle and direct negotiation of authority.

Analytical Reflections

After each interview, I wrote a summary of key points, observations, and hypotheses. These reflections were used to capture emerging ideas and I returned to them frequently for additional reflection and analysis. The reflections influenced slight modifications in the way questions were asked, and they contributed to the development of a coding structure. I also engaged in reflexive writing about my experiences of and reactions to the research and my evolving relationships with participants. These more reflexive materials were used to purposively examine my role as an NVivo expert in the field and to identify changes in (or solidification of) my own professional practice as a result of conducting the research. Some of these reflections are included in chapters 4 and 5 as part of my own attempt to engage in a transparent research process.

Coding and nodes

The coding and interpretation process was iterative and began with nodes developed from the literature review in chapter 2 and the theories of boundary objects and boundary-work presented in chapter 3. Some of these nodes were also related to critical discourse analysis, and the initial nodes were not mutually exclusive:

1) BOUNDARY OBJECTS: E-Projects, dissertations, transparency.

2) TYPES OF RELATIONSHIPS BETWEEN BOUNDARY OBJECTS: Parallel, complementary, conflicting, synergistic, distinct, etc.

3) RESEARCHER MODES OF COMMUNICATION: Written, inscriptions (the visualizations generated to discuss or present the findings), oral defense, private reflections during the interview.

4) DISCURSIVE STRATEGIES: Linguistic constructions that suggest power arrangements (us/them distinctions, flattering or unflattering adjectives, metaphors, etc.).

5) SITES OF TRANSPARENCY: Coding, journaling, reflexivity, a particular theory, reports/output, etc.

6) PEIRCE'S SEMIOTICS: Indices (visualizations that simply "draw attention"), diagrams (models that show complex relations), depth of sign (multiple perceptions of the same visual). Depth of sign also included Meira's (1998) "spectrum of transparency" and Henderson's (1999) "meta-indexical qualities".

7) EPISTEMIC FIDELITY: The perceived correspondence between tangible features of physical objects and a target knowledge domain.

8) ETHICS: Confidentiality, privacy, beneficence, etc.

9) DIVERSITY AND STANDARDIZATION: Any discussions that promoted (or criticized) diversity or standardization in the qualitative research enterprise.

10) NEGOTIATION: Debates over authority and meaning, often subtle, often seen through the discussion of inscriptions.

11) BOUNDARY-WORK: Expulsion, expansion, and protection of autonomy.

To allow for inductively generated codes, I also coded by comparing and contrasting a series of comments to discern common underlying themes, then read a new set of comments to see if the initial set of themes was supported, discredited, or if new ideas or sub-themes began to emerge. This approach is sometimes called the *constant comparative method* (Glaser & Strauss, 1999). The coding structure changed and grew to reflect this process, and the use of the method of constant comparison ensured that key themes were developed from the world-views of the participants, as well as informed by the existing literature and theoretical approach. Therefore, as coding progressed, the following nodes were also added:

12) VALENCE: Positive, negative, neutral, and mixed feelings about the topic being discussed. This was later cross referenced against other nodes.

13) INFLUENCES AND CONSCRIPTIONS: Pressures or forces identified that influenced behaviors or beliefs (e.g., the university, politics, and money)

14) SHIFTS: Changes in knowledge, behavior, or attitudes (e.g., about software, qualitative methods, and education)

15) DIGITAL DESIGN: Comments related to a critical assessment or a reflection about the software interface and capabilities (a focus on the technology rather than on the data).

16) PARTICIPANT RECOMMENDATIONS: Suggestions about the interview protocol, the student/advisor relationship, the software, etc.

17) INTERVIEW LESSONS: Areas I flagged to reflect on the most effective way to ask questions or follow-up on responses. This included problems as well as successes.

18) EXEMPLARY QUOTES: A holding ground for rich statements that I suspected might be useful during the analysis and final write-up.

Challenges

Expertise in NVivo

The potential problem with my expertise in NVivo was my general preference for QDAS over manual strategies and the limitations this could pose in the collection and analysis of data from individuals with other perspectives. Furthermore, because I used NVivo during the analysis of the data, one potential criticism is that I had a bias towards demonstrating the positive aspects of QDAS. Four factors helped address the potential impact of these challenges. First, although I had a preference for using QDAS over manual methods, I am also a critic of this genre of software. For example, at the Technology in Qualitative Research day at the International Congress of Qualitative Inquiry (2008), I organized a panel dedicated to the challenges of using QDAS, where I presented on the failure of the "relationship" tool in NVivo (see chapter 1, Figures 1.1 through 1.7) to effectively bridge two communities of practice (qualitative researchers and social network analysts). The audience was comprised primarily of colleagues who use QDAS as well as employees of several of the software companies (including

the developers of NVivo and MaxQDA). Therefore, while I needed to reflectively acknowledge

and write about any personal resistance to criticisms about QDAS that emerged during this

study, I have demonstrated an ability to take a critical stance toward QDAS and generally

welcome the opportunity to discuss these criticisms.

Next, at the conclusion of each interview, I wrote a reflexive journal and at a minimum I

answered the following three questions:

1) What was my personal reaction to this interview?

2) At what junctures did I find myself disagreeing with the participant about QDAS?

3) How could I respectfully summarize his or her perspectives on QDAS?

In addition, after each interview I wrote about how the participant responded to the final

question about the potential influence of my NVivo expertise on the interview (verbatim

statements from this portion of the interview are in Appendix G). Finally, because I collected

ideas from my participants about problems of using QDAS, I experimented by attempting to

replicate these during the analysis of the data (alongside strategies for analysis that were

argued to be more rigorous). This ongoing reflection and application cycle of both the benefits

and problems of using NVivo promoted my understanding of the various perspectives. I kept an

ongoing journal about my observations during these cycles (including their impact on my

analysis of the data and the presentation of findings).

Modes of data collection

The data were collected after the participants' dissertation defenses to help avoid

conflicts of interest. A reflection on the doctoral journey at this stage also allowed for a more

distanced perspective from the participants. However, because the dissertation represented a

culmination of negotiations, it was impossible to know how well the participants remembered the process or were able to provide a clear narrative of it. The alternative, however, of following participants over time presented an additional and more formidable problem: It was nearly impossible to predict when negotiations about visualization and/or transparency would occur during a dissertation research project, and the timeline for such research tended to be long and full of unexpected junctures. Therefore, instead of a more immersed, long-term, ethnographic approach to data collection with a single participant, this particular moment near the defense was chosen to maximize purposeful data collection with more participants (and to maximize the potential for observing a diversity of views).

An additional limitation pertained to data collection via telephone interviews. This method of data collection was limited by the inability to follow-up on the gestures expressed by the participants. However, because of the specific criteria for inclusion – and the resulting geographic distance among participants – it was impractical for all interviews to occur in person. In addition, the travel time necessary to conduct face-to-face interviews would cut down on the feasible number of total interviews in the study. Rather than adding an additional variable (some face-to-face and some telephone interviews), collecting interviews through a consistent method was warranted. An additional potential benefit to the telephone interview was that the critics of NVivo or QDAS might be more likely to detail their concerns, precisely because of the social distance afforded by a telephone interview.

Ethical challenges

I took several measures to address the primary ethical concern, the threat to confidentiality. Some of these measures pertained to setting clear expectations with the

students and faculty during the recruitment and consent process, and others pertained to

efforts to keep their data confidential. First, the consent form for both students and faculty

(Appendix E) included a statement in which each individual in the pair pledged a commitment

to protect the identity of the other member. Next, the student consent form acknowledged

that because I might reproduce portions of their dissertations or statements presented in their

own, publically available dissertation, any individual who recognized their dissertation would be

aware that they participated in the study. This statement was followed by the choice to either

allow all quotes and visualizations from their dissertation to be reproduced, or to identify the

material to be excluded. Some students agreed to allow the use of all dissertation content (text

and visualizations), some provided a list of items to be excluded, and two said that no materials

from their dissertations should be reproduced here. At the end of the interview, two

participants (one student and one faculty) asked questions about my NVivo expertise, and one

asked about contacting me for future assistance with the software. I directed this participant to

the QSR web site for a list of consultants and trainers in order to avoid any conflicts of interest.

CHAPTER FOUR: FINDINGS AND CONCLUSIONS

Overview

The findings in this chapter are presented in five sections. First, I describe participants' concerns regarding the confidentiality of their data and the first-hand experience this provided to investigate the tensions between transparency and confidentiality. The subsequent analysis depended on the choices made regarding this tension. I then analyze participants' reflections regarding an exemplary qualitative article of their choosing, which served as one strategy for understanding their perceptions of transparency. This also sets the stage for the third section, the examination of qualitative research transparency in the dissertations and the role of NVivo in pursuing transparency, particularly through the visualizations explored during the analysis. The fourth section presents a discussion of transparency as an abstract principle, based on participant reactions to a quote about transparency from the AERA (2006) document regarding standards for reporting empirical research. This fourth section also describes (and presents potential reasons for) the concentration of boundary-work discourse that participants leveraged while discussing the AERA quote.

Together, these four sections detail four key findings. First, the students and faculty in this study described instances when transparency became salient (and problematic) through personal identities and the intimate relationships among those involved in the research. Next, while transparency is often conceptualized as a principle to consider in the formulation of a study, or a trait related to a final product such as a dissertation or an article, it also plays a dynamic and ongoing role *during* the analysis as researchers construct meaning in and from their data. The third finding is that as part of the research *process*, these qualitative researchers

also turned transparency inward, through a range of data visualizations, as a form of self-interrogation. These visualizations helped them to re-examine, verify, and sometimes challenge their interpretations of their data over time. Lastly, despite the self-reported importance of the role of NVivo in their pursuit of transparency, students either censored themselves or engaged in a form of compositional triage wherein their work with, decisions about, or belief in the relevance of NVivo did not make it into the written dissertation. The chapter ends with a fifth section that responds to the primary research questions, based on these findings. The final chapter addresses some implications of these findings regarding the understanding and pursuit of qualitative research transparency, the role of QDAS in this pursuit, and the instruction of novice researchers regarding transparency, qualitative methods, and QDAS.

The Ethics of Transparency

Transcription and transparency

A basic understanding of the principle of research transparency (qualitative and quantitative) from chapter 2 is the importance of showing one's research activities, so the research is available for public scrutiny. This was one of the primary reasons for pursuing this principle, according to AERA (2006). This basic understanding will be expanded later, but it suffices here to help explain the first issues I faced as I worked with the data that pertained to the relationships between transcription, confidentiality, and transparency.

As Tilley and Powick (2002) discovered in a qualitative study of eight individuals hired to transcribe tapes in university research, there were, at a minimum, three factors that influenced transcription:

1) The challenges faced by the transcribers in completing their work.

2) Transcription decisions made in the moment.

3) The effects of the transcriptionist's degree of investment in the research.

The authors argued that researchers should consider providing transparency of method with respect to transcription.

In addition, as Ochs (1999) described in her work on transcription as theory, the act of turning other forms of information (e.g., audio, video) into text was associated with some hidden assumptions. She used a concrete example in education research to demonstrate that when analyzing the talk between adults and children, it was a common convention in her community of practice to place the text of the adults in the left hand column of the page and the text of the children in the adjacent right hand column of the page, with sequential turn-taking back and forth from left to right. This common convention could lead readers to presume, more often than was warranted, that the adults were leading the conversation. In fact, as Ochs explained, in many instances the children were leading the adults.

Aware of these issues surrounding transcription, acknowledging that transcription is never a value-neutral activity, and aided by the basic principle of transparency, Appendix H details the justifications for nine transcription decisions that I made while transforming the audio data into text. The primary reason for attending to these transcription decisions early in the process was my commitment to protect the identities of the participants, and this was the most influential and unexpected initial issue related to transparency that I faced as I began working with the data.

Confidentiality and transparency

While some of the following tensions between transparency and confidentiality were discussed prior to the start of the interview, others arose during the course of the question and answer exchange. This is significant because it indicated that instead of being understood *a priori* and as an abstract principle, transparency (alongside related tensions with confidentiality) was constructed by researchers *in situ*; as it emerged and when it became relevant. This is similar to Meira's (1998) transparency in the making, and it problematizes the notion that researchers can or should establish all definitions and approaches to transparency prior to the collection and analysis of data. The role and characteristics of transparency can perhaps be partially articulated before research begins (as I will discuss later), but additional aspects of transparency might emerge as the research unfolds.

As I detailed in chapter 3, the consent form (Appendix E) signed by students and faculty detailed the protection of participant identities. It also informed participants that the two members of each pair would know about each other's participation in the study and the form required each of them to agree to keep the identity of the other member of the pair confidential. In addition, the consent asked students if they agreed to the reproduction of quotes or visualizations (charts, tables, graphs, models) from their dissertation (because their authorship could be fairly easily revealed via internet searches for this material). Students could also identify particular aspects of their dissertation to be excluded. Although I anticipated that students and faculty would self-select into the study according to their comfort with this agreement (as the consent was signed in advance of the interview), several participants raised questions and concerns during the interview (sometimes mid-way through the conversation):

Student

  . . . it's quite a DANCE to just report the information, to share it, and also make sure that you're protecting the people and the culture and the organizations that you're working with, by only sharing information that would be helpful to them or . . . not hurtful, and still be transparent. So, it's definitely a major dance. I mean, . . . in the past, research has . . . been somewhat hurtful to many of these communities. I don't know that I'm saying this correctly, but it's an EXTREMELY IMPORTANT responsibility to be transparent but also be THOUGHTFUL about how you're impacting communities and entire CULTURES of people when reporting your view of what you've learned.[14]

Another student said, "I think . . . there probably would be quotes that would be fine to use, especially from the interview – and maybe even from the dissertation – as long as it doesn't too easily identify . . . my dissertation."

Raising greater concern, one student prohibited the reproduction of any portion of her dissertation in the current document in order to protect her reputation. Her apprehensions pertained to the potential for her study to be reconfigured, differently emphasized, and ultimately used in unanticipated ways that could have an impact on the way she and others viewed her work and her area of specialization during this formative stage of her career: "Part of the reason is I'm also heavily involved in [a professional organization]. So, with those keywords quoted in databases, it could be searched . . . so, I'm sure that I put in [the consent form] NOT to use quotes [from my dissertation]." Another student ruled out the use of quotes from the dissertation, but for different reasons: ". . . my contract with the [funder] mentioned

---

[14] To help protect the members of each pair, I do not use pseudonyms; individuals are only identified by their role as student or faculty. For the same reason, I do not use consistent pronouns in the interview quotes; they are a writing convention, only. No quotes from the dissertations will be presented, since the authors can be easily identified via these quotes. Furthermore, to maximize the reader's comprehension of the interview quotes, which were taken out of a broader, clarifying context, some words were omitted (this might also help protect the identities of participants) and some words were added. The former is always indicated with ellipses and the latter with square brackets around inserted words. Emphasized words in the speech are in all capital letters; pauses or parenthetical statements in speech are identified with a dash; laughter and gestures are in parentheses. See Appendix H for additional information.

specifically that anything that is related to the project that is published or presented, I have to get their permission. Even if I go to a conference to present anything related to my dissertation, I need to get permission from them first."

While these concerns regarding the confidential handling of their dissertations pertained to the protection of their authorship, professional reputation, and ownership of the data, other concerns were related to statements made during the interviews that might affect the relationships between students and faculty. One student said she did not want any potential shortcomings of her own work to be exposed and therefore reflect negatively on her advisor and her committee members. ". . . I didn't go into a lot of detail [about NVivo] in my dissertation and I guess I don't want to necessarily reflect badly on my study – particularly my committee." In addition, two faculty members were concerned about the impact their negative comments might have on their relationships with their former students:

Kristi:	Okay, so, the way you read this portrayal of NVivo in the [dissertation], did it match . . . your sense of how she used it?
Faculty:	No.
Kristi:	In what ways was it off?
Faculty:	Well I'm being really candid, so you have to be careful if you use any of this information. . . You erase anything that would reveal my identity.
Kristi:	Absolutely.

Another faculty member raised similar concerns:

Kristi:	. . . is there anything that you want . . . omitted from my analysis?
Faculty:	When I talk about doctoral students and getting into details about someone, I would just hope you'd be sensitive to how you report that . . . So as long as that's done with sensitivity, I'm good.

The unpredicted tensions between transparency and confidentiality in the interviews raised personal experiences of transparency. Most qualitative methods texts that address transparency (e.g., AERA, 2006; di Gregorio & Davidson, 2008; Hiles, 2008; Meyrick, 2006),

separate it from the intimate relationships that are part of the ethics of contemporary

qualitative research (Howe & Dougherty, 1993; Howe & Moses, 1999). However, the students

and faculty in this study described instances when transparency became salient (and

problematic) through personal identities and the intimate relationships among those involved

in the research.

By the conclusion of the interview, over half of the participants (five students and two

faculty members) raised questions and concerns about the reporting of these findings due to:

1) Their own IRB requirements (including restrictions imposed by a funder);

2) Exposure of their methodology or analysis (because this might reflect negatively on their research);

3) Their commitment to their personal and professional relationships (and the potential for negative comments to harm those relationships).

This indicates tensions between transparency and confidentiality along a fairly extensive time

span; in some instances, individuals looked retrospectively at prior agreements and

commitments, in other instances they looked forward to their own careers, and for some, the

integrity of their current relationships was paramount.

In summary, these discussions revealed three unanticipated facets of transparency.

First, that transparency might at least be partially understood and constructed *in situ*, due to

unanticipated contextual factors. Next, that in contrast with most discussions of transparency

as an abstract principle, it might take shape in and through intimate relationships and personal

identities. Finally, that past, present, and future considerations have an impact on the

construction of transparency. As I handled the data and prepared this dissertation, I faced

similar issues. For example, I decided to omit quotes from the dissertations near the end of the

analysis (*in situ*), after determining that including evidence from only three students (who permitted unrestricted use of quotes from their dissertations) might unfairly emphasize their voices over the others. In addition, as *transparency in the making* took shape during my analysis, I was also aware of the relevance and impact of transparency and confidentiality over time: I considered the past (e.g., following the explicit commitments in the consent form), present (e.g., inserting myself into the pre-existing pairs with a commitment to honorably approaching our interactions) and future (e.g., considering the way the presentation of findings from this study might influence my future identity as a researcher and QDAS expert). By sensitizing myself to these facets of transparency, I was also able to broaden my view to consider additional unanticipated findings, to which I turn to next.

Exemplary Qualitative Research

The participants were not chosen based on their support or critique of the pursuit of transparency, but all of them said that transparency was an important aspect of reporting qualitative research. Nonetheless, two factors indicated that direct questions about transparency during the interview might be potentially unproductive unless preceded by relevant, rapport-building conversations. First, (as detailed in chapter 2) transparency was discussed primarily as an ideal type in the literature, a tendency that avoided specifics on how to practice the pursuit of transparency. In addition, several exploratory conversations with researchers during the development of this dissertation proposal revealed that researchers tended to understand this concept implicitly rather than explicitly (as discussed in chapter 3 and Appendix A). Because of the lack of specific guidance for pursuing transparency in practice and the implicit understanding of transparency among many qualitative researchers, the

interview began with a discussion of an artifact that could later be linked to transparency: An

exemplary qualitative research article of the participant's choice.

The opening series of questions about the article allowed participants to concretely

identify strategies that authors effectively used to describe their work. The articles represented

a wide range of topics and approaches (see Appendix I for more detail about the articles).

Regarding these diverse articles, eight participants attended to the importance of the logical

connections between the elements of the research in the article they chose. Students and

faculty consistently focused on these connections (sometimes repeatedly), describing the

importance of matching the steps or phases to one another; they did not focus as much on the

strength of particular elements of the research (such as the selection of participants, the

interview protocol, or the theoretical approach). Furthermore, they raised the importance of

these logical connections even though none of the interview questions or probes asked about

them. Three students and one faculty member provided a good example of a discussion of

these connections when asked why they chose the article as an exemplary piece of research,

how researchers could achieve this kind of exemplary work, and what kinds of things could get

in the way of achieving it:

Student
What makes this article exemplary I guess is that it is well-written in the way that the author explains – she provides a kind of a background why this topic is important and then . . . throughout the article she tells the story, so she says why the topic is important, how she decided to address it, what types of data she collected, why she collected those data, how she went about analyzing the data and then she kind of delved into the actual analysis and interpretation of the findings.

Faculty
It's very thorough, it's very transparent. You're not wondering about anything – this person, the team, the connection between each stage. They back up everything, which you don't always find in articles.

Student
I think the first thing is to be transparent and go into it. You know, start off with the research question and purpose and based on the question and purpose choose a methodology that's appropriate, and base that methodology in the literature – which was done in this article – and then from that, ensuring that it's conducted in an acceptable way and being clear about . . . how it was . . . carried out. . . Its methodology is really clear and transparent.

Student
I think . . . when the methodology section is very limited – and me as a primarily as a methodologist, that's the first place that I look – and when I look at an article and I read the methodology and it's unclear or I can see they skipped steps, then I really won't even look at that article. If I can't see an article . . . meets a certain level of standard, then I will not use it.

In their reflections regarding the articles, participants tended to focus on "methods" as the site of transparency, but they also identified the multiple phases or connections found within a methodological approach, and they sometimes related the connections to theory. Together, participants described connections among the literature, purpose, focus, personal position, research questions, theory, methodology, protocols, evidence, analysis, interpretations, conclusions, and implications. Two participants said they would not use research that failed to transparently demonstrate such connections. In addition, none of the participants provided prescriptive statements about how particular elements of the research should *always* be conducted (e.g., member-checking or working in teams).

Four participants also related the successful description of these logical connections to the ability to present evidence in clear, concise, succinct and thorough writing.

I would contend that. . . you don't have the traditional 'here are the 3 research questions, and here's the evidence supporting them,' – that's not laid out in black and white – however, the main themes are driven through the headers and supported nicely with evidence consistently through it. And a real strength was not just the quotes from the interviewees, but the occasional inserts of site document data, demographic data, and in particular the use of literature woven throughout.

One faculty said, "It's also quite impressive in fitting it all into one article, which is something that is always a concern for mixed method researchers." When the logical connections were combined with a clear writing style, the result was the ability to replicate the research:

Faculty
I think this article is written is a very straightforward manner. And you know, one other piece, I always think – which is kind of part of the transparency – is that someone should be able to pick up an article. . . and do this very same study again, and that you've got the pieces there. And to me, that's part of the transparency, and I think the pieces are there for one to do that.

Student
With everything being broken down . . . I think that's an important piece. And really just the step-by-step way it was written. It was very clear and again it almost lays out like a recipe. So, if I was going to replicate this study I could follow it step-by-step and probably come pretty darn close to replicating it identically.

For at least two of the participants, the ability to reproduce the logical connections presented by the researcher depended on transparency. In addition, for at least one participant (one of the faculty members), this was more than the construction of the narrative within the article, it was a matter of demonstrating the links from "social problem to topic to purpose and focus, going down the line, as the researcher thinks." In this regard, an exemplary and transparent article was more than a storyline for the reader, it was a representation of the train of thought inside the researcher's head as he or she conducted the research.

This is one of the first indications that participants occasionally tacked back and forth between a discussion of a general and distanced view of the logic of transparency and a more specific and particularized look into the mind of an individual researcher (and his or her position, relative to the research subject). The next section on the use of NVivo in the

dissertation (as it relates to the pursuit of transparency) further details this inward turn and the way students thought about transparency as they worked with their data.

Transparency and NVivo

Written descriptions of NVivo

These findings are based on a diverse group of seven dissertations (e.g., theories, methods, fields of study, type of data collected). As I detailed in the first section of this chapter, the dissertations are not reproduced in the context of this analysis in order to protect the identities of the participants. However, a description of the areas of focus and analytical strategies employed in the dissertations are provided in Appendix J to demonstrate the diversity among them. All participants identified the use of NVivo in their dissertations, though two simply named it and moved on with the description of the data and the analysis. Most provided a one-sentence statement that data was imported into NVivo, a "software package" used to "code", "find patterns", or "manage" the data. In one instance, a student provided a two-paragraph rationale for using QDAS, rather than simply an acknowledgement that it was used. The chair for this student's dissertation was the only faculty in the study who could be considered an expert in the software (based on conference presentations, published papers related to the use of QDAS, and her response to my question about her level of expertise with NVivo).

Interview Discussions about NVivo

The direct questions about the transparency of their research and the role of NVivo in pursuing transparency began at the second stage of the interview. This discussion presented far

more information about the use of NVivo than the written dissertation. To honor the protection of their own participants, I was only able to discuss the final structure of the E-Projects with the students. I did not have access to the E-Projects (nor did I follow any of the students over time as they used the software). However, one requirement was that they had access to the E-Project during the interview so I could ask questions about the tools they used. In several instances, they said their access to the database helped remind them about their use of NVivo. Before proceeding with this portion of the analysis, it is important to acknowledge there is some potential that the participants had preconceived ideas about what I wanted to hear during the interview. The consent form identified transparency as the primary focus of this dissertation and some participants were aware of my expertise in NVivo.

The findings should be considered with these caveats, although three aspects of the interview help contextualize the influence of these factors on participant responses. First, I never stated whether or not (or in what contexts) I promoted, supported, or had concerns about the pursuit of qualitative research transparency. Next, I consistently asked about any potential problems or concerns participants had regarding transparency (particularly in response to the AERA quote, discussed later). Finally, as indicated in Appendix G, at the end of the interview when asked how my expertise in NVivo influenced their responses, all participants said that it did not, and that they were comfortable raising problems with or criticism about both NVivo and transparency.

Visualizations from NVivo: Product and process

Just as the articles were used as artifacts to help direct the discussion around the transparency of an exemplary piece of qualitative research, the visualizations used in the

dissertations were used to focus the interview on the transparent presentation of findings (and to investigate how NVivo helped or hurt the pursuit of transparency). In addition to providing a location where the negotiation of transparency could be observed, the visualizations from NVivo served as an intersection between the software, the dissertation, and transparency. As I detailed in chapter 2, Henderson's (1999) examination of engineering drawings provided the initial rationale for focusing on visualizations as a site of the negotiation of transparency. Visualizations in engineering work had a meta-indexical quality (a locus for multiple ways of knowing) because of "their ability to be a holding ground and negotiation space for both explicit and yet-to-be-made-explicit knowledge" (p. 199).

Although the current research intended to examine the ways students and faculty discussed the meaning of transparency through negotiations and debates they had about the visualizations in the dissertation, all respondents said there was no negotiation of meaning around these visualizations (either in final form, or as they were constructed in various drafts). However, students did describe the different role the visualizations had in their thought processes while they were *working with* the data and with NVivo (in contrast to presenting findings). To better understand the role of these visualizations, instead of attending to Henderson's emphasis on the debate about *what* the visuals represented, I attend to *when* they represented. Also, in contrast with Henderson, instead of examining the negotiations among students and their committee members, I examined the self-interrogation that occurred as students worked with the software (and associated visualizations) to help them understand qualitative methods (including transparency), analyze data and develop findings.

For six students, the role of NVivo in their analyses was far more influential than the narrative in their dissertations indicated. In their interviews, in addition to discussing dead-ends and discoveries as part of a winding path, they also provided reasons for omitting things from their dissertation. These omissions (some of which were related to NVivo) informed the current analysis on transparency because the exclusions point to aspects of the analysis that were purposefully withheld from the reader through the process of triaging the importance of the information. This points to an often overlooked aspect of transparency, that by focusing attention on specific elements of the research, transparency also directs attention away from other aspects; in other words, through the process of triaging all the available information, transparency simultaneously hides and shows.

Visualization types

The visualizations used during the process of analyzing data (and sometimes presenting it) fell into three main types: Summaries, coding displays and idea connectors. Because of my commitment to exclude direct quotes or visualizations from participants' dissertations, I use my own E-Project and parallel visualizations as examples. Note that because these visualizations were generated to provide a comparable example to the participants' dissertations, the visualizations are not always critical (or relevant) to the interpretation of data in this study.

Summaries

Some visualizations represented a type of data distillation akin to Miles and Huberman's (1994) data reduction, a "process of selecting, focusing, simplifying, abstracting, and transforming the data" (p. 10). Also, as Miles and Huberman observed, these visualizations were an integral part of the ongoing analysis (not just a presentation of findings). "Data

reduction is a form of analysis that sharpens, sorts, focuses, discards, and organizes data in such

a way that final conclusions can be drawn and verified" (p. 11). One example from my own

database was a summary table of the nodes pertaining to participants' comments about the

exemplary articles. Although I did not use this table to present findings in my earlier section on

the articles, it informed that portion of the analysis. The name of the node is in the first column

(node name), the number of interview transcripts (people) who discussed the topic is provided

in the second column (sources), and the third column lists the total number of mentions across

all transcripts (references).

Node Name	Sources	References
Logical Connections*	10	31
Standards and logic and methods	6	16
Replicability	4	5
Succinct and good writing	4	6
Team research	1	1
Inductive	1	1
Mixed methods	1	2

* This node is populated as an aggregate of the sub-nodes (Note: Because NVivo does not
duplicate coding in a node, if a passage is in more than one sub-node it is only counted once in
the aggregated top-level node. Therefore, the aggregated number might be less than the total
in the sub-nodes.)

Table 4.1: Source and reference counts for the *Logical Connections* node

Another summary used by students was a *word cloud* that provided a visual display of the

prevalence of words. For example, in the word cloud below, I looked for the top eight words in

the *Transparency* node:

Figure 4.1: Word cloud of the eight most frequently used words from *Transparency* node.[15]

The larger the word, the more prevalent it was in the node. Visualizations such as this might

communicate findings, and while they are based on the quantification of information, the

precise number is less important than the relative volume compared to other words. As already

discussed, these visualizations might also point to additional avenues to investigate. For

instance, this word cloud suggested that although "transparency" occurred as one of the top

words, the most prevalent were "thinking" and "know," which <u>could</u> suggest that the

discussions of transparency were more cerebral than emotional (e.g., there was an absence of

"feeling"). In the current study, although this initial visualization presented an idea to

investigate, the analysis subsequently demonstrated that feelings and personal salience were

also in play as participants explored and explained their perceptions of transparency, even

though they did not use the word, "feeling".

---

[15] This word cloud was generated using the built-in slide bar to include and combine stemmed words. For instance, the word *thinking* also pertains to *think* and *thinks.* In addition, by default, the software contains a "stop words list" (a list of words to ignore) which is borrowed from Wordle. See Appendix K for this list. By default this figure also only includes words of three letters or more. While both of these defaults can be altered in NVivo, they were not altered for this example.

Another type of summary was generated from the modelling tool in NVivo, in which the

student was providing a visual relationship regarding the study design. The following model

from my database conveys a similar representation regarding the data used in the study:
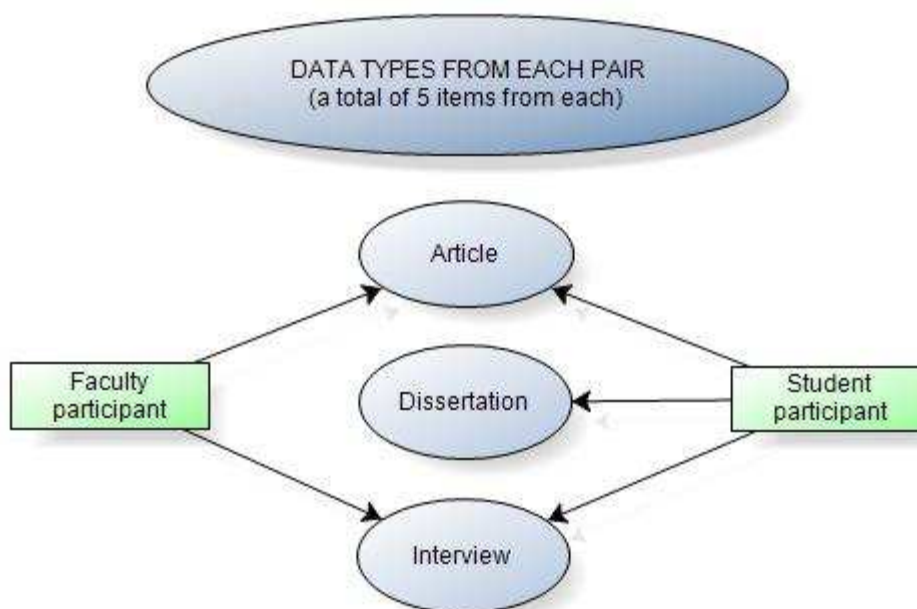
Figure 4.2: Data types collected from each pair.[16]

Although this information was provided in the narrative regarding my study design in chapter 3,

the model visually summarizes part of that narrative. While the three summaries above are in

line with "data reduction" according to Miles and Huberman (1994), the next two displays are a

form of data expansion. In the following displays, additional data is created in the form of

nodes and memos as a way of pursuing unexpected ideas, tracking logical connections, and

making inferences.

---

[16] With the exception of a 7th student, whose chair was unable to participate.

<u>Coding displays</u>

There are several ways to view coded passages that foster interpretive work beyond

simply deconstructing data into coded piles and reviewing these piles. In the passage below

from my E-Project, coding stripes have been turned on in the *Transparency* node, to examine

the various other locations where the data is coded:

Figure 4.3: Coding stripes and highlighting in the *Transparency* node.

In addition to opening the *Transparency* node to read the data, I turned on coding stripes to

examine the other nodes where this same data is coded. In this example, the blue stripe for

Coding reminded me that this discussion of transparency pertained to the coding process

(whereas other passages focused on other issues, such as confidentiality or member-checking).

In addition, by clicking on the orange stripe for *Negative* I could instantly visualize the relative

frequency of how many non-negative (plain background) versus *Negative* (yellow background)

comments there were in the entire *Transparency* node as I scrolled up and down. If all of them

were also in the node for *Coding* (they were not), I would have engaged in additional

investigations into the intersection between these three concepts (*Transparency*, *Coding*, and

Negative) and potential reasons for the connections.

<u>Idea connectors</u>

Links and memos provide a visual (and practical) series of associations that can be revisited and retraced as the analysis unfolds. They do so by retaining the researcher's chain of reasoning about the data, and by linking specific pieces of data to specific interpretations. For example, one of the main findings in this research is the role of visualizations in the process of understanding the data as part of what Meira (1998) called *transparency in the making*, rather than the role of visualizations in presenting findings. However, this idea did not evolve as part of my coding structure. Instead, it was part of a memo that I started near the end of coding, called "Visualizations – timing and purpose." The memo continued to evolve for an additional three months, until this chapter was finalized.

In the memo, I began tracing my ideas about the timing and purpose of various visualizations, particularly after I realized that most participants described visualizations that did not make it into the final dissertation, but were nonetheless useful during their analysis. An excerpt from this memo and the data to which it was linked is provided below. In the third line I wrote about Drew (a pseudonym I used in the database but not the presentation of results in this dissertation).


Figure 4.4: A memo in the database with a See Also Link. (Number thirty-nine)

Drew used visualizations to both display findings for the final product and to generate ideas during the analysis. In NVivo, I could double-click See Also Link number thirty-nine (from Figure 4. 4, above) and go directly to that portion of Drew's interview transcript, which I have provided below (in Figure 4.5).

Kristi

Okay, so the . . . on the balance of things . . . and it's okay if this is too hard of a question to answer – I'm sort of thinking through it while I'm asking it. Did you . . . while you were constructing the diagrams, were you engaging in the process of understanding the data at the SAME TIME and BY constructing them? Or do you think you worked so much with the data that you had a sense of where it was going, and then you DECIDED to display it in this kind of a diagram?

Drew

That's interesting, because you probably read my mind – I was going through some of that – so how do you . . . you know, there's the inductive deductive – I've got the answer, here it is. So when I went into the modeling -- I'm opening up my, I tried to construct some – I put my 3 research questions in there and then look for source classification. So again, I would take the coded data and line them up, and they came out that way. So it was almost like, huh, maybe this is not the answer, but an answer that would suffice for my study here. So I think a little bit of both was going on.

Figure 4.5: A section of the transcript connected to the memo in Figure 4.4.

The three types of visualizations I present above – summaries, coding displays, and idea connectors – provide a snapshot of the visualizations students used as they worked with NVivo. Yet, only the summaries made it into the dissertations. Furthermore, although students found the summaries useful, it was the *in situ* visualizations (e.g., coding stripes, memos, and See Also Links) that received the most emphatic support from the students who used them. In addition, there was no indication that faculty were aware of the role of these omitted visualizations in the interpretive journeys of the students. However, because none of the participants (students or faculty) described any faculty access to the student's E-Project, and because students omitted discussions of these visualizations in the dissertation, this is perhaps to be expected.

The reasons that students chose to omit *coding display* and *idea connector* visualizations from their dissertations (despite their enthusiasm regarding the relevance of these visualizations) were not explored in detail during the interviews, as I was not sensitized to investigating this pattern until all data was collected. However, some students related their omissions about NVivo (in general) to their lack of expertise with the software and qualitative methods. A few also said they strategically refrained from inserting material that might draw attention to a potential problem or misstep. Several students and faculty also noted the paucity of examples on which to model their discussion of these visualizations. Furthermore, while reflexive accounts of the process are generally welcomed in the culture of qualitative research, these tend to be about personal position relative to the research topic, rather than the "interpretive zone" (Wasser & Bresler, 2006) where technologies and researchers meet during the handling and transformation of the data.

Indices, processes, and self-interrogation

Regardless of the visualization type, in all of the discussions about visualizations, participants positioned them as what Noss et al. (2007) call *indices:* "The main function of an index is to direct someone's attention to something (Peirce, 1976, Vol. 3, p. 887)" (Noss et al., 2007). Indices point to salient elements or core ideas as a way of leading readers along the path, like cairns on a trail, but they do not convey complex ideas. In all of the interviews, students focused on indices in NVivo that helped them think through their interpretations while they handled the data:

Kristi: Is there anything about NVivo that helped you see things in your data that you wouldn't have seen otherwise? . . . Earlier you said, "I could have done this [manually], but it would've been less efficient," [but] we were talking about a specific visualization [then]. Do you still think that way about [all of the data, or]

is there anything that NVivo let you see . . . that you couldn't have seen some other way?

Faculty: It was especially helpful with the coding so if I was coding . . . one piece of text into several different nodes, [it] was helpful because I could see . . . what was being coded where. Visually. In different colors. So, having that was helpful instead of doing . . . you know, I used to do the whole high lighter method.

This echoes the statement by another student: "You see what I'm saying? The displays, the instant display – of your, . . . for instance, in that tree map or in the graph of what you said or what others have said – make it a lot easier to instantly visualize what's going on." When she talked of visualizing "what's going on," she was referring to the processes of thinking through the data, not presenting findings to an audience.

For these students, transparency gained shape or was constructed during the analysis with visual indices inside of the E-Project, and they said it was an important aspect of transparency. The indices pertained not only to the visual handling of coded data; they also pertained to the connections among researcher ideas and the ability to visually trace logical connections in order to re-examine them and in some instances challenge them:

Student: I think if I were outside of NVivo – I wouldn't have captured [my ideas in memos]. But I'm looking [at them] now – I named them, and I got a description. And you know, I think even though you could do that in, you know, Excel or something . . . I think if I did it in something other than NVivo, it would've just accentuated the fact, why the heck am I {writing these memos], you know?

Kristi: So did you code everything in your memos? Did you go through all your memos and code all of them to nodes, or just some of them?

Student: I think I went through all my memos – I'd have to look – most of them are coded – yeah, I did code them. I had a LOT of memos. . . [and] "see also links", and then I click on that, and that takes me to . . . you know, [the data] that reiterate . . . or reinforced the reasons why I wrote it, . . . and it just guides one through. . . . So, it's twofold – I think it allows the possibility . . . I guess no one really gets in your data, but if someone were to, they could follow this REASON, but I guess it's more important for the researcher – THAT'S why I questioned this – and reconstruct that, you're thinking at the time. . . I'll tell you, originally I thought it was for, if I sent it to someone like [my chair]. "Hey look at my research." She would go there. So, I thought it was for that: External. But I found it was probably . . . more

> a place for me to start and kinda go back through, if that makes sense. I think it can be both.
>
> Kristi: So, did you do that pretty regularly? Like if you weren't in the database for a few days, when you came back in, did you tend to go to that [memo]?
>
> Student: Yeah, that was always kind of a starting point, or, yeah, to kind of refresh me, and you could go to, "where am I? Where's those annotations?" . . . and as I got along, I'd go back and kinda rethink, you know, as Glaser and Strauss would kinda talk about rethinking, looking at the data again and again. And you know, it's a challenging thing.

This student raised the possibility that before being transparent for an audience, a researcher might need to struggle through the act of being transparent for one's self. This *transparency for self* could pertain to keeping track of logical connections or to challenging one's assumptions. So, in addition to diverse perceptions of transparency from one researcher to the next or one project to another, it is possible that, during their own pursuit of transparency in the course of a *single study*, researchers might change their own conceptualizations of transparency by visually tracing the connections of their prior and evolving interpretations.

In contrast to the above student, who repeatedly used NVivo to retrace her thought processes and re-examine the connections, a few students said that although NVivo helped them, the visualizations did not capture their intellectual journey effectively. When asked if NVivo helped or hurt the transparency of his study, one student said:

> I think I would say [NVivo] helps and hurts [transparency]. It helps in the sense of the final results, in terms of at least how I ended up presenting much of my data, . . . being able to count and report . . . how many participants . . . addressed or talked about a particular theme. NVivo . . . makes that very easy because of the way that it keeps track of how many references there are after each node and then being able to pull up those references and look at the quotes to make sure they fit in and that sort of thing. So, I feel like in that process it probably makes that much more transparent. But, I think the way in which at least my use of NVivo may have hurt transparency, is what I said earlier about the coding scheme. If . . . I were to show my NVivo project to anybody, they would see the final coding scheme that I ended up with. But, it doesn't really reveal how I developed that or how I came up with this coding scheme and hierarchy of nodes.

This student, who identified an inability to leverage NVivo to adequately track evolving thoughts, had a different observation than the prior student who found NVivo to be a helpful tool for visually tracking her thought processes. The first student was the most thoroughly trained in NVivo during her academic journey and the second was the least thoroughly trained. The first student met regularly with her advisor to review specific, technical aspects of using NVivo, including the modeling feature; the second student had no qualitative methods courses and said he did not know what See Also Links were, so he was unable to leverage them to track the development of his core ideas and his changing coding structure. Nonetheless, both students raised the importance of transparently visualizing their research *process*.

In contrast with the students, faculty members (who I turn to next) focused exclusively on the role of visualizations in presenting findings (although this might be due to the fact that faculty were not discussing their own research, and are not often intimately involved in doctoral students' analyses). The appreciation for an effective visualization among faculty members was unanimous, and was summed up by one of them, who said, "In a 380-page dissertation, I like visuals." Another faculty emphasized the importance of an effective visual in conjunction with the text:

> I mean I think of graphics as helping to quickly summarize what could be said in full sentences. So this is . . . yeah, I mean I think this coupled with sort of what it means in the paragraph that precedes the visual is really good description. I think it's helpful.

In all instances, when discussing the visualization in the dissertation, faculty were generally supportive of how they were used, but did not articulate high expectations about the role of visualizations or praise them as critical to the transparent communication of the findings.

Regarding one student who generated a basic model with five items, her advisor said, "It's showing a path of reasoning, and I think it's an effective visual tool for that."

As stated earlier, the indices in the dissertations did not convey complex relationships, and were more in line with the conceptualization of indices as "mere pointers" that simply draw the reader's attention. Noss et al. (2007) contrast this more rudimentary role of indices with Peirce's (1976, 1992) depth of sign, which purports that there are layers of interpretation made from a sign that can help explain the way individuals generate different interpretations from the same visual. Noss et al. (2007) argued that because graphs generated from a production line were described differently by workers (who then used their different perspectives to diagnose problems and take appropriate action), the graphs could and should be examined through a diverse spectrum of transparency (one highly influenced by their community of practice). Based on this observation, Noss et al. (2007) argued that depth of sign might be a fruitful avenue for coming to a better understanding of a rich spectrum of transparency. By doing so, Noss et al. (2007) essentially rejected the idea that indices could contribute to an understanding transparency as a dynamic phenomenon.

In contrast, this research found that despite the typical position of indices as "mere pointers" to salient elements, they can be powerful tools for understanding the dynamic and diverse role of qualitative research transparency in two respects. First, although indices are typically examined or described in the context of the final presentation of results, they can play an important role for the researcher during the analysis, prior to the final production of a dissertation (through summaries, coding displays and idea connectors). As detailed earlier,

students described the relevance of these indices in much greater detail and with more enthusiasm in the interview than they did in the written dissertation.

Next, while the negotiation of transparency is typically considered to be an activity among a group of people, as in the case of Henderson's (1999) engineers, the students in this study sometimes described extensive self-questioning and personal interrogation regarding their data as they worked independently with visualizations. In most circumstances, these internal and personal negotiations were not articulated until the interview provided a prompt to do so. This sheds light on the way individual researchers might traverse their own spectrum of transparency with visual indices during their analysis as they construct meaning from their data.

Transparency as an Ideal Type

The final portion of the interview was designed to elicit perceptions regarding the AERA claim that transparency is one overarching principle (in addition to the sufficiency of the warrants) that should guide the reporting of empirical education research (AERA, 2006). The questions directed participants to think of transparency fairly broadly and abstractly, a stance which differed from their reflections about a specific dissertation and article (where there was much more evidence of transparency in the making and transparency for the self). In addition to the finding that the general principle of transparency (as presented in the AERA document) was more closely related to product-oriented stances toward transparency (i.e., transparency in a final report), I also claim that more boundary-work occurred during the exchanges about transparency as a general principle than during the earlier exchanges about transparency in the making. Potential explanations for this pattern are presented.

Transparency as a Boundary Object

The AERA quote

As I detailed in chapter 2, a boundary object such as transparency is a more-or-less

coordinated, socially situated activity, with a common understanding across groups but a

flexibility in application to specific, local contexts. Statements, such as the AERA quote below,

serve as a reification of transparency by presenting models of this abstract principle in a

manner that resembles Star and Griesemer's (1989) ideal types (boundary objects that serve as

roadmaps for all participants that are generally agreed upon):

> Two overarching principles underlie the development of these reporting standards: the
> sufficiency of the warrants and the transparency of the report. First, reports of empirical
> research should be warranted; that is, adequate evidence should be provided to justify the
> results and conclusions. Second, reports of empirical research should be transparent; that
> is, reporting should make explicit the logic of inquiry and activities that led from the
> development of the initial interest, topic, problem, or research question; through the
> definition, collection, and analysis of data or empirical evidence; to the articulated
> outcomes of the study. Reporting that takes these principles into account permits scholars
> to understand one another's work, prepares that work for public scrutiny, and enables
> others to use that work. These standards are therefore intended to promote empirical
> research reporting that is warranted and transparent. (AERA, 2006, p. 33)

This is the aspect of a boundary object that emphasizes a common understanding. No studies

have been conducted with qualitative education researchers to examine their perceptions of

the AERA guidelines as an ideal type. However, the overall support for this statement by all

thirteen participants (an unanticipated finding), provides a view into the camp of education

researchers who promote the pursuit of transparency.

Faculty

Three faculty members knew about the AERA document prior to the interview; two of

them used it as reading in their qualitative methods courses and one cited the document in at

least one publication. In addition, two who had no prior familiarity said the AERA quote about

transparency was common-sense:

Faculty: I mean, . . . it just seemed like it was a nice summary of what you would wanna do. . . (laughs) . . . I was kinda wondering why you researchers would have to be reminded of this (laughs)? . . . if I look at it from the point of view. . . of working with PhD students, I can see it as being really useful. But if I'm looking at it from the perspective of having been doing research, I look at it and say, "yeah – okay" (laughs).

Kristi: So you don't see any problems with it?

Faculty: No.

Faculty: You know, I think it's a good guide. . . . I hadn't read it before . . . It made me start to think about empirical research . . . from this perspective. So I'm good with what's here.

Kristi: And anything about it that initially makes you pause, or have any concerns or issues or questions?

Faculty: No.

The two faculty members above had no problems with the statement and reacted to it as a

fairly matter-of-fact claim for the experienced empirical researcher. Two others reacted more

enthusiastically to the quote and were very supportive of the claims:

Faculty: Transparency . . . is a subject that's near and dear to my heart, let me just say. . . I think qualitative researchers are more willing and more likely to propose what could be an inference. In other words, their data don't exactly say THAT, but it's a logical conclusion from the data, or it's a logical ABSTRACTION of the data, and I definitely see that qualitative researchers are much more willing to do that than quantitative researchers.

Kristi: Do you think this [AERA] document provides guidance to do that transparently?

Faculty: . . . in terms of transparency I think it is particularly articulate in terms of the purposes of transparency and what that transparency should look like, and I do think very strongly, now that I'm living in a methodological world where students say, 'it's so boring I don't want to write it,' 'It's too boring I don't want to read this,' 'I never read that part of the article.' Well, then you get to realize that . . . if you're not transparent, no one will use your work and no one may think very highly of it because you haven't been transparent about your method. And, if people don't think your methods are any good then they're not going to take your results very seriously either. . . I like this paragraph. I have no objections to it.

This faculty member, an instructor in qualitative methods, lamented that she observed two problems among her students. First, students did not adequately attend to (or carefully assess) transparency of methods in qualitative publications. Next, students were unaware that their own research (even if it was high quality work) might not be well-received unless they developed the skills to transparently describe their own methods.

Two other faculty members in the study also related the importance of the AERA quote to the instruction of researchers. One said he used it in class to help students better understand the diversity among research approaches:

> Faculty: Yeah, I remember [the AERA document] being introduced into . . . a first year doctoral class in which I was trying to push the students to think harder about what constituted high-quality empirical research for them. And with first year doctoral students, . . . especially in education, . . . there's such a great variety. It's often hard for students to . . . make sense about what their colleague to the left and the colleague to the right is saying, and the quality of that information, and the claims that they're making based on the information. So, I . . . recall bringing in sort of this as a discussion piece to say, "Look, here's how a professional association is trying to set the standard. AERA is going through some changes now in what constitutes high-quality empirical research and reporting of it. This is their policy statement and policy guidance, here's what it says." And I remember trying to facilitate discussion on those levels.

The importance of instructing students on the relevance of transparency in their own research was fairly widespread among the faculty, even among those who said it was a common sense statement.

Students

Most students shared the faculty position that transparency was a good, guiding principle, although they tended to respond more briefly (and two students said they found this to be the most difficult part of the interview because the statement was fairly abstract). They also focused on the transparency of method: "I agree with this . . . great, it's a good statement .

. . this really helps define what a good piece of research should be if it was qualitative." One

student with more familiarity with the principles said he was taught this in his doctoral program

and that it was a fairly self-evident claim. Like one of the faculty, he related transparency to the

production of research findings that could be taken seriously:

> Student: [Transparency] is . . . sort of something that gets hammered in, in a doctoral
> program – at least where I went to school. I mean, it's that each of those steps
> had to be followed . . . – certainly in everything I've read – that those pieces[17]
> have to be met. . . . You know, I mean, yeah, certainly we've seen it, and there's
> faulty research out there, but, in terms of doing scholarly research at the
> university, it just seems like these pieces need to be present for it to be taken
> seriously.

Two students also related transparency to the replicability of the research, paralleling their

discussion of the exemplary article:

> Student: There's two points: . . . it should be warranted, so . . . you should be only doing
> necessary research, and adequate evidence should provide justified results and
> conclusions. Agreed, and it should be warranted and evidence-based, of course.
> Second, transparent. Yes. Clearly defining your methods, as we talked about
> within that article I sent you, I thought they did all of this very well . . . and I
> believe I could go back and actually replicate their study on my own.

> Student: I agree with it one hundred percent . . . transparency – I mean, honestly, in my
> personal belief – above all else is the most important. Because, research is
> supposed to be replicable. It's supposed to be ethical, and part of the ethics is
> maintaining that level of transparency – not trying to pull the wool over their
> eyes. So, I agree with the statement one hundred percent.

In addition to identifying replicability as a rationale for transparency, this student also

associated transparency with the ethics of being honest about the research. While she was

---

[17] The "pieces" the speaker is referring to are: "the logic of inquiry and activities that led from the
development of the initial interest, topic, problem, or research question; through the definition,
collection, and analysis of data or empirical evidence; to the articulated outcomes of the study" (AERA,
2006, p. 33).

unfamiliar with the AERA standards, this connection between an ethical account and transparency was also made in a subsequent portion of the AERA document:

> Reporting must be accurate and without falsification or fabrication of data or results; reflect the work of the authors with appropriate attribution to others; be free of any plagiarism or misappropriation of the writing or ideas of others; and be sufficiently accessible to be subject to verification, replication, or further analysis. (2006, p. 39)

Although some students said the AERA quote was foreign to them, four of them elaborated on the implications of the quote with statements that echoed other portions of the AERA document that were not provided to participants as part of the interview. While this research was not intended to gather reactions to the AERA document as a whole, the unexpected degree of agreement with this document among all participants was notable.

Through the analysis in this chapter, transparency has been described as a boundary object: An object (or idea) that coordinates activity in the absence of consensus. While reactions to the AERA quote indicated a high level of agreement regarding the value of transparency as an ideal type, participants also communicated differences in meanings of transparency and the way transparency was or should be enacted in every day practice. Within their NVivo E-Projects, some students emphasized summaries, others focused on coding displays, and a few directed their attention toward idea connectors; many students used a combination of one or more of these visualizations as they worked with data to simultaneously construct meaning during their analysis and to better understand qualitative methods and transparency. Therefore, while their activities were somewhat coordinated by their agreed-upon pursuit of transparency, they were able to pursue this principle without consensus on the meaning of transparency or the means of pursuing it.

Transparency and Boundary-work

Another relevant pattern was the disproportionate amount of boundary-work

participants practiced in this portion of the interview, relative to their discussions of the

exemplary articles or the dissertations. This is significant because, in contrast with the

exemplary article and the dissertation, the AERA quote did not pertain to a specific piece of

research and was therefore the most abstracted ideal type. The observation that researcher

discussions about ideal types might be a more fruitful location for observing boundary-work has

implications for understanding the way transparency is leveraged to establish power and the

contexts in which authority is enacted to stake claims to transparency.

One example comes from this faculty member who used the AERA (2006) quote about

transparency to both separate herself from (and establish authority over) the claims of post-

modern qualitative researchers on one end of the spectrum, and positivists on the other end:

Kristi:	So as you read through that, you said, . . .'I've cited this.' So, it sounds like you feel pretty positive about it – is that correct?
Faculty:	Yeah, you can go to my publications and see where I used this, yeah.
Kristi:	Okay. And is there anything about it that makes you concerned, gives you pause, have any troubles with it?
Faculty:	. . . I'm in the middle of the continuum. I'm not out there on that radical post-modern side of the group. . .
Kristi:	Okay. So, from your perspective, being in the middle of the continuum means that this is accurate, and you don't have problems with it?
Faculty:	I'm a post-structuralist, constructivist, applied ethnographer. . . that dabbles in grounded theory and a few other things, but keep me out of [the post-modern camp].

She accepted the application of transparency (alongside empirical research standards) to a wide

range of scholarship, and positioned the objections to transparency at the allegedly less

credible ends of the spectrum. On one end, some post-modernists view the pursuit of

transparency as part of the discourse of "scientism" and the objectivist paradigm that

homogenizes qualitative research. On the other end, positivists adhere to various

epistemologies and principles of scientific method (such as objectivity) that would, *ipso facto*,

deny the validity of most qualitative research approaches. From her perspective, a positivist or

quantitative researcher should "stop pretending that because you have a great statistical

model, you don't have your human fingerprints all over that study design!" For her, being

transparent meant dedicating effort to describe and analyze the relevance of those "human

fingerprints" as part of a discussion of empirical research. By arguing for a position in between

these allegedly extreme stances toward transparency <u>and</u> establishing a very broad middle

ground on which she could stand, she clarified her support of the AERA quote and

simultaneously leveraged her power to do so.

While the above faculty was the only participant to critique the post-modern rejection

of transparency, she was joined by many other participants in her use of the quote to discuss

the boundaries between qualitative and quantitative researchers. One faculty leveraged her

expertise in mixed methods (placing her membership in both qualitative and quantitative

camps) to argue that quantitative researchers should borrow from the work of qualitative

research regarding the generation of relevant inferences from the data. From her perspective,

"it's amazing how [quantitative researchers] seem to fall down once they get to the

conclusions" because of their failure to make relevant inferences. She legitimated her

knowledge as a member of both camps to critique an aspect of quantitative research. This use

of an affiliation with one camp (quantitative research) as an insider to bolster the credibility of

the criticisms from another camp (qualitative research) is akin to Gieryn's (1999) boundary-

work strategy of *expansion*, in which (in this case) quantitative research is positioned as a "less reliable, less truthful and less relevant" source of knowledge (p. 17).

As another example of boundary-work between qualitative and quantitative approaches, both faculty who communicated a fairly "matter of fact" agreement with the AERA quote also said that it applied to both qualitative and quantitative researchers. One of them said:

Faculty: I agree with it. I think whether it's quantitative or qualitative research, I do think that you have to have disciplined inquiry, and it has to be credible and transparent. And I do agree that there's not enough . . . research . . . like that.

Kristi: And why do you think there's not enough research . . . like that? What's preventing it from –

Faculty: – So, we had discussed it earlier. But, again, TRAINING. I think professors are not well trained in the field of research in general, both qualitative and quantitative. I think we lack competent courses for students to understand why this is important. I don't think we convey that enough. And I think that education in general is a field that has been overlooked, and therefore research is not considered as important from outsiders as well as insiders in the field.

This also represented an *expansion* strategy because it placed transparency in a sequentially prior and conceptually superior position, relative to the disputed ideologies of qualitative and quantitative research. Instead of claiming an insider position to acknowledge legitimate critiques from the outside, as described it the prior example, this strategy positions transparency in a third position that supersedes the ideological debates of qualitative and quantitative approaches.

As I examined the boundary-work regarding research ideologies in this portion of the interview, I was reminded of several debates I attended at AERA conferences regarding the larger AERA (2006) document about reporting empirical research. The boundary-work displayed during these sessions was similar to (but even more pronounced than) the boundary-work I

heard in this portion of the interview. Rebuttals such as Freeman, deMarrais, Preissle, Roulston, and St.Pierre (2007), help capture this boundary-work and articulate the perceptions about what is at stake when parameters around reporting empirical research are articulated by an organization like AERA. Most notably, that these boundaries might intentionally or unintentionally exclude relevant and valuable forms of scholarship).

My observation that boundary-work and ideal types co-occurred in the discourse of these participants and during the AERA conference helps explain why the anticipated amount of boundary-work during the earlier portions of the interview did not come to fruition: Those earlier portions of the interview focused on a specific dissertation, so the focus was on the localized handling of transparency as a boundary object, not on the ideal type. I learned that when doctoral students struggled to analyze their own data, they engaged in a highly localized, self-interrogation regarding the role of transparency that is somewhat distanced from the boundary-work that occurs around ideal types such as the AERA document.

I still believe there is much to be learned by examining the boundary-work that occurs around discussions of transparency as an ideal type (as this final section indicates). However, the primary contribution of this research was not about transparency as an ideal type. It was about:

1) The dynamic and ongoing role transparency plays *during* the analysis as researchers construct meaning in and from their data.

2) The way qualitative researchers turned transparency inward (as a form of self-interrogation).

3) The unarticulated contributions (and limitations) of QDAS in pursuing this transparency in practice.

This research also points to a need for strategies to observe the way qualitative researchers make sense of (and potentially tack back and forth between) ideal types and situated practices, particularly in terms of their understanding and pursuit of qualitative research transparency, and the teaching of this practice to others.

Research Answers

To conclude this chapter, I now turn to the original research questions, with a summary of points presented during the analysis that answer these questions (along with some limitations of the study in addressing them):

How did researchers engage in transparency in the making?

The students demonstrated the situated construction of transparency in two ways (although additional research might point to other strategies for practicing *transparency in the making* in qualitative education research). The first pertained to the tensions participants described between transparency and confidentiality in their own research and the "dance" of simultaneously presenting enough information while protecting participants. I encountered similar tensions in handling the data for this study, some of which were not (and, I argue, could not have been) anticipated before the research began. This shaping of the ethics of transparency occurred as students considered commitments, relationships, and identities along a continuum of past, present and future circumstances. Just as the participants described these considerations during the implementation of their own research, I also reflected on these issues during my research. As a result, the decisions I made influenced what I could report in the current analysis and the ways I could pursue transparency.

The second way researchers engaged in transparency in the making was through the visualizations in NVivo that helped them practice both data distillation and data expansion over time. While the visualization of data in this research was initially conceptualized as part of the reporting of final results, participants described a dynamic world of working with visual representations of (and linkages to) their data and ideas in NVivo as their analysis unfolded (in a few instances for more than a year). In the interviews, students said these visualizations enhanced the transparency of their research when the visualizations were used to facilitate an ongoing self-interrogation about the merits of their interpretations. These contributions did not make it into the final dissertation, perhaps because they pertained to transparency for self and not transparency for an audience.

> ### *What were the perceived flexible (locally adaptable) and rigid (standardized across contexts) aspects of the three boundary objects? Two physical boundary objects: E-Projects and dissertations. One conceptual boundary object: transparency? What were the relationships among these boundary objects and how were they negotiated?*

Although the research intended to examine the perceived flexible and adaptable characteristics of the three boundary objects (E-Projects, dissertations and transparency), I cannot confidently answer this question for E-Projects and dissertations, nor can I thoroughly describe the spectrum of relationships among all three boundary objects. This is due in part to my inability to conduct a detailed examination of the participants' E-Projects and by my later decision to refrain from quoting the dissertations in the current analysis. However, I was able to examine transparency as a boundary object, which was the primary objective. This examination pointed to transparency as both a less flexible, ideal type and as a locally constructed, more improvisational practice. Regarding the ideal type, the logical connections in the methodology

were paramount, according to participants, alongside a clear writing style. Together, these contributed to another important facet of transparency as an ideal type, the ability to replicate findings. While these characteristics were fairly widely shared among this small group of qualitative researchers in education, participants also exhibited diversity in the way they pursued transparency in their own research and in the way they described it in the exemplary articles they chose. In several instances, they defended the importance of being able to adapt the logical connections to the circumstances surrounding a particular study. This helps explain their emphasis on the overall logic among the elements (e.g., literature, purpose, focus, personal position, research questions, theory, methodology, protocols, evidence, analysis, interpretations, conclusions, and implications) rather than a specific aspect of a study (e.g., the selection of participants or the theoretical approach).

How did researchers enact power relations in their use of us/them boundaries (or other discursive strategies) when discussing transparency?

The boundary-work in this study occurred primarily during discussions of transparency as an ideal type, and pointed to the possibility that to observe boundary-work more extensively, additional information should be collected about researcher perceptions and use of ideal types. In retrospect, this might have been achieved more effectively with other, more focused research activities, such as:

1) An on-line survey consisting of specific questions about the relevance, impact, implications (etc.) of the AERA (2006) guidelines on education researchers.

2) An interview that focused exclusively on the AERA document.

3) A long-term observation and interview design in which researchers reflected periodically on the document while they crafted their final report or publication.

Nonetheless, I did observe that the boundary-work during the interview pertained to a range of

research ideologies (e.g., post-modernism, ethnography, positivism) as participants described

their camps, the camps of other researchers, and instances when they were members of

multiple camps. The most frequent use of boundary-work pertained to the similarities and

differences between quantitative and qualitative researchers and the role of transparency in

staking claims to these similarities and differences. For some participants, transparency was an

overarching principle that could guide both approaches to research. For others, the pursuit of

transparency by qualitative researchers (including a reflexive approach) was something that

should be modeled by quantitative researchers. The hypothesis that ideological battles and

boundary-work might be more readily observed around discussions of ideal types is presented

as a tentative conclusion that warrants additional research.

In what ways could a boundary object and boundary-work conceptualization inform an understanding of qualitative education research transparency?

Several innovations were fostered by framing qualitative research transparency as a

boundary-object. First, because the boundary object conceptualization takes a lack of

consensus as a given, it allows for an investigation of highly localized practices that, in this case,

promoted an examination of differences among researchers regarding their pursuit of

transparency through the visualizations they used during their analysis. Next, the range of

visualizations employed (summaries, coding displays and idea connectors) in different studies

helped provide a more holistic picture of the types of practices students can use to pursue

transparency in different circumstances. Finally, because the boundary-object

conceptualization acknowledges a generally agreed-upon ideal type, without positioning it in

conflict with (or in juxtaposition to) the localized practices, it promotes an acceptance and

awareness of *both* the general abstraction of transparency and the localized enactment of it. In

fact, it is the successfully articulated general characteristics of the ideal type in the AERA (2006) guidelines (according to these participants) that allowed researchers to acknowledge, welcome, and accept it alongside their customized pursuit of transparency. During the course of the interview, participants tacked back and forth between these general and specific understandings of transparency, and the boundary object conceptualization was especially well suited to directing attention toward and observing this oscillation.

The boundary-work conceptualization set the stage for an examination of power struggles, particularly in terms of the way participants identified various camps in the debate about transparency. However, the unanticipated focus on localized and individual pursuits of transparency in this analysis might have inadvertently sidestepped the attention to boundary-work. As already discussed, the portion of the interview related to the AERA (2006) document, which presents transparency as an ideal type, yielded more expressions of boundary-work, and therefore I hypothesize that debates regarding ideal types might be the most fruitful location for learning more about the relationship between boundary-work and transparency.

CHAPTER FIVE: IMPLICATIONS

Parameters

Transparency as a boundary object

Star (1989) and Star and Griesemer's (1989) boundary object conceptualization was well suited to pursue an understanding of both transparency in the making (through everyday practices) and transparency as an ideal type. A boundary object is a concept or process that coordinates activities of different communities in the absence of consensus. While boundary objects share some meaning across communities, they can also be adapted to satisfy local needs by specific communities. In this regard, transparency as an ideal type and transparency as situated practice comprise transparency as a boundary object; researchers tack back and forth between these two understandings while they construct and enact transparency.

Two assumptions are associated with this approach and were verified by the findings from this study. First, differences in practice might not be problematic or threaten the widespread pursuit of transparency as an ideal type. In fact, as Noss et al. (2007) argued, acceptance of diverse practices could be one of the aspects of a boundary object that sustains it over time; in this instance, by allowing researchers to express an allegiance to the principle of transparency while retaining some control over its local application. Another assumption is that the actual practice of transparency cannot be extrapolated from the ideal type. Instead, the way transparency is constructed depends on the specific contexts in which it is pursued. As stated in chapter 3, this approach to the study of transparency is firmly grounded in weak social constructionist theory (Schwandt, 2007).

Sample

The detailed examination of these seven dissertations, twelve articles (chosen by the participants) and thirteen interviews (seven students and six faculty), presented an opportunity to engage in an in-depth look at their perceptions of transparency and NVivo. The primary strength of this approach, as indicated by the findings, was the ability to go beyond the front stage (Goffman, 1956) presentation of both transparency and NVivo, and to learn more about various practices and perceptions that were not articulated in the documents (particularly the dissertations). This was accomplished by discussing the article, the dissertation (with a focus on the visualizations in the dissertation), the role NVivo played in the analysis and presentation of findings, and a quote about transparency from the AERA (2006) guidelines. The interviews revealed a far more complex and influential role that NVivo played in the pursuit of transparency than was available through the analysis of the dissertations, alone, and the analysis advanced new ways of thinking about qualitative research transparency.

While the strength of this in-depth approach was the exploration of new concepts, the findings must be considered in the context of a small sample size. This sample does not warrant generalizations to other students, other faculty, and other QDAS users. Instead, the study serves only to sensitize qualitative education researchers and those interested in the advantages and disadvantages of using QDAS (in doctoral research) to new ideas regarding both the use of QDAS and the pursuit of qualitative research transparency.

Other limitations

Three main challenges to conducting this research point to some limitations of the study (and to areas for future research). First, as a primarily implicitly invoked principle, qualitative

research transparency can be difficult for researchers to discuss when asked directly. The strategy of collecting data for this study by focusing on an exemplary article of the participants' choice, the dissertation (particularly the visualizations), the use of NVivo, and the AERA quote helped provide artifacts that could be related to transparency. However, several participants asked for clarification regarding the purpose of the study, sometimes mid-way through the interview, because they were understandably unclear how the various artifacts were related. Compounding this issue, the recruitment statement and screening questions (see Appendix D) emphasized the use of NVivo in dissertations with an education question. As a result, some thought the study was about the use of NVivo, not the conceptualization of transparency. The next challenge/limitation was due to my inability to view the E-Projects or follow students over time as they used NVivo, in order to adhere to the IRB guidelines for my participants' studies. This presented a limit to what we could discuss, what I could observe, and what could be reported in this dissertation. Finally, as detailed in section one of chapter 4, the decision to omit quotes from the dissertations (an *in situ* choice related to protecting identities of the participants) limited the degree to which I could analyze and describe the dissertations. This was a factor that also limited being able to discuss the dissertation as a boundary object.

These limitations call for additional investigations in three areas:

1) The actual practice of using QDAS in dissertation research.

2) The way researchers make sense of – and practice – qualitative research transparency.

3) The role of QDAS in the pursuit of qualitative research transparency.

Potential designs for this additional research, to which I will turn momentarily, are also informed by several key findings from this study.

Key Findings

Transparency as an ideal type versus transparency in motion

<u>Transparency as an ideal type</u>

The literature review for the current study revealed that when transparency was discussed, it was positioned primarily as an ideal type (e.g., AERA, 2006; di Gregorio & Davidson, 2008; Hiles, 2008; Meyrick, 2006). In addition, the faculty in this study placed an emphasis on the ideal type (particularly regarding their instruction of students), and all of the students supported the AERA (2006) proposal for pursuing this ideal type. However, the construction of transparency in practice, through the visualizations students explored with NVivo *during* the analysis, pointed to an aspect of transparency in the making (Meira, 1998) that has received no attention in the qualitative research literature, and that was absent in the students' written dissertations.

<u>Transparency in motion</u>

I am asserting that, as a boundary object, qualitative research transparency has at least two necessary constituents. I use the term "constituents" to purposefully avoid a focus on cause and effect and to foreground a rich and complicated interaction of the knowledge, attitudes, beliefs and actions of individuals who can never be definitively separated from the social contexts in which they practice. This view recognizes much of social phenomena as mutually constituting and thereby directs attention on the situations in which they meet. In line with other scholarship on situated learning, this approach attends less to causality and the isolation of variables than it does to observations about the mutual and simultaneous influence of individual actors and social norms (even when these actions are perceived as either

institutionally mandated on one hand or improvisationally generated on the other). The first

constituent, transparency as an ideal type, provides an over-arching and general principle that

is broadly agreed upon. The second constituent, transparency in the making, occurs when

researchers make *in situ* and non-predicted choices as they engage in the pursuit of

transparency. The observations of the students in this dissertation, who fluidly navigated these

constituents, brought me to a reconceptualization of qualitative research transparency. I call

this new approach *transparency in motion*.

To help define transparency in motion, let me review the four key findings that helped

shape my understanding of it. First, the interviews confirmed that the personal experiences of

these doctoral students influenced their pursuit of transparency while they handled the data,

long before any consideration of being transparent in the presentation of findings. This

included ethical considerations as well as the tracking of ideas and interpretations. Next, the

students faced unpredictable issues when pursuing transparency, to which they responded *in

situ*, considering a wide range of contextual factors. This was true even when informed by ideal

types such as the AERA (2006) guidelines that provided a framework for pursuing the principle

of transparency. Thirdly, the visualizations students used while working with NVivo to interpret

the data were described as a helpful (and sometimes indispensable) aspect of pursuing

transparency. Finally, the key characteristic of this situational use of visualizations to pursue

transparency was the emphasis on self-interrogation to re-examine, verify, and sometimes

challenge their interpretations of their data over time.

Together, these findings provided a new understanding of how students experienced

the pursuit of transparency, at least in part, as a process of tacking back and forth between

their situated construction of transparency (transparency in the making) and transparency as an ideal type. Despite some of the questions participants raised about the purpose of the study during the interview, none of them identified contradictions, problems or criticisms in the AERA guidelines or about their individual pursuits of transparency. In some instances, our conversations moved back and forth between these understandings through several iterations, each informed by prior statements. In other words, while transparency is often conceptualized as a static phenomenon – often presented via the metaphor of a window or a pane of glass – in actual practice it is very much in motion. One of the implications of this research is to direct qualitative researchers toward an understanding of transparency in motion that might help them move beyond a purely implicit, potentially static, and problematic post-hoc invocation of transparency in their work.

In addition, the findings from this research indicated that transparency in motion was built on a minimum of three activities which were also reproduced (and potentially reconfigured) as part of the pursuit of it: Triaging, showing, and reflecting:
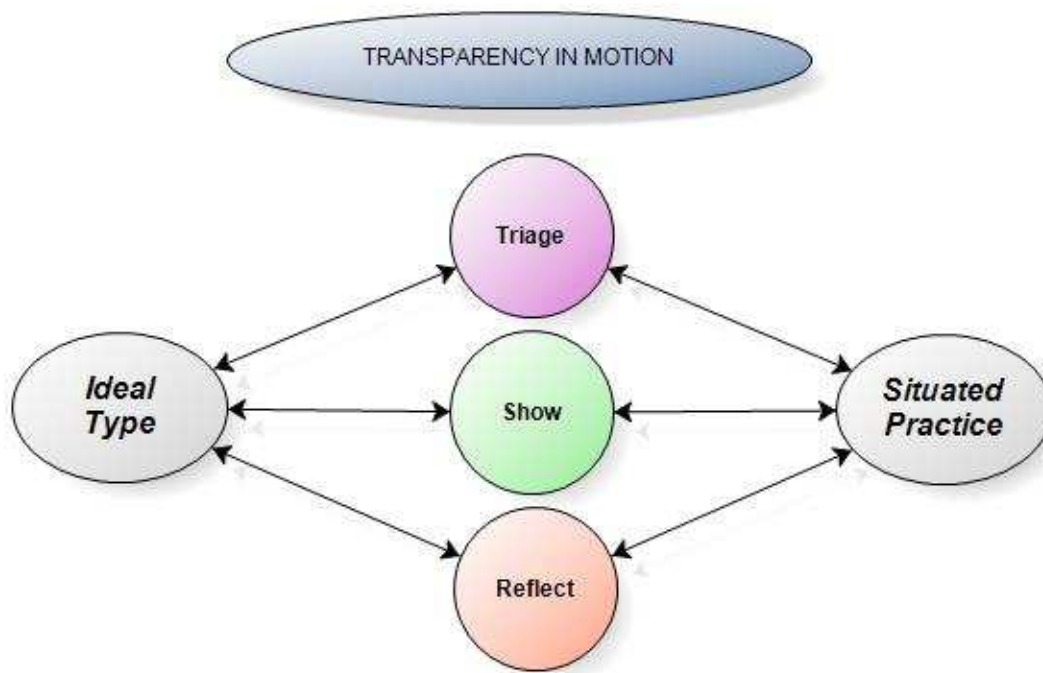
Figure 5.1: Transparency in motion

I will describe these three activities using examples from literature and from prior chapters in this dissertation.

Triaging

The common association of triaging with emergency medical situations conveys an immediacy of purposes and choices that can be aptly associated with some qualitative research decisions, although the urgency of this metaphor does not always hold true in practice. The key aspect of triaging in the context of qualitative research is that choices often cannot be determined in advance of particular situations. Emergency room physicians use complex, situated information to make in-the-moment choices about how to direct their expertise, much like qualitative researchers. An example from this research occurred when I stopped the interview with one participant, roughly a third of the way through the interview, to see if we

should return to a discussion of the consent form. I did so based on the information I was unexpectedly presented regarding the participant's concern about her identity and my protection of it, and my sense that these concerns could potentially damage our rapport. (See chapter 4, The Ethics of Transparency).

The more common association of triaging with urgency (as described above) evolved in the 1930's during World War II in relation to emergency medication care (Hogan & Burnstein, 2007). However, qualitative researchers also often find themselves making consequential choices during calm but fluid practices that have accumulated over time as part of their community of practice (Goodwin, 1994: Lave & Wenger, 1991). These choices, in turn, become part of an individual's developing expertise and are in line with the origin of the term "triage" from early 18th century French *trier*, to "separate out." Common synonyms for this view of triage include *emphasize*, *sort*, *classify*, or *group*. While there are fewer examples of this less crisis-directed activity in the literature about triaging, Morris and Ecclesfield (2011) present an example from education research. In their article about the opportunities and challenges of handling an ever-increasing volume of digitized data, they state that "Information Triage can be defined as a process to refine or filter information to identify that which is potentially most valuable and information gaps which need to be filled" (p 253).

This statement suggests a minimum of four key characteristics of triaging in qualitative research. The first characteristic is the ongoing nature of triaging, over time, to refine one's understanding of the information at hand. In other words, triaging is less of a specific moment and more of an ongoing process. In addition, the process of triaging sometimes pertains to the identification of gaps; the absence of information, perspective, strategies for handling data, etc,

that should be considered for inclusion. Next, the authors state that triaging is inevitably embedded in the context of time and resource constraints that necessitate choices; attending to the aspects of the research that influence and are influenced by these choices is part of mindful information triage. Finally, the authors argue that QDAS can be one of many tools that help researchers engage in this triage, because it can help track these choices over time.

Examples of the more subtle and fluid choices in this dissertation include the addition of nodes through the constant comparison method (see chapter 3, Analysis: Coding and nodes) and the memo I started near the end of coding, called "Visualizations – timing and purpose." In the memo, I began tracing my ideas about the timing and purpose of various visualizations, particularly after I realized that most participants described useful visualizations that were not included in the final dissertation. (See chapter 4, Interview Discussions about NVivo: Visualization types.) I did not experience this form of triage with a sense of urgency, but rather as part of the ongoing handling of data to come to new interpretations or to reexamine, refine, or reaffirm prior interpretations. It is important to acknowledge that whether the triaging occurs in urgent situations or subtle practices, it can have powerful and often irreversible consequences that influence not only the analysis and findings, but also the relationships among people and communities. Such consequences can occur in many ways (immediately, suddenly, eventually, gradually, etc.)

Attending to triage as a form of consequential choice-making is also an important aspect of the AERA guidelines (2006):

> A thorough formulation of the problem typically includes . . . a rationale for the conceptual, methodological, and theoretical choices made in addressing the problem. . . These choices can have a significant influence on how a problem is understood, what generalizations can be made, and the extent to which a work can contribute to addressing significant issues.

Reporting needs to provide as comprehensive a picture as possible of what the problem is about and how it has been approached. (p. 34)

Based on the discussion of the study by Morris and Ecclesfield (2011), this dissertation, and the AERA guidelines, qualitative research triaging can be defined as an activity in which researchers engage in ongoing, in-the-moment choices which may be partially guided but not entirely predetermined by their community of practice. While some of these choices may occur with a sense of urgency, many of them are part of the fluid processes of handling data. They may also have important consequences for future research activities and outcomes. Furthermore, while the use of QDAS is not required to engage in triage, the students who participated in this study described ways in which QDAS visualizations (summaries, coding displays and idea connectors) facilitated their practice of qualitative research triage.

Showing

Based on the literature review in chapter 2, the activity of showing—as in showing what was done and providing evidence of what was learned--tends to be the most commonly discussed of the three activities, and it is also frequently used as a synonym for research transparency (qualitative and quantitative). The first page of chapter 1 in this dissertation began with a working understanding of transparency that is in line with this activity. According to this principle, aspects of the data and research process must be made visible to allow scholars to assess the merits of education research findings and recommendations. This activity is frequently associated with the production of research results or reports, usually in the form of articles or books used to communicate with researchers, practitioners, and other interested stakeholders.

In their article on maximizing transparency in doctoral research (Bringer et al., 2004), the authors emphasized this activity and claim "that transparency is essential when communicating the findings of qualitative research" (p. 247). They also make clear that doing rigorous qualitative research is not the same as showing it to others (an argument I also make in chapter 1). An important aspect of showing, according to Bringer et al. (2004), is that it may occur at interim moments during the research as a way of punctuating or remembering important aspects of the analysis as it unfolds. Paralleling the participants in this dissertation, they observed that one of the greatest challenges in the pursuit of transparency, is "illustrating the *process* of transparency" (emphasis in original), which was "the main purpose" of their article (p. 248). Therefore, in addition to the importance of showing research findings, the authors also provided some examples of (and encouraged strategies for) demonstrating the processes of handling data that are related to this activity. In their article, Bringer et al. used eight screen captures from NVivo and one summary table of memos developed during the analysis as a primary strategy for showing their work. Similarly, in an attempt to show the types of visualizations my participants used without revealing their identities, I generated similar but not identical visualizations from my own E-Project throughout chapter 4. The activity of showing was the primary emphasis in presenting these visualizations.

Like triaging, this locally situated activity is also identified in the AERA (2006) guidelines, which state that, "It is the researcher's responsibility to show the reader that the report can be trusted" (p. 38). In other words, the guidelines repeatedly focus on the activity of showing, for the purpose of making research findings available to public scrutiny:

> The aim of specifying reporting standards for empirical research in education is to assist researchers in the preparation of manuscripts that report such work, editors and reviewers

in the consideration of these manuscripts for publication, and readers in learning from and building upon such publications. The primary audience for these standards is researchers who wish to publish reports of empirical research and who review such research for AERA publications. (p. 34)

As an ideal type, two of the main purposes of the AERA guidelines are to: 1) Direct attention toward the principle of transparency in empirical research. 2) Emphasize the activity of showing via reports and publications. Also, like the values of the community of practice from which these standards emerged, the activity of showing tends to be the most commonly identified of the three (triaging, showing and reflecting), and also tends to be most closely associated with the metaphor of a window or a pane of glass.

Based on the article by Bringer et al., this dissertation, and the AERA guidelines, the activity of showing can be positioned as one which is most closely aligned with the production of research reports and publications, although the act of showing may also occur at interim points during the handling of data as a way of marking key events or key findings. In addition, this activity tends to be associated with the metaphor of a window or a pane of glass, which means that it may inadvertently distract researchers away from the other activities related to transparency (such as triaging and reflecting), and thereby dull their sensitivity to and awareness of transparency in motion.

Reflecting

Reflecting rests on the assumption that personal, social, political, economic, and historical contexts influence the pursuit of transparency. Wenger (1991) and Meira (1998) go to great lengths to argue that the relationship between person (e.g., researcher) and object (e.g., an instructional learning device, a research participant) is mediated by a person's membership in specific communities, which allows a researcher to see the cultural significance of things due

to his or her vantage point as a member of particular communities. In Harry et al. (2005), the authors described a 3-year ethnographic study of the overrepresentation of minorities in special education to demonstrate the way detailed accounts of the development of themes (and the connection between these themes and theory) helped "make transparent the impact of various aspects of researchers' identities on the research act" (p. 5).

In addition to acknowledging that the identity of the researcher plays a role in conducting the research, many others (e.g., Bringer et al., 2004; Weiner-Levy and Popper-Giveon, 2011) point to the influence that potential future audiences (editors, employers, stakeholders, etc.) have on the decisions made by researchers about how to articulate the research. Weiner-Levy and Popper-Giveon (2011) also skillfully broaden the common understanding of reflection as an activity where researchers identify contextual and personal reasons for approaching their research in particular ways. These authors dig into the absent, hidden and obscured material that was omitted from their research reports as part of the *dark matter* of qualitative research. They provide examples of material that was omitted because it raised political ideologies that were not in line with the participants' views, and material that was cut due to limitations enforced by an editor. The authors argue that these omissions should be just as closely examined through reflection as the material that is included. Importantly, this also demonstrates that triaging and reflecting may occur simultaneously (just as showing may occur simultaneously with triaging and reflecting). I will say more about the potential for simultaneous or sequential positioning of these activities later.

In this dissertation, primarily in chapter 3, I identified my professional history with QDAS and the way this influenced my approach to the research questions and the ways I handled the

data. This included my personal experience of the disappointingly slow pace of QDAS adoption

in the last 20 years and my ongoing search for potential explanations. I also identified the

qualifications that influenced my pursuit of this topic as an insider and expert in the QDAS

community. Later in the same chapter I identified potential problems with this position,

particularly regarding the way my expertise may unintentionally elicit only positive comments

from participants regarding the use of QDAS. Appendix G (where I provide verbatim responses

to my wrap-up question about the potential influence of my expertise on the interview) is a

reflecting activity because I use the verbatim transcript to demonstrate the importance of

reflecting. (And, again, this represents a simultaneous engagement in the activities of showing

and reflecting.)

While the AERA (2006) guidelines arguably focus more on the activity of showing than

they do on triaging or reflecting, there is evidence that the authors recognized the importance

of the activity of reflecting in the pursuit of transparency:

> The design and logic of a study flows directly from the problem formulation. It is shaped by the intellectual tradition(s) in which the authors are working and the ways in which they view the phenomenon under study. This in turn influences the identification of questions, the choice of methods of data collection, the approach to analysis and interpretation, and the format of reporting. (p. 34)

For example, the guidelines state that "Since the role of the researcher and the relationship

between the researcher and the participants can influence the data collected, this relationship

is addressed in descriptions of sources of evidence," (p. 35) and "Critical examination of the

preexisting perspective, point of view, or standpoint of the re-searcher(s) . . . is an important

element in enhancing the warrant for each claim" (p. 38).

Based on the literature cited above, this dissertation, and the AERA guidelines, the activity of reflecting can be positioned as one in which social, political, historical (and other) contexts are recognized as factors that influence all stages of the research process. While some scholars in constructionist, feminist and postmodern traditions may position this activity to leverage the idea of a Foucauldian (Foucault, 1991) power structure behind the pursuit of transparency (Denzin & Giardina, 2008), others may approach the activity with a less critical narrative (as I have done in chapter 3) that acknowledges the way different positions in specific historical contexts influence the way researchers approach their pursuit of transparency (and in potentially beneficial ways). An important but often overlooked aspect of reflection is the examination of perspectives, data and findings that are omitted from the analysis and the reasons for these omissions (Weiner-Levy and Popper-Giveon, 2011). Attending to these omissions is one of the primary reasons I was able to consider visualizations that doctoral students used but did not include in their written dissertation.

Sequential versus simultaneous activities

Before turning to the relevance of these findings and transparency in motion, I end this section by clarifying that the distinction I make in Figure 5.1 between the three activities is a heuristic one. Furthermore, while I consider these implications to be starting points for further research and understanding about transparency in motion, I suspect that it would be difficult to identify situations in which researchers engage in only one of these activities at a time. I should note that Hiles (2008) does propose a sequential staging of two main activities as they relate to transparency: first, the reflexivity of the researcher (closely aligned with reflecting, as I have described it); and second, the dissemination of results to a target audience with an emphasis on

the ability to replicate procedures (closely aligned with showing, as I have described it). Despite

this and a few other examples where researchers identify sequential stages of the three

activities, there is more evidence from the current analysis and from existing literature that

they may overlap, occur synchronously, or be mutually constituting, just as individual actors

and communities of practice are mutually constituting (Wenger, 1991).

One example of the articulation of this co-occurrence is Goodwin's (1994) article on

professional vision, in which he argues that "Such vision is not purely a mental process but

instead is accomplished through the competent deployment of a complex of situated practices

in a relevant setting" (p. 626). He uses two examples – the Rodney King trial and an

archeological excavation – to describe the three discursive practices that professionals use to

shape perceptions of events:

1) *Coding* transforms phenomena observed in a specific setting into the objects of knowledge that shape the discourse of a profession. "Coding schemes are one systematic practice used to transform the world into the categories and events that are relevant to the work of the profession (Cicourel 1964, 1968)" (p 608).

2) *Highlighting* makes specific phenomena in a complex perceptual field salient by marking them in some fashion. When professionals do this, "they tailor the document so that those parts of it which contain information relevant to their own work are made salient" (p 610). He agrees that features can be difficult to see without this guidance within a community of practice.

3) M*aterial representations* are used to present conclusions, such as charts, models and graphs.

These three discursive activities – coding, highlighting, and producing material representations

– are closely aligned with triaging, reflecting, and showing, respectively. Furthermore, in his

description of highlighting, there is evidence of all three activities. Highlighting entails: 1)

triaging by selecting specific phenomena in a complex field, 2) reflecting by identifying material

that is relevant to the work of the profession, and 3) showing by tailoring a product or document.

I argue that just as the situated practice of transparency is comprised (at least in part) of the activities of triaging, showing and reflecting, so the ideal type is also comprised of and connected to these activities. Students in this study described triaging the data, showing the relevant aspects of this evidence, and thereby reflecting on their personal ideologies and values; all of this was part of their situated practice of the pursuit of transparency. When they reflected on transparency as an ideal type, they did not abandon their ideologies and values, they simply discussed them in relation to a more abstract principle.

Education research literature (as detailed in chapter 2) has largely privileged transparency as an ideal type, and has therefore tended to focus largely on showing. Furthermore, this ideal type tends to be associated with a final product (as chapter 2 also demonstrated) and with a metaphor of transparency as a window or a pane of glass. While this metaphor has salience as it relates to showing, the emphasis of this metaphor on only one of the three activities has potentially contributed to a myopic view of transparency. Findings from this study suggested that qualitative education researchers might better understand the role of transparency (and move beyond an implicit invocation of it) if they consider the possibility that transparency is in motion and that this motion is related, at a minimum, to the activities of triaging, showing, and reflecting.

This possibility is in line with the work by Lave (1988), Wenger (1991) and Lave and Wenger (1991), who were also cited by Meira (1998) during his discussion of transparency in the making and Henderson (1999) during her discussion of engineering drawings (as detailed in

chapter 2). For Wenger (1991), the act of seeing the cultural significance of visible objects, acting on this significance, and potentially challenging either the interpretations of these objects or the way they were produced was part of participating in a community of practice. Wenger claimed that an individual's understanding of the various objects used to shape and express this situated world depended on participation in the context, and not as a distanced outsider. In addition, this understanding of one's world could not simply be imparted by elders or experts. Like Meira's (1998) eighth graders, Noss et al.'s (2007) workers and Henderson's (1999) engineers, understanding was acquired through participation.

Wenger (1991) concluded that both the objects produced in this sociocultural world (such as dissertations and QDAS) as well as the processes used to create them (such as participant observation and software manufacturing) were held together by two simultaneous tensions. On one hand, there were cultural trajectories at work that pressed individuals toward a more static and rigid reproduction according to pre-existing forms (reifications) and activities (practices); Henderson (1999) refers to these more static and persistent forms and activities as conscription devices, and Star and Greisemer (1989) refer to them as ideal types. On the other hand, there might be moments of individual creativity or cultural flux (depending on the context) that modify the forms, the activities, and/or the way they were interpreted by participants.

Wenger (1991) proposed that one sign of membership in a community of practice was the ability to navigate the tension between constancy and change. The participants in this study demonstrated that one strategy for navigating this tension, as it pertained to the pursuit of transparency, was to tack back and forth between the ideal type (the more constant over-

arching representation of transparency) and situated practice (the arena where forms, activities and interpretations were reproduced and potentially modified). The three activities associated with transparency in motion – triaging, showing, and reflecting – were used by participants as they tacked back and forth between the ideal type and their situated practice.

Relevance

Relevance to qualitative researchers

In identifying the activities of triaging, showing and reflecting to better understand the pursuit of transparency and the conceptualization of transparency in motion, I hope to inform qualitative researchers about their use of the word, particularly in published reports. There is a vast difference between the transparent availability of data for the purpose of future use by other researchers and reflexive accounts that pursue transparency by attempting to acknowledge the influence of a researcher's identity on the design of a study. There is also a distinction to be made between transparency in a final report and transparency as part of the research process. When researchers use the word transparency in their published abstract, introduction, or conclusion, but fail to articulate precisely what kind of transparency, for whom, to what ends and at what costs, they are likely to be invoking the term somewhat carelessly. Such invocations risk positioning transparency as a monolithic fixture in qualitative research detached form the communities of practice in which transparency achieves meaning. This use also obscures power relations that are part of the negotiation of the meaning of transparency, and come dangerously close to equating transparency with objectivity in qualitative research (as Denzin and Giardina (2008) have also argued).

For qualitative researchers who embrace the pursuit of a more robust approach to research transparency, a group in which I claim membership, two specific activities may be fruitful. First, just as qualitative researchers use journals to track methodological changes, coding structures and reflexive experiences in the field, they can use a journal to reflect on their own writing and the discursive strategies they use to describe triaging, showing and reflecting in their ongoing understanding of (and writing about) the unfolding analysis. As Goodwin (1994) pointed out, our expertise and professional vision may sometimes hide our implicit understandings of our craft. Pushing back to analyze our own language and practice may be required to fully understand the way we engage in triaging, showing and reflecting. Next, I recommend that qualitative researchers examine their own exemplary research reports, and look for passages related to the three activities, just as I used elements of this dissertation to describe the three activities. I am not proposing a measuring stick of language that should or should not be used or in what proportion, but I do believe this investigation might reveal previously unrecognized characteristics of transparency in motion. Engaging in this self-examination might be the most effective way to become more purposeful in future pursuits of transparency. As a result of this examination, I know I will never again look at transparency the way I did when this research began, with a metaphor of a window or a pane of glass.

Relevance to qualitative methods

This leads me to a proposal for a qualitative research *transparency pedagogy* that might move our implicit understandings of transparency (detailed in chapter 2) into a more thoughtful and reflective space. Based on the findings and implications presented thus far, I believe such a pedagogy should have, at a minimum, three main components.

Teaching transparency for self

The first component is teaching transparency for self. This aspect of teaching

transparency emphasizes the inevitably unpredictable *in situ* circumstances (e.g., the first

section in chapter 4) that influence a researcher's approach to transparency. Transparency for

self is a pedagogy that encourages researchers to focus on their own, creative self-discipline in

the transparent handling of the data. While this approach to transparency might intersect with

validity and reflexivity, it is also uniquely positioned as its own principle.

Teaching transparency as situated practice

Although there are ideal types that promote the pursuit of transparency (e.g., AERA,

2006), they are accompanied by the construction of transparency through actual practice. By

directing attention toward the presence of this situated practice, students can learn to

appropriately adapt the ideal types into their own research activities. This might also lead to a

more purposeful and thoughtful invocation of the term, alongside more detailed descriptions of

the researcher's understanding of transparency as situated practice (e.g., at what point during

the research it is relevant, to whom, for what ends, and at what costs).

Teaching about transparency in motion

With no existing models on the practice of tacking back and forth between ideal types of

transparency and the locally situated pursuit of it, this final component of a transparency

pedagogy is presented tentatively, but pulls from the activities described above regarding the

way transparency simultaneously triages, shows and reflects. If these three activities both

shape transparency and are generated through the pursuit of it, simply attending to them and

identifying changes in them during the analysis might help novices observe the way they

engage in transparency in motion. Or, by attending to these three activities, students might become aware of other activities associated with the way they do or could engage in transparency in motion.

Relevance to QDAS developers and users

<u>Visualizations and the production of QDAS</u>

Two findings from this research might have implications for developers, trainers, and users of QDAS regarding the role of visualizations in qualitative analysis. The first finding is that the qualitative researchers using QDAS in this research sometimes relied on the visualizations available to them *during* the handling of data, long before they generated visualizations as a final presentation of results (it is unclear from this study if a similar group of doctoral students who did not use QDAS would leverage the use of visualizations, to what extent, and for what purpose). The next finding is that despite the common conceptualization of Peircean indices as "mere pointers," these relatively less complex symbols could play a significant role (according to participants) in the handling and interpretation of qualitative data.

In chapter 4, I discussed three types of QDAS-enabled visualizations used by students as they handled data: summaries, coding displays, and idea connectors; but I observed that only the summaries made it into the dissertations. It is important to recognize that the NVivo *help files* and video tutorials position visualizations as part of the presentation of findings, not part of the ongoing handling of the data, and they also position visualizations squarely in the realm of summaries (e.g., charts, cluster analyses, tree maps, and graphs). In these same help files, the tools related to coding displays (e.g., coding stripes and highlighting as displayed in Figure 4.3) and idea connectors (e.g., memos and See Also Links, as displayed in Figures 4.4 and 4.5)

are quarantined away from the discussion of visualizations.

While some of the participants made use of and appreciated the summaries in the presentation of their dissertation findings, their much more notable enthusiasm regarding the other visuals *while* they handled the data could have implications for the way software developers and architects pursue their research about and construction of QDAS, particularly QDAS-enabled visualizations. Software developers might consider broadening the parameters of the tools identified as visualization tools. Software architects might also benefit from further explorations regarding visualizations that help researchers *think* about their data, not just tools or visualizations that represent *output* of the data. Again, this possibility of reconceptualizing and expanding the framework for working with visualizations in QDAS is raised with caution, due to the small sample size in this study.

Visualizations and the QDAS training and consultation industry

Bazeley and Jackson (2013) identified four consistent criticisms (and rebuttals) regarding the impact of QDAS on qualitative research since this genre of software was introduced in the late 1980's (p. 7). While neither the criticisms nor the rebuttals are based in research evidence, they have been a consistent part of the discourse about QDAS for the past 25 years:

1) The concern that computers can distance researchers from their data;

2) The dominance of code and retrieve methods to the exclusion of other analytic activities;

3) The fear that use of a computer will mechanize analysis, making it more akin to quantitative or 'positivist' approaches; and

4) The misperception that computers support only grounded theory methodology, or worse, create their own approach to analysis.

This research has brought to light one of the factors that might contribute to these historical

concerns: The positioning of qualitative research transparency (by help files, trainers and consultants) at the end of analysis via QDAS-enabled visualizations. This positioning potentially shifts attention away from the role of the researcher and toward the technology. It can foster a sense that the software:

1) Problematically stands in between the researcher and the data (concern #1);

2) Potentially ignores the dynamic processes of handling qualitative data (concern #2);

3) Can conceivably promote the conflation of qualitative and quantitative output (concern #3), and

4) Is biased towards a singular approach or designed to usurp all other approaches (concern #4).

At the very least, we QDAS experts could consider if the researcher role is unintentionally de-emphasized when the QDAS community of practice begins focusing on end product visualizations without also including process-oriented visualizations.

Relevance to my practice

The findings from this research have influenced my practice in two areas: My training/consultation strategies with NVivo, and my conference papers and presentations about QDAS. First, I intend to present more information about *in situ* visualizations in my presentations and publications, both as they pertain to my own research and when I am instructing novices on the use of NVivo. Figures 1.1 through 1.7 and 4.3 through 4.5 provide one way of doing this. However, I am also generating diagrams that represent (in a more simplified layout) visualizations such as Figures 5.2 and 5.3 (below) to help researchers understand the tools in NVivo, particularly as they relate to transparency for self and self-interrogation.

Memo (inside NVivo):

Visualizations: Timing and Purpose.

What are the implications of the way Drew discusses his use of visualizations to BOTH display what he already knows and to come to an understanding of the data?

Interview Transcript (inside NVivo):

Kristi:
Were you engaging in the process of understanding the data at the SAME TIME and BY constructing the diagrams? Or do you think you worked so much with the data that you had a sense of where it was going, and then you DECIDED to display it in this kind of a diagram?

Drew:
You read my mind. So, I think a little bit of both was going on. I used some to display what I was thinking, but others helped me think of the data in new ways.

Figure 5.2: A memo in the database with a See Also Link

The link is connected to a specific passage in Drew's transcript. When the memo is exported as an MSWord document, the content of the linked material in Drew appears as an end-note in the document (as in Figure 5.3, below).

MS Word document with end-notes

Visualizations: Timing and Purpose.

Consider the way Drew discusses the way he uses visualizations to BOTH[1] display what he already knows and to come to an understanding of the data.

[1] You read my mind. So, I think a little bit of both was going on. I used some to display what I was thinking, but others helped me think of the data in new ways.
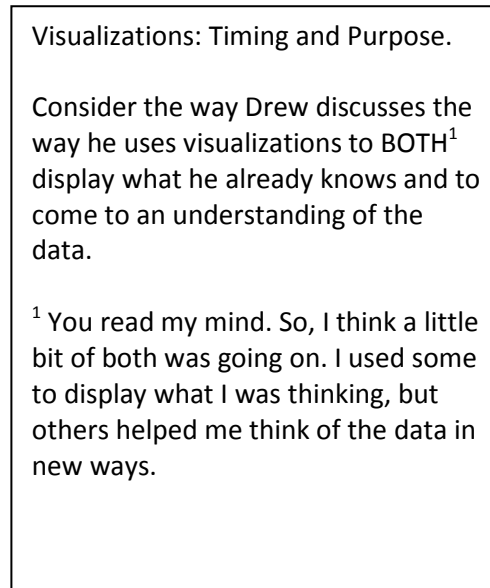
Figure 5.3: An MSWord document exported from NVivo.

The MSWord document retained the inks to the original transcript and presents these in the form of endnotes. I also intend to do more to emphasize idea connectors (such as the figures above) and coding displays, so they are not overshadowed via an emphasis on data summaries.

Next, I will engage qualitative methodologists and QDAS experts regarding findings from this research to help move our discussions of QDAS into a new interpretive zone (Wasser & Bresler, 1996). I will present a paper at the ICQI conference in Champaign, Illinois in May, 2014 (paper already accepted) describing the unarticulated role of NVivo in the doctoral research of my participants. Titled, "The Hidden Role of NVivo in Dissertations", the paper is a call to action for qualitative dissertation advisors and instructors of qualitative methods; it asks them to consider the costs of ignoring the role of QDAS in doctoral research and suggests ways of ameliorating the compositional triage students might employ to hide the role of NVivo in their written document and in their oral defense.

The other paper will be presented at the upcoming 25th anniversary CAQDAS conference in the UK (also in May, 2014). This paper, "QDAS: Visualizations, Self-interrogation and the Pursuit of Transparency", emphasizes *in situ* data visualizations in QDAS and the potential role they play in transparency in the making and transparency for self. Most of the discussions of data visualization in QDAS pertain to either non-text data (e.g., the role of QDAS in the analysis of photographs in fields such as visual ethnography), or the presentation of results through data summaries.[18] The paper for the CAQDAS conference pivots this look at visualizations by focusing on the instruction of QDAS to novices through an emphasis on self-interrogation and the indices that pertain to coding displays and idea connectors (in contrast to data summaries). Finally, I submitted a paper proposal to the American Evaluation Association conference to be held in Denver in October, 2014. If accepted, this paper, "Toward a Transparency Pedagogy," will present a new approach to instructing qualitative methodologists by focusing on transparency for self, transparency as situated practice, and transparency in motion.

Future Research

Based on a combination of the limitations of and findings from this study, two alternative designs (an ethnographic approach and an evaluation research approach), could further the examination of qualitative research transparency and the use of QDAS in the pursuit of transparency. Regarding an ethnographic approach, the focus on doctoral students and the interactions between students (novices) and faculty (experts) does provide a good context in which to observe the way more implicit understandings (such as transparency) are made explicit. As such, an ethnographic study in a qualitative methods course might be warranted. If

---

[18] See Bazeley and Jackson (2013) chapters 7 and 11, respectively, for examples of these two emphases.

such a course uses either the sample data that accompanies the QDAS or a pubic data set (e.g., education board meeting minutes), several of the above limitations regarding the protection of the participants and their data can be ameliorated. This would also allow for an ongoing observation of students as they handle the data, instead of relying only on their memories of how they handled the data. Although one weakness of such a setting would be the potential absence of students' *in situ* management of the tensions between transparency and confidentiality, the opportunity to ethnographically observe and discuss the pursuit of transparency in real time around a public data set warrants consideration.

As already stated in this chapter, one limitation of this small sample size is the inability to generalize to other students, faculty, or QDAS users. One potential avenue for future research is to conduct a larger, evaluation study that applies the concepts generated from chapter 4 to a learning assessment of graduate students in the field of qualitative education research. This would be especially well-suited to a course in which a qualitative methods instructor uses concepts developed in this dissertation (transparency for self, transparency in motion, etc.) to structure his or her syllabus and/or learning objectives. I welcome partnerships in the pursuit of these ideas through additional research, and intend to actively seek out such partnerships.

REFERENCES

American Educational Research Association (AERA). (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, *35*(6), 33-40.

Auerbach, C. F. & Silverstein, L. B. (2003). *Qualitative data: An introduction to coding and analysis*. New York: New York University Press.

Baker, A. (2013). Exploring teachers' knowledge of second language pronunciation techniques. Teacher cognitions, observed classroom practices, and student perceptions. *TESOL Quarterly*. doi: 10.1002/tesq.99

Baker, J. C., & Williamson, R. A. (2000). The implications of emerging satellite information technologies for global transparency and international security. In B. I. Finel, & K. M. Lord, (Eds.), *Power and conflict in the age of transparency* (pp. 221-256). New York: Palgrave.

Barber, J. P. (2012). Integration of learning: A grounded theory analysis of college students learning. *American Educational Research Journal 49*(3), 590-617.

Bazeley, P. (2013). *Qualitative data analysis: Practical strategies*. London: Sage Publications.

Bazeley, P. & Jackson, K. (2013). *Qualitative data analysis with NVivo*. London: Sage Publications.

Beekhuyzen, J., Nielsen, S., & von Hellens, L. (2010). The NVivo looking glass: Seeing data through the analysis. Paper presented at the 5th Conference on Qualitative Research in IT.

Blismas, N. G., & Dainty, A. R. J. (2003). Computer-aided qualitative data analysis: panacea or paradox? *Building Research & Information*, *31*(6), 455-463.

Bob, C. (2000). Beyond transparency: Visibility and fit in the internationalization of conflict. In B. I. Finel, & K. M. Lord (Eds.), *Power and conflict in the age of transparency* (pp. 287-314). New York: Palgrave.

Bolter, J. D., & Gromala, D. (2003). *Windows and mirrors: Interaction design, digital art, and the myth of transparency*. Cambridge: Massachusetts Institute of Technology.

Bowker, G. C., & Star, S. L. (1999). *Sorting things out: Classification and its consequences.* Cambridge: The MIT Press.

Brin, D. (1998). *The transparent society: will technology force us to choose between privacy and freedom?* Reading: Addison-Wesley.

Bringer, J. D., Johnston, L., & Brackenridge, C. H. (2004). Maximizing transparency in a doctoral thesis: The complexities of writing about the use of QSR*NVIVO within a grounded theory study. *Qualitative Research*, *4*(2), 247-265.

Bryant, S. L., Forte, A., Buckman, A. (2005). *Becoming Wikipedian: Transformation of Participation in a Collaborative Online Encyclopedia.* Proceedings of GROUP: International Conference on Supporting Group Work, Sanibel Island, FL.

Callon, M. (1986). The sociology of an actor-network: the case of the electric vehicle. In M. Callon, J. Law & A. Rip (Eds.), *Mapping the dynamics of science and technology: Sociology of Science in the Real World* (pp. 19-34). Basingstoke: Macmillan.

Cannata, M. (2010). Understanding the teacher job search process: Espoused preferences and preferences in use. *Teachers College Record, 112*(12), 2889-2934.

Carvajal, D. (2002). The artisan's tool: Critical issues when teaching and learning CAQDAS. Forum: *Qualitative Social Research*, *3*(2).

Clarke, A. & Fujimura, J. H. (1992a). What tools? Which jobs? Why right? In A. Clarke & J. H. Fujimura (Eds.), *The right tools for the job: At work in twentieth-century life sciences* (pp. 3-44). Princeton: Princeton University Press.

Clarke, A. & Fujimura, J. H. (Eds.). (1992b). *The right tools for the job: At work in twentieth-century life sciences.* Princeton: Princeton University Press.

Coffey, A., Holbrook, B., & Atkinson, P. (1996). Qualitative data analysis: Technologies and representations. *Sociological Research Online*, *1*(1), http://www.socresonline.org.uk/1/1/4.html

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks: Sage Publications.

Dale, A. (2006). Editorial: Quality in social research. *International Journal of Social Research Methodology*, pp. 79-82. Retrieved from http://pdfserve.informaworld.com/691527_751312985_747984374.pdf

Davidson, J. & di Gregorio, S. (2011). *Qualitative research and technology: In the midst of a revolution*. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 627-643). Thousand Oaks: Sage Publications, Inc.

Denzin, N. K., & Giardina, M. D. (Eds.). (2008). *Qualitative inquiry and the politics of evidence*. Walnut Creek: Left Coast Press, Inc.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (1998). *Collecting and interpreting qualitative materials*. Thousand Oaks: Sage Publications.

Derry, S. J., Pea, R. D., Barron, B., Engle, R. A., Erickson, F., Goldman, R., Hall, R., Koschmann, T., Lemke, J.L., Sherin, M. G., & Sharin, B. L. (2010). Conducting video research in the learning sciences: Guidance on selection, analysis, technology and ethics. *Journal of the Learning Sciences 19*(1), 3-53.

di Gregorio, S., & Davidson, J. (2008). *Qualitative research design for software users*. Berkshire: Open University Press.

Engstrom, Y. (1990). Organizatinal forgetting: An activity-theoretical perspective. In Y. Engstrom (Ed.), *Learning, working and imagining: Twelve studies in activity theory* (pp. 196-226)*. Jyvashkylassa: Painettu Kirjapaino at Oma Kyssa.

Evers, J. C., Silver, C., Mruck, K., & Peeters, B. (2011, January). Introduction to the KWALON experiment: Discussions on qualitative data analysis software by developers and users. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *12*(1), Article 40. Retrieved September 1, 2011 from http://nbn-resolving.de/urn:nbn:de:0114-fqs1101405

Fielding, N. (2008). The role of computer-assisted qualitative data analysis: Impact on emergent methods in qualitative research. In S. Hesse-Biber, & P. Leavy (Eds.), *Handbook of emergent methods* (pp. 675-695). New York: Guilford Press.

Fielding, N., & Lee, R. (2007, April). *Honouring the past, scoping the future*. Plenary paper presented at CAQDAS 07: Advances in Qualitative Computing Conference, Royal Holloway, University of London.

Finel, B. I., & Lord, K. M. (2000). The surprising logic of transparency. In B. I. Finel & K. M. Lord (Eds.), *Power and conflict in the age of transparency* (pp. 137-180). New York: Palgrave.

Hogan, D. E. & Burnstein, J. L. (Eds.). (2007). *Disaster Medicine*. Philadelphia: Lippincott Williams & Wilkins.

Foucault, M. (1991). Governmentality (R. Braidotti, Trans.). In G. Burchell, C. Gordon & P. Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 87-104). Chicago: University of Chicago Press.

Freeman, M., deMarrais, K., Preissle, J, Roulston, K. & St.Pierre, E. A. (2007). Standards of evidence in qualitative research: An incitement to discourse. *Educational Researcher*, *36*(1), 25-32.

Friese, S. (2011). Using ATLAS.ti for analyzing the financial crisis data *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *12*(1), 24.

Fujimara, J. J. (1992). Crafting science: Standardized packages, boundary objects and "translation". In A Pickering (Ed.), *Science as practice and culture* (pp. 168-211). Chicago: University of Chicago Press.

Gambrill, E. (2007). Transparency as the route to evidence-informed professional education. Research on Social Work Practice, *17*(5), 553-560.

Garcia-Horta, J. B., & Guerra-Ramos, M. T. (2009). The use of CAQDAS in educational research: Some advantages, limitations and potential risks. *International Journal of Research & Method in Education, 32*(2), 151-165.

Gibbs, G. R., Friese, S., & Mangabeira, W. C. (2002). The use of new technology in qualitative research. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *3*(2).

Giddens, A. (1991). *Modernity and self-identity.* Cambridge: Polity Press.

Giele, J. Z. (2008). Homemaker or career woman: Life course factors and racial influences among middle class Americans. *Journal of Comparative Family Studies, 39*(3), 393-411.

Gieryn, T. F. (1999). *Cultural boundaries of science: Credibility on the line.* Chicago: The University of Chicago Press.

Gieryn, T. F. (1983). Boundary-work and the demarcation of science from non-science: Strains and interests in professional interests of scientists. *American Sociological Review*, 48. 781-795.

Gilbert, L., Jackson, K., & di Gregorio, S. (2013). Tools for analyzing qualitative data: The history and relevance of qualitative data analysis software. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook for research on educational communications and technology* (4th ed**.,** pp. 221-238). London: Routledge.

Given, L. (Ed.). (2008). *Sage encyclopedia of qualitative research methods*. Thousand Oaks: Sage Publications.

Glaser, B., & Strauss, A. (1999). *The discovery of grounded theory.* Chicago: Aldine.

Goffman, E. (1956). *The presentation of self in everyday life*. New York: Doubleday.

Goodwin, C. (1994). Professional vision. *American Anthropologist, 96*(3), 606-623.

Government Accountability Office (2010). Recovery act: Increasing the public's understanding of what funds are being spent on and what outcomes are expected. Report to the republican leader, U.S. Senate. (Government Accountability Office Rep. No. 10-853G). Washington, DC.

Green, J. L., & Skukauskaite, A. (2008). Comments on Slavin: Becoming critical readers: Issues in transparency, representation, and warranting of claims. *Educational Researcher*, *37*(1), 30-40.

Harris, D.N., Routledge, S. A., Ingle, W. K., & Thompson, C. C. (2010). Mix and match: What principals really look for when hiring teachers. *Education, Finance and Policy 5*(2), 228-246*.*

Harry, B., Sturges, K. M., & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher*, *34*(2), 3-13.

Henderson, K. (1999). *On line and on paper: Visual representations, visual culture, and computer graphics in design engineering*. Cambridge: MIT Press.

Hiles, D. R. (2008). Transparency. In *The Sage encyclopedia of qualitative research methods* (Vol. 2, pp. 890-892). Thousand Oaks: Sage Publications, Inc.

Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (2001). *Identity and agency in cultural worlds*. Cambridge: Harvard University press.

Hoover, R. S., & Koerber, A. L. (2011). Using NVivo to answer the challenges of qualitative research in professional communication: Benefits and best practices. *IEEE Transactions on Professional Communication 54*(1), 68-82.

Howe, K., Dougherty, K. (1993). Ethics, IRB's, and the changing face of educational research. *Educational Researcher, 22*(9), 16-21.

Howe, K., Moses, M. (1999). Ethics in educational research. In A. Iran-Nejad & P. D. Pearson Eds., the *Review of Research in Education*, vol. 24, pp. 21-60. Washington, D.C.: American Educational Research Association.

Hutchins, E. (1995). *Cognition in the wild*. Cambridge: MIT Press.

Hutchison, A., Johnston, L. H., Breckon, J. D. (2009). Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example. *International Journal of Social Research Methodology*, *13*(4), 283-302.

Ivankova, N. V., & Stick, S. L. (2007). Student's persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education, 48*(1), 93-135.

Jackson, K. (2003). Blending technology and methodology. A shift towards creative instruction of qualitative methods with NVivo. Qualitative Research Journal, 3(Special Issue), 15.

Johnston, L. (2006). Software and method: Reflections on teaching and using QSR NVivo in doctoral research. *International Journal of Social Research Methodology, 9*(5), 379-391.

Lam, W. S. E. (2000). L2 literacy and the design of the self: A case study of a teenager writing on the internet. *TESOL Quarterly 34*(3), 457-482.

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge: Harvard University Press.

Latour, B., & Woolgar, S. (1979). *Laboratory life: The social construction of scientific facts* Princeton: Princeton University Press.

Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. Cambridge: Cambridge University Press.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Law, J. (1987). Technology and heterogeneous engineering: The case of Portuguese maritime expansion. In W. Bijker, T. P. Hughes, & T. Pinch (Eds.), *The social construction of technological systems* (pp. 111-134). Cambridge: MIT Press.

Lee, C. P. (2007). Boundary negotiating artifacts: Unbinding the routine of boundary objects and embracing chaos in collaborative work. *Computer Supported Cooperative Work*, *16*, 307-339.

Levacic, R. (2008). Financing schools: Evolving patterns of autonomy and control. *Educational Management Administration & Leadership*, *36*(2), 221-234.

Lewins, A., & Silver, C. (2007). *Using software in qualitative research: A step-by-step guide.* Thousand Oaks: Sage Publications, Inc.

Livingston, S. (2000). Transparency and the news media. In B. I. Finel, & K. M. Lord (Eds.), *Power and conflict in the age of transparency* (pp. 257-286). New York: Palgrave.

Lord, K. M. (2006). *The perils and promise of global transparency: Why the information revolution may not lead to security, democracy, or peace*. New York: State University of New York Press.

MacLure, M. (2005). 'Clarity bordering on stupidity': Where's the quality in systematic review? *Journal of Education Policy*, *20*(4), 393-416.

Magolda, P. M. & Ebben, K. (2006). College student involvement and mobilization: An ethnographic study of a Christian student organization. *Journal of College Student Development, 47*(3), 281-298.

Maietta, R. (2008). Computer-assisted data analysis. In *The Sage encyclopedia of qualitative research methods* (Vol. 2, pp. 890-892). Thousand Oaks: Sage Publications, Inc.

Meira, L. (1998). Making sense of instructional devices: The emergence of transparency in mathematical activity. National Council of Teachers of Mathematics, *29*(2), 121-142.

Meyrick, J. (2006). What is good qualitative research? A first step towards a comprehensive approach to judging rigour/quality. *Journal of Health Psychology*, *11*(5), 799-808.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis*: An expanded sourcebook 2nd ed.). Thousand Oaks: Sage Publications, Inc.

Milofsky, C. (2000). Transparent research. *Nonprofit and Voluntary Sector Quarterly*, *29*(1), 61-80.

Mitchell, R. B. (2000). Sources of transparency: Information systems in international regimes. In B. I. Finel, & K. M. Lord (Eds.), *Power and conflict in the age of transparency* (pp. 181-220). New York: Palgrave.

Morris, D., & Ecclesfield, N. (2011) A new computer-aided technique for qualitative document analysis. *International Journal of Research and Method in Education* 34 (3), 241-254.

National Center for Social Research (2003). Quality in qualitative evaluation: A framework for assessing research evidence (Government Chief Social Researcher's Office) United Kingdom: Author.

Nolen, A., & Talbert, T. (2011). Qualitative assertions as prescriptive statements. *Educational Psychology Review*, *23*(2), 263-271.

Norman, D. (1988). *The invisible computer.* Cambridge: MIT Press.

Noss, R., Bakker, A., Hoyles, C., & Kent, P. (2007). Situating graphs as workplace knowledge. *Educational Studies in Mathematics*, *65*(3), 367-384.

Ochs, E. (1979). Transcription as theory. In E. Ochs & B. Shieffelin (Eds.), *Developmental pragmatics* (pp. 43-72). New York: Academic Press.

Ortlipp, M. (2008). Keeping and using reflective journals in the qualitative research process. *Qualitative Report*, *13*(4), 695-705.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications, Inc.

Paulus, T. M., Lester, J. N., Britt, V. G. (2013). Constructing hopes and fears around technology: A discourse analysis of introductory qualitative research texts. *Qualitative Inquiry,19*, 639-651.

Peirce, C. S. (1976). *The new elements of mathematics* (Vols. I–IV). C. Eisele (Ed). The Hague–Paris/Atlantic Highlands, NJ: Mouton/Humanities Press.

Peirce, C. S. (1992). *The essential Peirce. Selected philosophical writings* (Vol. 1, 1867–1893). Bloomington: Indiana University Press.

Postman (1993). *Technopoly: The surrender of culture to technology.* New York: Vintage Books.

Prout, S. (2009). Policy, practice and the 'revolving classroom door': Examining the relationship between Aboriginal spatiality and the mainstream education system. *Australian Journal of Education, 53*(1), 39-53.

Quinn, J. (2003). The dynamics of the protected space: spatial concepts and women students. *British Journal of Sociology of Education*, *24*(4), 449-461.

Richards, L. (2005). *Handling qualitative data*. London: Sage Publications.

Richards, L. (2002). Rigorous, rapid, reliable and qualitative? Computing in qualitative method. *American Journal of Health and Behavior, 26*(6), 425-430.

Richards, L., & Morse, J. M. (2007). *Readme first for a user's guide to qualitative methods*. Thousand Oaks: Sage Publications.

Richards, L., & Richards, T. (1994). From filing cabinet to computer. In A. Bryman & R. G. Burgess (Eds.), *Analyzing Qualitative Data* (pp. 146-172). London: Routledge.

Rosenau, P. (1992). *Post-modernism and the social sciences: Insights, inroads, and intrusion*. Princeton: Princeton University Press.

Roschelle, J. (1990, April). *Designing for conversations.* Paper presented at the meeting or the American Educational Research Association, Boston.

Ryan, M. (2009). Making visible the coding process: Using qualitative data software in a post-structural study. *Issues in Educational Research*, *19*(2), 142-161.

Schlosser, L. Z., Knox, S., Moskovitz, A. R., & Hill, C. E. (2003). A qualitative examination of graduate advising relationships: The advisee perspective. *Journal of Counseling Psychology, (50)*2, 178-188.

Schwandt, T. A. (2007). *The Sage dictionary of qualitative inquiry* (3rd ed.). Thousand Oaks: Sage Publications.

Shavelson, R. J., & Towne, L. (2002). Scientific research in education. *Educational Researcher*, *31*(8).

Silverman, D. (2010). *Doing qualitative research* (3rd. ed.). London: Sage Publications, Ltd.

Sin, C. H. (2007). Using software to open up the 'black box' of qualitative data analysis in evaluations. Evaluation, *13*(1), 110-120.

Sinkovics, R. R., & Alfoldi, E. A. (2012) Progressive focusing and trustworthiness in qualitative research: The enabling role of computer-assisted qualitative data analysis software (CAQDAS). *MIR: Management International Review*, *52*(6), 817-845.

Skukauskaite, A. Green, J. (2012). On transparency, epistemologies and positioning in writing introductory qualitative research texts. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *13*(1), Article 23.

Solove, D. J. (2004). *The digital person: Technology and privacy in the information age*. New York: New York University.

Spickard-Prettyman, S., & Jackson, K. (2006). *Ethics, technology, and qualitative research: Thinking through the implications of new technologies*. Paper presented at the Strategies in qualitative research using QSR software. Durham, England. Retrieved from http://www.qual-strategies.org

Star, L. (2010). This is not a boundary object: Reflections on the origin of a concept. *Science, Technology and Human Values*, *35*(5), 601-617.

Star, L. (1989). 'Translations' and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology. *Social Studies of Science, 19*(3), 387-420.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, "translations" and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology. *Social Studies of Science, 19*, 387-420.

Strathern, M. (2000). The tyranny of transparency. *British Educational Research Journal*, 26(3), 309-321.

Suchman, L. (1987). *Plans and situated actions: The problems of human-machine communication.* Cambridge: Cambridge University Press.

Suri, H., & Clarke, D. (2009). Advancements in research synthesis methods: from a methodologically inclusive perspective. *Review of Educational Research*, *79*(1), 395-430.

Taylor, C. A., Downs, Y., Baker, R., & Chikwa, G. (2011). "I did it my way": voice, visuality and identity in doctoral students' reflexive video-narratives on their doctoral research journeys. *International Journal of Research & Method in Education*, *34*(2), 193-210.

Tesch, R. (1990). *Qualitative research: analysis types and software tools*. London: Routledge: Falmer.

Tesch, R. (1989). Computer software and qualitative analysis: A reassessment. In G. Blank, J. L. McCartney & E. Brent (Eds.), *New technology in sociology: Practical applications in research and work* (pp. 141-154). New Brunswick: Transaction Publishers.

Thompson, C., McCaughan, D., Cullum, N., Sheldon, T. A., & Raynor, P. (2004). Increasing the visibility of coding decisions in team-based qualitative research in nursing. *International Journal of Nursing Studies*, *41*(1), 15.

Thompson, R. (2002). Reporting the results of computer-assisted analysis of qualitative research data. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *3*(2), Article 25.

Tilley, S. A., & Powick, K. D. (2002). Distanced data: Transcribing other people's research tapes. *Canadian Journal of Education* / Revue canadienne de l'éducation, *27*(2/3), 291-310.

van Vught, F., & Westerheijden, D. F. (2010). Multidimensional ranking: A new transparency tool for higher education and research. *Higher Education Management and Policy*, *22*(3), 1-26.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press

Waddington, D. I. (2010). Scientific self-defense: Transforming Dewey's idea of technological transparency. *Educational Theory*, *60*(5), 621-638.

Wasser, J., & Bresler, L. (1996). The interpretive zone: Conceptualizing collaboration among teams of qualitative researchers. *Educational Researcher*, *25*(5), 5-15.

Weitzman, E., & Miles, M. (1995). *Computer programs for qualitative data analysis*. Thousand Oaks: Sage Publications.

Wenger, E. (2008). *Communities of practice: Learning, meaning, and identity.* Cambridge: Cambridge University Press.

Wenger, E. (1991). Toward a theory of cultural transparency: Elements of a social discourse of the visible and the invisible. Unpublished doctoral dissertation, University of California, Irvine.

Wickham, M., & Woods, M. (2005). Reflecting on the strategic use of CAQDAS to manage and report on the qualitative research process. *Qualitative Report*, *10*(4), 687-702.

Witenberg, R. T. (2004). Subordination of racial tolerance to freedom of speech: Some considerations for education in contemporary multicultural societies. *Australian Psychologist 39*(2), 114-117.

Yuen, H. K., & Richards, T. J. (1994). Knowledge representation for grounded theory construction in qualitative data analysis. *Journal of Mathematical Sociology 19*(4), 279-298.

APPENDIX A: LITERATURE SEARCH LOG

To focus the search for literature on qualitative research in education, I began with a narrow range of terms within the Educational Research Information Clearinghouse (ERIC). I limited the time span to January of 2000 through January 2014 in English materials, only. I searched for any title containing the words "transparen*" (to include suffixes such as transparency and transparently) and "qualitative*" (to include suffixes such as qualitatively). Two materials satisfied the search criteria and neither was relevant to the current study[19]. I expanded the search to the Journal Storage (JSTOR) database, with no additional materials satisfying the criteria in the title field.

After consultation with a reference librarian regarding ways to improve the parameters, I learned that any search for "transparen*" and/or "qualitative*" (independently and together) beyond the title fields would retrieve a large quantity of irrelevant materials. While a few options were available to narrow the search, such as setting a range requirement on the closeness of the words, the potential for ignoring literature that did not meet the search criteria and yet might be relevant (false negatives) made it unacceptable to use this as the sole strategy.

I therefore conducted the search for "transparen* AND qualitative*" in several iterations with alternative (and broader) parameters. I also broadened the investigation to include Academic Search Premier (ASP) in order to increase the possibility of identifying comprehensive frameworks regarding transparency from other fields that could be adapted to

---

[19] For example, Albert's (2010) "Postscript: Qualitative and Quantitative Processes in the Perception of Achromatic Transparency" pertains to contextual issues such as visual filters, contrasts and luminescence that influence a person's perception of a translucent object.

qualitative research in education. In addition, to ensure I was capturing information about the use of QDAS, I used synonyms such as QDAS, CAQDAS, and the names of the most commonly used software in this genre, and intersected these with any reference to transparency. Later on in the search, when it was clear that few materials were available to help conceptualize transparency, I also searched the Chinook catalogue at the University of Colorado for any title containing the word transparency. A summary of the search parameters is provided in table 2.1

Database	Search terms	Search scope	Results
Chinook	Transparen* AND research*	Keyword	856
ASP	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software")	All text	655
ASP	transparen* AND qualitative*	Abstract	601
ERIC	transparen* AND (method* OR research*)	Anywhere	573
JSTOR	transparen* AND qualitative*	Full text, education titles only	540
ASP	transparen* N10 qualitative*	All text	480[20]
JSTOR	transparen* AND (method* OR research*)	Abstract	395
ASP	transparen* AND (method* OR research*)	Title	238
ERIC	transparen* AND qualitative*	Anywhere	101
JSTOR	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software")	Full text	93
ASP	transparen* AND (method* OR research*)	Keywords	58
JSTOR	transparen* AND qualitative*	Abstract	29
JSTOR	Transparen*N10 qualitative*	Full text	21
JSTOR	transparen* AND (method* OR research*)	title	16
ASP	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software")	Abstract	7
ASP	transparen* AND qualitative*	Subject Terms	6

---

[20] In ASP the search for "transparen* AND qualitative*" in "All Text" resulted in 28, 221 results, and a similar issue occurred in the full text of JSTOR, so a proximity (closeness) search was used to narrow the findings. This search retrieved only the materials in which "trasparen*" and "qualitative*" appeared in the full text within 10 words of each other, in either order.

Database	Search terms	Search scope	Results
ASP	transparen* AND qualitative*	Title	4
ASP	transparen* AND qualitative*	Keywords	4
ERIC	transparen* AND (method* OR research*)	Title	3
ERIC	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software"	Anywhere	3
ERIC	transparen* AND qualitative*	Title	2
ASP	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software")	Title	1
JSTOR	Transparen* AND (Atlast.ti OR MAXQDA OR NVivo OR ethnograph OR HyperResearch OR Qualrus OR Transana OR QDAS OR CAQDAS OR "qualitative software")	Abstract	1
JSTOR	transparen* AND qualitative*	Title	0

Table A.1: Search parameters in literature databases for items related to qualitative research transparency (in English materials only, from 2000-2014).

All abstracts were reviewed and a large number (roughly 75%[21]) were irrelevant, for

three main reasons. First, the use of the word transparency in this literature often pertains to

irrelevant nouns such as "a transparency" (the translucent film used in classrooms to project

onto an overhead screen) and Transparency International (a group that annually compiles and

publishes an index of perceptions of corruption around the world). Next, the word is often used

as an adjective to modify an irrelevant noun, though used in the context of a qualitative study.

One example is the study by Dambacher and Ramos-Jiliberto's (2007) that examined students'

perceptions of "transparent water" (in contrast with murky water).

---

[21] The duplication of many records across different searches (which were not tracked individually) makes a precise number unavailable. The purpose was to seek all possible avenues for relevant material rather than to track repetition of materials across the various searches.

Finally, transparency was frequently used in the conclusion (and occasionally the body or the title) in a manner that suggested an important characteristic of a learning process, but this process was separate from the discussion of the qualitative methodology. For instance, Rye (2001) claimed that a particular concept mapping software was enthusiastically embraced by 18 science teachers because of the "transparent nature of the learning process" to students engaged with the software (p. 231), although there was no explication of "transparent nature." The word transparency was simply invoked to emphasize the conclusions. The scarcity of relevant materials persisted when searching for items peripherally related to (or entirely outside of) education. For example, the qualitative research article by Cruz (2010) ends with a call for greater emphasis on transparency by bank regulators.

I began to question whether a traditional literature search within these databases was the best way to identify relevant materials, so I also used several other strategies. First, I looked at the Table of Contents and Index in over 200 qualitative methods and QDAS books for *transparency* and either transcribed verbatim or outlined the relevant material. I used my own extensive library of roughly 90 books on qualitative methods and 15 books pertaining to QDAS as well as Pat Bazeley's extensive library in Bowral, New South Wales (Australia). These searches produced less than fifteen relevant resources, although it was a worthwhile endeavor because most of the relevant materials had not yet been identified with prior search strategies. Hile's (2008) one-page entry (*Sage Encyclopedia of Qualitative Research Methods*) on Transparency (see Appendix B) is an example of material collected with this strategy.

Next, I searched seven web sites for information about transparency that is unavailable in printed form, many of which were hosted by the QDAS developers.

- The Qualitative Report (http://www.nova.edu/ssss/QR/)
- Forum: Qualitative Social Research (http://www.qualitative-research.net/index.php/fqs)
- Atlas.ti (http://www.qualitative-research.net/index.php/fqs)
- HyperResearch (http://www.researchware.com/)
- MaxQDA (http://www.maxqda.com/)
- NVivo (http://www.qsrinternational.com/)
- The Computer Assisted Qualitative Data AnalysiS (CAQDAS, also referred to as QUIC) networking project. (http://www.surrey.ac.uk/sociology/research/researchcentres/caqdas/)

The first two web pages provided the most relevant literature.

Finally, I accessed my professional network for resources and feedback by asking for recommended literature regarding qualitative research transparency and by delivering three different presentations at professional conferences regarding problematically tacit use of the word transparency in qualitative research. The first, "Troubling transparency: Qualitative data analysis software and the problems of representation," was delivered in May, 2009 at the International Congress of Qualitative Inquiry in Champaign, Illinois. I presented another approach roughly a year later at the same conference (May, 2010) on "The problems of teaching transparency in qualitative methods." Finally, in July, 2010, I presented at the Mixed Methods International Conference regarding "Debates on research transparency within different communities of practice: Ways of talking across methodological divides."

I received several encouraging responses regarding the pursuit of the research topic at these and other conferences from qualitative experts in academic and applied settings such as Pat Bazeley, Susan Berkowitz, Valerie Caracelli, Ronald Chenail, Judith Davidson, Silvana di Gregorio, George Kamberelis, and Joseph Maxwell. They informally corroborated my initial assessment that transparency in qualitative research tends to be a tacitly invoked – and

therefore rarely examined – term. None of these experts were able to provide suggestions

regarding additional literature.

APPENDIX B: ANNOTATED TRANSPARENCY BIBLIOGRAPHY

Key:
* Core material in the literature from chapters 1 and 2.
☑ Refers to the use of QDAS

Transparency literature in education

Research in education (4 items)

* Meira, L. (1998). Making sense of instructional devices: The emergence of transparency in mathematical activity. *National Council of Teachers of Mathematics, 29*(2), 121-142.

> An observational study of 8th grade math students working on linear function tasks using three devices (winch, spring, and number machine). Transparency is contextualized as an *index of access* to knowledge and activities, rather than as an *inherent feature* of objects (citing Lave and Wenger, 1991). This view of transparency is contrasted with "epistemic fidelity," the correspondence between tangible features of physical objects and a target knowledge domain, which is a more traditional and narrow view (Roschelle, 1990). The author argues that examining the way children work with each other (in the context of classroom mathematics practices) is a more fruitful way of understanding and explaining the way children make sense of physical devices designed to foster mathematical learning. Designers of instructional tools should therefore consider the contexts in which the displays are meant to function (the perspectives and histories of the users), as well as the physical characteristics of the tools, themselves.

* Noss, R., Bakker, A., Hoyles, C., & Kent, P. (2007). Situating graphs as workplace knowledge. *Educational Studies in Mathematics, 65*(3), 367-384.

> An analysis of the way factory employees understand and make use of graphs created during the production process. The research is part of a multi-year study about how techno-mathematical knowledge is negotiated and transformed across boundaries in the workplace. Observations occurred in three different sectors (packaging, pharmaceuticals manufacturing, and financial services). The article generates two vignettes from actual graph use by a shift leader and a process engineer in the same plant, after collecting data over 12 months via observations, interviews, e-mail exchanges and telephone conversations. The graphs were not transparent (immediately understood) to either employee, although both made sense of and used the graphs, sometimes through conversations with other employees. The authors conclude that a full account of techno-mathematical knowledge in the workplace requires a more complex understanding of a *spectrum of transparency*.

* Quinn, J. (2003). The dynamics of the protected space: spatial concepts and women students. *British Journal of Sociology of Education, 24*(4), 449-461.

> A qualitative study with diverse women on two higher education campuses in the UK. Data were collected from 21 students using focus groups, interviews, diaries, and observations. The author concludes that the university is not a "transparently understandable space, but a space constructed by and from their own desires: emotional and conceptual, rather than rational and objectively measurable." The space is temporary, has limits, and is under threat form the encroachments of others. This piece contributes to the notion of transparency as a locally constructed and fluid phenomena, shaped in part by existing power structures.

* Wenger, E. (1991). *Toward a theory of cultural transparency: Elements of a social discourse of the visible and the invisible.* Unpublished doctoral dissertation, University of California, Irvine.

> This dissertation relies on observations and interviews at an insurance claims division to examine the ways employees learn about and make sense of institutional artifacts such as forms. After observing the work environment and conducting interviews, the author concludes that the relationship between person and object is mediated by a person's *membership* in specific communities. He thereby introduces the idea of c*ultural transparency*: Seeing the cultural significance of visible objects due to one's vantage point as a member of the community. This process operates along the two dualities of invisibility (participation) and visibility (reification) as well as stability and change (p 162).

Expository in education (24 items plus one supplement [Roschelle, 1990, cited in Meira, 1998])

* American Educational Research Association (2006). Standards for reporting on empirical social science research in AERA publications. Educational Researcher, 35(6), 33-40.

> Guidelines for reporting empirical research (qualitative and quantitative), adopted by the Council of the American Educational Research Association and developed by ten members including chairperson Pamela A. Moss. The standards are guided by two overarching principles: *sufficiency of the warrants* and *transparency of the report*. With these principles in mind, there are eight areas to be considered for inclusion in an empirical research report, which are not always relevant and might be omitted: 1) problem formulation, 2) design and logic, 3) sources of evidence, 4) measurement and classification, 5) analysis and interpretation (with items in common and unique to qualitative and quantitative methods), 6) generalization, 7) ethics in reporting, 8) title, abstract and headings.

☑ Beekhuyzen, J., Nielsen, S., von Hellens, L. (2010). *The NVivo looking glass: Seeing data through the analysis*. Paper presented at the 5th Conference on Qualitative Research in IT.

> A reflection on a dissertation that used critical ethnography to study an underground, music file-sharing subculture. The study was guided by an actor-network theory and the paper is a reflection on the use of NVivo in the analytical process. Data included interviews with college students (16), musicians (6) and recording industry stakeholders (8), as well as student focus groups (3) and 120 days of participant observation. The authors describe the use of NVivo to analyze the relevant literature (in order to help frame an actor-network theory) and to code the collected data. They apply Maxwell's (2005) three analytical options in the research to the use of NVivo: 1) memos, 2) categorizing strategies (coding) and 3) connecting strategies. Screen-captures are used to demonstrate the role of NVivo in each of these three options. The metaphor of a *looking glass* is used within "categorizing strategies" to argue that NVivo facilitated a transparent analysis process by helping to *fracture* (Strauss, 1987) data by breaking it into manageable pieces and then allowing the researcher to reconstruct it to present a particular reflection (or view) of reality.

☑ Bringer, J. D., Johnston, L., & Brackenridge, C. H. (2004). Maximizing transparency in a doctoral thesis: The complexities of writing about the use of QSR*NVIVO within a grounded theory study. *Qualitative Research, 4*(2), 247-265.

> A reflection on a grounded theory dissertation with the goal of demonstrating the way NVivo was used to analyze the data and to foster a transparent account of the analysis process. The authors argue for the importance of transparency in qualitative research, discuss writing to achieve transparency (including an awareness of the audience one is writing for), and recommend an electronic audit trail (primarily through the use of a research journal that traces the timing and content of the literature review and coding). The article makes use of eight screen-captures taken directly from the software to demonstrate the ability of the software to help create an audit trail.

Denzin, N. K., & Giardina, M. D. (Eds.). (2008). *Qualitative inquiry and the politics of evidence*. Walnut Creek: Left Coast Press, Inc.

> A response to the AERA guidelines for reporting empirical research, the authors criticize the guidelines for placing an extra burden of explanation on qualitative researchers (compared to their quantitative counterparts) so readers know their analysis can be trusted. The standpoint of qualitative researchers is somehow more suspect than quantitative researchers, and the authors argue that this framing of trust in qualitative research reflects a familiar discourse: qualitative research is given "second-class academic citizenship" (p 26) and qualitative researchers, as individual scholars, are not to be trusted. "Trust becomes a proxy for quality; transparency and warranted evidence function as proxies for objectivity." (p 26)

*☑ di Gregorio, S., & Davidson, J. (2008). *Qualitative research design for software users*. Berkshire: Open University Press.

> The book provides guidance on how to manage a qualitative research project in a QDAS database, regardless of the particular software. The first section outlines the argument by explaining concepts such as the *E-Project* (the digital container for any study analyzed with QDAS). The second section describes eight QDAS projects in four sectors (higher education, basic science, public government, and commercial) with various methodologies (ethnography, traditional evaluation, case study, etc.) using four QDAS programs (ATLAS.ti, MAXqda, NVivo, and XSight). The final chapter addresses strategies for developing sustainable use of QDAS in academic and non-academic settings. This is not a tutorial that explains the use of different software packages, it is a book that introduces the genre of the *E-Project*, the digital organizational unit that can help manage the core design decisions in a project: the research topic, the research question(s), data collection and data handling and analysis. The authors repeatedly claim that the two, unique affordances of the *E-Project* are *portablility* and t*ransparency*. While *transparency* is not the primary focus of the book, the authors argue that three, interrelated QDAS features promote *transparency*: 1) the increased demands for organization within QDAS (as in any software), 2) a more visible overall design structure, 3) the iterative analytical capabilities that are promoted by software flexibility (when combined with researcher reflexivity). The authors also briefly discuss two phenomena that result from QDAS transparency: 1) ethical tensions (primarily around maintaining confidentiality in the face of transparency), 2) benefits to research teams (whose members can gather around an *E-Project* to discuss the research design via the observable database structure).

Gambrill, E. (2007). Transparency as the route to evidence-informed professional education. *Research on Social Work Practice, 17*(5), 553-560.

> The author argues for transparency in all venues (education, practice, policy, and the conduct and reporting of related research) to advance the effectiveness of professional education in social work. She equates omission of information with deception, and contrasts this with transparency and honesty. Transparency should be pursued even though it can sometimes be painful (because it points to shortcomings). She traces the history of the *Evidence Based Practice* movement and advocates the application of this approach. EBP promotes effective use of professional judgment through the integration of research findings with information regarding each client's unique characteristics, circumstances, preferences, and actions.

Green, J. L., & Skukauskaite, A. (2008). Comments on Slavin: Becoming critical readers: Issues in transparency, representation, and warranting of claims. *Educational Researcher, 37*(1), 30-40.

The authors argue that Slavin's (2008) critique regarding inconsistencies in several program evaluation syntheses was based on inadequate sampling and therefore a failure to look at all relevant information used to produce the syntheses. The authors examined the web sites of each organization and determined that Slavin omitted the fact that each organization publically articulated a concern regarding the task of reconciling the diverse methodologies used in the individual evaluations. The web sites and published documents from these organizations presented considerable narrative about the challenges and rewards of managing this methodological diversity, and they did so to help explain their customized synthesis processes to stakeholders.

Harry, B., Sturges, K. M., & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher, 34*(2), 3-13.
> This article responds to recent calls for greater clarity and transparency regarding methods in qualitative research (although transparency is only mentioned three times; once in the abstract). On the basis of a 3-year ethnographic study of the overrepresentation of minorities in special education, the authors demonstrate how to "make transparent the impact of various aspects of researchers' identities on the research act" (p 5), primarily through detailed accounts of the development of themes and the relationship between these themes and the eventual construction of theory. They equate transparency with reflexivity.

☑ Johnston, L. (2006). Software and method: Reflections on teaching and using QSR NVivo in doctoral research. *International Journal of Social Research Methodology, 9*(5), 379-391.
> A reflection from eleven years of experience using and teaching NUD*IST and NVivo to doctoral students. Among the claims made: 1) Instead of blaming QDA software for promoting mechanistic, problematic or sloppy coding, scholars should consider whether the transparency afforded by software is simply highlighting a problem that has always existed but was difficult to detect. 2) QDAS provides potential for unprecedented levels of transparency, although the potential has not been realized in practice for two main reasons. First, sample data accompanying the software might foster inappropriate strategies among novices who fail to customize their use of tools to fit their analytical goals. Next, when instructing novices, teachers often fail to A) discuss the importance of a research journal, B) clarify the problem of redundant nodes in the coding structure, C) point to tools in the software that can help research achieve analytical distance (to see patterns in the data).

Levacic, R. (2008). Financing schools: Evolving patterns of autonomy and control. *Educational Management Administration & Leadership, 36*(2), 221-234.
> Mentioning transparency 17 times, Levacic assesses the English school finance system from 1988 to 2007. Transparency serves as one of three criteria applied in assessing the system (along with efficiency and equity). "A finance system is

transparent when stakeholders have easily available information on the funding each LA [Local Authority] and school receives, the basis for this allocation and how these resources are used. Transparency contributes to accountability and participation in decision-making." (p 222) His basic argument through this historical analysis is the school finance system (in central and local government) has produced an a-rational and non-transparent method of funding.

MacLure, M. (2005). 'Clarity bordering on stupidity': Where's the quality in systematic review? *Journal of Education Policy, 20*(4), 393-416.

> A critique of the discourse of 'systematic review' in education, as developed and promoted by the EPPI-Centre at the University of London. Based on a reading of the instructional literature and 30 published reviews, the author argues that systematic reviews 1) downgrade the status of reading and writing as scholarly activities, 2) tend to result in reviews with limited capacity to inform policy or practice, and 3) constitute a threat to quality and critique in scholarship and research. The claims that are made for the transparency, accountability and trustworthiness of systematic review do not stand up to scrutiny, according to the author, and there are two primary reasons the EPPI-Centre's account of transparency is flawed: 1) Along with quality assurance and standards, transparency is an inherent part of the audit culture that squelches diversity 2) Using their own standards, a wide range of criticisms can be identified suggesting a lack of transparency on the Centre's part.

National Center for Social Research (2004). *Quality in qualitative evaluation: A framework for assessing research evidence* (Government Chief Social Researcher's Office) United Kingdom: Author.

> The study was commissioned in February 2002 and conducted by the National Center for Social Research in the UK. The first two stages of the project entailed a review of the literature and in-depth interviews. Subsequently, a workshop was held to develop a draft framework which was then applied to a selection of research reports and articles and further refined. Based on this study, one of four key principles is: Rigorous conduct through the systematic and transparent collection, analysis and interpretation of qualitative data. Transparency means: giving 'an honest account' of the conduct of the research; a full description of what was actually done and the processes involved in relation to sampling, data collection and analysis; an explanation for, and justification of, decisions made through these stages; discussion of the implications of those explanations; the strengths and weaknesses of the design and conduct; openness about restrictions on the conduct and compensating features.

Nolen, A., & Talbert, T. (2011). Qualitative assertions as prescriptive statements. *Educational Psychology Review, 23*(2), 263-271.

> The authors argue that transparency in qualitative research is essential, though it is a loaded concept when applied to the qualitative research paradigm.

Qualitative research reports tend to promote transparency as a process of clearly presenting strategies of data analysis and reduction. More specifically, the areas to include are the selection of a research design, theoretical framework application (or construction), participant population, sample identification, data collection, analysis, and the researcher role in the collection and analysis of the data.

Ortlipp, M. (2008). Keeping and using reflective journals in the qualitative research process. *Qualitative Report, 13*(4), 695-705.

A reflection on a doctoral thesis in Australia using primarily interviews to explore how college supervisors understand and practice assessment of the early childhood practicum. Participants were college supervisors who assessed students enrolled in pre-service early childhood education courses offered by universities and/or institutes of Technical and Further Education (TAFE) in Australia. The aim of the paper is to show how reflective journals were used by the researcher to create *enough transparency* in the research process, and to explore the impact of critical self-reflection on research design. Two researcher journals are presented and analyzed as they relate to transparency.

Roschelle, J. (1990, April). *Designing for conversations.* Paper presented at the meeting or the American Educational Research Association, Boston.

Meira (1998) borrows *epistemic fidelity* from Roschelle in his analysis to describe the way an expert would match up the tangible or visible features of physical objects with a knowledge domain in order to foster learning. Roschelle and Meira argue that this is a myopic way of attending to representations in a techno-mathematical classroom. Although the term *epistemic fidelity* originally came from Wenger (1987) and is not widely used, it is usually attributed to Roschelle.

☑ Ryan, M. (2009). Making visible the coding process: Using qualitative data software in a post-structural study. *Issues in Educational Research, 19*(2), 142-161.

The author claims that qualitative research methods require transparency to ensure the 'trustworthiness' of the data analysis. She reflects on post-structural study about the capacity of socially critical pedagogical and curriculum approaches in schools to be genuinely transformative. Like many other advocates of QDAS, the author claims that this genre of software provides considerable potential to bring transparency to the research process. She uses four screen-captures from the NVivo modeling tool and three other snapshots of data (transcripts and drawings).

Skukauskaite, A. Green, J. (2012). On transparency, epistemologies and positioning in writing introductory qualitative research texts. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *13*(1), Article 23.

The authors take an ethnographic approach to the assessment *of Qualitative Data Analysis: An Introduction* (Grbich, 2007). The authors argue for the necessity of transparency regarding the positions that authors and reviewers take in reporting/reviewing research. They claim this is especially important when representing traditions that differ from the author's/reviewer's traditions. As such, they are promoting the association of transparency with reflexivity.

Strathern, M. (2000). The tyranny of transparency. *British Educational Research Journal, 26*(3), 309-321.

Borrowing from a paper titled The Tyranny of Light (Tsoukas, 1997), this article points to the dilemma that in the current climate of accountability in education, any effort to turn something invisible into something visible is fraught with problems of diverse interests, including benevolence and tyranny. The main argument is that the very rhetoric of transparency is necessarily hiding or ignoring something. "There is nothing innocent about making the invisible visible" (p 309). Furthermore, "it is widely agreed that transparency embedded in audit is not a good procedure for understanding how organisations 'really' work. It gobbles up one kind of information (e.g. publication scores), so the criticism goes, but cannot get at the 'real' productivity of the knowledge being generated." (p 315)

Suri, H., & Clarke, D. (2009). Advancements in research synthesis methods: from a methodologically inclusive perspective. *Review of Educational Research, 79*(1), 395-430.

The authors highlight methodologically inclusive advancements in research synthesis methods by drawing on insights from interpretive, critical, and participatory traditions for enhancing trustworthiness, utility, and/or emancipation. Rather than prescribe how a research synthesis should be conducted or evaluated, this article attempts to open spaces, raise questions, explore possibilities, and contest taken-for-granted practices. Through their review of the literature, the authors highlight three guiding principles for a quality research synthesis: informed subjectivity and reflexivity, purposefully informed selective inclusivity, and audience-appropriate transparency. An audience-appropriate transparency depends on the ontological, epistemological, and methodological underpinnings of a synthesis, as well as informed decisions about what aspects of the synthesis process must be explicitly stated to enhance the utility of the synthesis for the intended audience. "Our insistence on transparency assumes a critical and informed audience rather than a lack of trust." (413) In experimenting with this form of presentation, they attempt to bypass traditional accounts of research 'findings' as a form of transparent knowledge production to work within a mode of representation that acknowledges the *masks of methodology*.

Taylor, C. A., Downs, Y., Baker, R., & Chikwa, G. (2011). "I did it my way": voice, visuality and identity in doctoral students' reflexive video-narratives on their doctoral research journeys. *International Journal of Research & Method in Education, 34*(2), 193-210.

> Accounts of four UK doctoral students' use of digital video in a Higher Education Academy project to promote reflexivity regarding their doctoral journeys. In experimenting with this form of presentation, the students challenge traditional accounts of research 'findings' as a form of transparent knowledge production. They work within a mode of representation that acknowledges the 'masks of methodology'. A separate section is provided from each of the four students. No visualizations are included except excerpts from transcripts.

☑ Thompson, R. (2002). Reporting the results of computer-assisted analysis of qualitative research data. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *3*(2), Article 25.

> A reflection on a dissertation about the way primary school principals conceptualize competence and the way this conceptualization influences the assessment of beginning teachers. The purpose of the article is to demonstrate the way the data analysis in the study (facilitated by the use of HyperQual2) unfolded through snapshots of interview exchanges, and the way quotes were sorted into codes (beginning with more "coarse" stages and moving through to stages of greater scrutiny and fine tuning). The paper separates mechanical analyses (the structure of the database and the organization of data) and conceptual analyses (the researcher's identification of meaningful segments and their relationship to one another).

* Tilley, S. A., & Powick, K. D. (2002). Distanced data: Transcribing other people's research tapes. *Canadian Journal of Education / Revue canadienne de l'éducation, 27*(2/3), 291-310.

> A qualitative study of eight individuals hired to transcribe tapes in university research. The authors identify three factors that influence transcription: 1) the challenges faced by the transcribers in completing their work, 2) transcription decisions made in the moment, and 3) the effects of the degree of investment in the research. The authors argue that researchers should consider providing transparency of method with respect to transcription.

van Vught, F., & Westerheijden, D. F. (2010). Multidimensional ranking: A new transparency tool for higher education and research. *Higher Education Management and Policy, 22*(3), 1-26.

> The authors argue for better "transparency tools" to inform university stakeholders about the quality (effort and performance) of universities. The best known and most increasingly influential transparency tools in higher education, according to the authors, are classifications and rankings (league tables and multidimensional approaches), which need to be flexible in order to cater to different needs among stakeholders. The authors see two avenues for improving

transparency tools: 1) self-regulation among rankers to improve their tools, 2) a recognition of the multiplicity of stakeholders' interests in higher education and research and hence of the importance of creating multidimensional ranking tools.

Waddington, D. I. (2010). Scientific self-defense: Transforming Dewey's idea of technological transparency. *Educational Theory, 60*(5), 621-638.

> Combines three conceptualizations to encourage a revisioning of science and technology education: 1. Lave and Wenger's transparency (see Wenger above). 2. Dewey's technological transparency: Helping citizens understand technological change in order to advance democratic deliberation regarding social change. 3. Latour's social construction of scientific facts (a skeptical and critical approach to science). In conclusion, teaching *critical transparency* entails pursuit of two closely linked goals: 1) Encouraging students to inquire about the history and everyday practice of science and technology and 2) persuading students to question the dominant discourse of science and technology. (p 631)

☑ Wickham, M., & Woods, M. (2005). Reflecting on the strategic use of CAQDAS to manage and report on the qualitative research process. *Qualitative Report, 10*(4), 687-702.

> A reflection by two doctoral students from the University of Tasmania regarding the use of QDAS for their literature review. They discuss the use of multiple software programs (QDAS, reference managers, word processing tools, etc.) to manage the various demands of producing a literature review for a dissertation and they provide 5 screen-captures from the software to demonstrate their use of QDAS. They claim that much of the criticism directed at qualitative research stems from a perception that the process is not always demonstrated to be transparent or rigorous in the same ways as quantitative research. They propose a 'transparency' mechanism be attached to all qualitative research processes (from the construction of the literature review to the development of conclusions and recommendations). One such mechanism could be the use of QDAS, in an effort to ensure transparency in research reports and to preemptively address anticipated questions, concerns and issues by readers and reviewers.

Transparency literature outside of education

Research outside of education (2 items)

* Bolter, J. D., & Gromala, D. (2003). *Windows and mirrors: Interaction design, digital art, and the myth of transparency*. Cambridge: Massachusetts Institute of Technology.

> Based on observations and analyses of the installation art gallery held at the 2000 SIGGRAPH academic conference and trade show. The SIGGRAPH conference is an international event on computer graphics and interactive techniques. Most of the art was designed to maximize interactivity with the

observer/participant. Bolter and Gromala problematize the debate in computer design between the *structuralists* (including Don Norman, Tim Berners-Lee, Mark Andreessem and Jacob Nielsen) and the *designers* (including desktop publishers). The structuralists profess a vision of the computer becoming transparent (invisible but ubiquitous) whereas the designers want the computer interface to be noticed (and available for scrutiny). Bolter and Gromala argue the interactive displays at SIGGRAPH 2000 help prove the appropriate goal of any digital interface is to establish an appropriate rhythm between these two visions, because "every digital artifact oscillates between being transparent and reflective" (p 5). They provide a history of the role of transparency in art, going back to the Greeks and Romans who believed that art should transparently transport the observer into the setting. However, the authors argue that the desire for transparency is a cultural and historical choice. "In the history of Western painting and design, it is true, transparency has been the goal of most artists or designers, but some artists in other periods have had other goals. If those who design contemporary computer applications understand the history of transparency, they will realize they too have choices in today's media environment" (p 35). I found no other literature that describes the history of transparency in western (or other) culture.

* Henderson, K. (1999). *On line and on paper: Visual representations, visual culture, and computer graphics in design engineering.* Cambridge: MIT Press.

> A study of the visual representations used by engineers to shape the structure of their work and how these visualizations relate to collected ways of knowing in a social organization. The author argues that the coordination and conflict of engineering work take place over and through drawings and demonstrates that engineering designs have a *meta-indexical quality* (a locus for multiple ways of knowing) because of "their ability to be a holding ground and negotiation space for both explicitly and yet-to-be-made-explicit knowledge" (p 199). She also observes three interrelated changes that occur alongside the trend towards on-line work: 1) Job status and responsibilities (separating out a division of labor such as designers, drafters, and engineers), 2) the actual work (as the individual gets the job done), 3) the structure of the work at the group level (where people and companies interact with one another as well as the design), with some disagreement about flexibility since individual, company and industry interests are involved. This third change can raise more problems of coordination and disrupt systems of tacit knowledge.

Expository outside of education (20 items)

☑ Auerbach, C. F., Silverstein, L. B. (2003). *Qualitative data: An introduction to coding and analysis*. New York: New York University Press.

> The authors identify the importance of clearly displaying repeated ideas in order to make the organization of a research report transparent. They promote three

criteria for distinguishing between justifiable and unjustifiable ways of using subjectivity to interpret data: Transparency, communicability, and coherence. (Rubin, H. J, & Rubin, I. S. (1995). *Qualitative interviewing: The art of hearing data.* Thousand Oaks: Sage). "This means that other researchers can know the steps by which you arrived at your interpretation. It does not mean that other researchers need to agree with your interpretation . . . If you follow our steps, and keep a record of what you have done, you are guaranteed to produce a transparent analysis" (p 84). Regarding the use of QDAS, the authors quarantine the discussion to a special appendix, and also present several warnings regarding the use of QDAS, claiming that immersion in the data happens better if one works without QDAS.

Baker, J. C., and Williamson, R. A. (2000). The implications of emerging satellite information technologies for global transparency and international security. In Bernard I. Finel, & Kristin M. Lord, (Eds.), *Power and conflict in the age of transparency.* New York: Palgrave.

Increased transparency via technology both enhances and complicates states' ability to manage conflict. Technology provides mechanisms for state communication, but also makes the state more likely to have a diminished role in international politics.

☑ Blismas, N. G., and Dainty, A. R. J. (2003). Computer-aided qualitative data analysis: panacea or paradox? *Building Research & Information, 31*(6), 455-463.

The authors reflect on the use of NVivo in research on a study within the construction industry about multiproject environments (MPEs). The data was comprised of interviews, program documentation, and organizational publications. They begin with the claim that little literature has been produced that reflects on the use of QDAS and that QDAS often restricts instead of assists the analysis. They present several cautions regarding the association between QDAS and rigor or transparency and they warn readers that QDAS use is often simply a strategy to convince skeptical positivists of the rigor of inductive research techniques. They detail several limitations/challenges in their use of the software and end with a call for additional research on the influence of QDAS on the research process.

Bob, C. (2000). Beyond transparency: Visibility and fit in the internationalization of conflict. In Bernard I. Finel, & Kristen Lord, Kristin M. (Eds.), *Power and conflict in the age of transparency*. New York: Palgrave.

The author argues that by itself the concept of transparency is inadequate for understanding third party responses to internal conflict. Instead, he combines insights from recent research on civil conflict, transnational support networks, and international communications to argue that two factors beyond transparency are critical to the shift from potential to actual support: 1) The

conflict's *visibility* to key gatekeepers, chiefly in the media, and 2) its *fit* with the interests, concerns and needs of potential supporters." (p. 289)

Brin, D. (1998). *The transparent society: will technology force us to choose between privacy and freedom?* Reading: Addison-Wesley.

> The author argues that the increased amount of information in the digital age presents threats to privacy, but that the solution is to ensure that information flows are opened and increased even more publically so they cannot be leveraged by the power elite of society. He calls this *reciprocal transparency*, and claims it is a way to ensure accountability. "Transparency is not about eliminating privacy. It is about giving us the power to hold accountable those who would *violate* it." (p. 334) He identifies four ways that transparency can go wrong: 1) surveillance elites, 2) surveillance obsession, 3) surveillance acceptance, 4) surveillance overload.

Dale, A. (2006). Editorial: Quality in social research. *International Journal of Social Research Methodology, 9*(2), 79-82.

> This is an introduction to a special issue about quality in social research, in which all articles are written by members of the Economic and Social Research Council (ESRC) Research Methods Programme and its Advisory Committee. The author argues that one aspect of quality that transcends particular methods (qualitative or quantitative) is transparency. Based on the collection of articles in the issue, she also identifies several points throughout the research process that require transparency: 1) Early ethical issues such as informed consent, 2) the way interview quotes are used and whether respondents are aware of the way they are used, 3) rationales for combining qualitative and quantitative methods, 4) criteria used in evaluation syntheses, 5) reporting findings and 6) policy implications.

Finel, B. I., & Lord, K. M. (2000). The surprising logic of transparency. In Finel, Bernard I., & Lord, K. M. (Eds.). *Power and Conflict in the Age of Transparency*. New York: Palgrave.

> The authors identify an Index of Transparency with three axes: Debate, control, and disclosure. Debate refers to the degree of societal competition over ideas, by attempting to capture the incentives both government and NGOs have to disseminate information about government decision making and behavior. Control refers to the degree a government controls the flow of information in a given society. Disclosure refers to amount and frequency with which the government actively and intentionally releases information to the public. They operationalizes this index and determines that a state is considered transparent if it scores "yes" on at least two of the items in all three categories (p 141-142).

☑ Friese, S. (2011). Using ATLAS.ti for analyzing the financial crisis data. *Forum: Qualitative Social Research, 12*(1), 24.

The author claims that the use of QDAS enhances the research in five ways: 1) There is more flexibility in modifying code names and coded data segments and thus coding can be approached in a different way, 2) software offers many more analysis options and thus allows researchers to ask different questions, 3) it makes it easier to combine qualitative and quantitative methods, which of course does not preclude a pure qualitative approach, 4) it allows researchers to work in teams even across geographical boundaries, and 5) it allows qualitative researchers to move out of the black box of analysis and to make the entire analysis process more transparent, thus adding credibility, confirmability and dependability. The paper traces strategies for the development of codes and definitions within ATLAS.ti and uses 11 screen-captures to demonstrate the evolution of thought during the coding process.

Goodwin, C. (1994). Professional vision. *American Anthropologist, 96*(3), 606-623.
> The author uses the two examples of the Rodney King trial and an archeological excavation to describe the three discursive practices used to shape perceptions of events: 1) *Coding*, which transforms phenomena observed in a specific setting into the objects of knowledge that animate the discourse of a profession. "*Coding schemes* are one systematic practice used to transform the world into the categories and events that are relevant to the work of the profession (Cicourel 1964, 1968). For example, linguists classify sounds in terms of phonetic distinctions; sociologists classify people according to sex and class" (p 608). 2. *Highlighting*, which makes specific phenomena in a complex perceptual field salient by marking them in some fashion. When professionals do this, "they tailor the document so that those parts of it which contain information relevant to their own work are made salient" (p 610). Features can be difficult to see without this guidance. 3) *Producing and articulating material representations,* such as charts, graphs, etc. External representations that complement the spoken language in discourse by "using the distinctive characteristics for the material world to organize phenomena in ways that spoken language cannot" (p 611).

Government Accountability Office (2010). *Recovery act: Increasing the public's understanding of what funds are being spent on and what outcomes are expected. Report to the republican leader, U.S. Senate.* (Government Accountability Office Rep. No. 10-853G). Washington, DC.
> This report focuses on one aspect of transparency and accountability: The extent to which descriptions of awards found on Recovery.gov foster a basic understanding of award activities and expected outcomes. The report covers 11 federal programs focused on broadband, energy, transportation, federal buildings, and civil works activities, representing $67 billion in Recovery Act funding. GAO developed a transparency assessment and applied it to a probability sample of descriptions from 14,089 recipient reports. The transparency criteria: Sufficiently clear and complete information on the award's

purpose, scope and nature of activities, location, cost, outcomes, and status of work. (See Appendix XIII of the report for examples and definitions.)

Hiles, D. R. (2008). Transparency. In *The Sage encyclopedia of qualitative research methods* (Vol. 2, pp. 890-892). Thousand Oaks: Sage Publications, Inc.

> A two-page entry in the encylopedia, about transparency, stating that it is "an overarching concern for establishing the quality of qualitative research" (p. 890). The author focuses on the role of transparency in the presentation and dissemination of research findings and says it is recognized as a basic requirement of all qualitative research, though it is often simply taken for granted. Transparency is equated with clarity, visibility, and thoroughness. As it relates to data management and data interpretation, transparency has two main stages: 1) Reflexivity of the researcher (and in this regard transparency and reflexivity promote one another). 2) Dissemination to a target audience (with an emphasis on the ability to replicate the procedures, but not necessarily the findings).

☑ Hutchison, A., Johnston, L. H., Breckon, J. D. (2009). Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example. *International Journal of Social Research Methodology, 13*(4), 283-302.

> By articulating the key characteristics of grounded theory and the way NVivo supports them, the authors also hope to demonstrate a more transparent account of the use of grounded theory in the research. "It is generally accepted that when communicating the findings of qualitative work, transparency is essential (Bringer et al., 2004, 2007)" (p 299). The research entailed interviews with individuals who hoped to increase their physical activity in order to improve their well-being. Transparency is invoked 5 times in the article, along with 9 screen-captures from the software, a figure and 2 tables. The key characteristics of grounded theory, according to the authors, are 1) an iterative process, 2) sampling aimed at theory generation, 3) creating analytical codes and categories form the data itself, 4) advancing theoretical development throughout, 5) making systematic comparisons, 6) theoretical density.

Livingston, S. (2000). Transparency and the news media. In Bernard I. Finel, & Kristin M. Lord (Eds.), *Power and conflict in the age of transparency*. New York: Palgrave.

> The authors present interrelated ways of thinking about transparency: 1) *Domestic transparency*, which focuses on the structures states establish to facilitate the disclosure of information. 2) *Imposed transparency*, which focuses on efforts to secure strategic advantage by divulging or unlocking the secrets of others. 3) *Systemic transparency,* which is of greatest interest and is a product of the proliferation of a multitude of instruments that are capable of linking distant and disparate points of information into a web of transparency.

Lord, K. M. (2006). *The perils and promise of global transparency: Why the information revolution may not lead to security, democracy, or peace*. New York: State University of New York Press.

> The author frames the concept of transparency as part of an information "revolution" on a global scale, and raises concerns about information regimes within national boundaries. The six chapters articulate the relationship between transparency and conflict and to a lesser extent between transparency and governance. The focus of the book is on the role and consequences of differing degrees and functions of transparency in governing conflict (e.g., civil war, international intervention, and conflicting relations between authoritarian governments and citizens). She uses case studies of the Rwanda civil war and the Singapore regime of information flow.

* Meyrick, J. (2006). What is good qualitative research? A first step towards a comprehensive approach to judging rigour/quality. *Journal of Health Psychology, 11*(5), 799-808.

> A practitioner-focused framework for assessing the rigor of qualitative research from a broad array of epistemological and ontological standpoints. The framework was developed through a literature review and subsequent group discussion by a panel of experts in health education. The two common principles are *transparency* and *systematicity*, and each principle is discussed under the key headings of researcher epistemological and theoretical stance, process and analysis (methods, sampling, data collection, analysis) and results and conclusions.

Milofsky, C. (2000). Transparent research. *Nonprofit and Voluntary Sector Quarterly, 29*(1), 61-80.

> The author argues that transparent research is a type of action research, in which the subjects of research are fully involved in designing the research project, collecting the data, and analyzing results. He presents two ethnographic case studies, 1) the emergency medicine department of a medium-sized community hospital, and 2) a congregational development project, developed in partnership with an Episcopal diocese. Goals of transparent research include: 1) Promoting trust among the research team, 2) providing a picture of the lives of the people being studied that they accept and recognize as a fair representation of their world, 3) providing a reflective process that helps the subjects broaden and deepen their understanding of their own world, 4) establishing long-term relationships between researchers and subjects (beyond the conclusion of the study), 5) narrowing the cultural gap between practitioners and researchers.

Mitchell, R. B. (2000). Sources of transparency: Information systems in international regimes. In Bernard I. Finel, & Kristin M. Lord (Eds.), *Power and conflict in the age of transparency*. New York: Palgrave.

> The framework in this chapter takes transparency as the dependent variable, and looks at why some regimes achieve greater transparency than others. (p.

185) "In short, transparency is important to regime effectiveness, difficult to achieve, and its sources are poorly understood." (p. 187) He says there are two types of transparency: 1) Effectiveness-oriented transparency asks "how well are we collectively doing at achieving regime goals?" 2) Compliance-oriented transparency asks "how well are particular actors doing at fulfilling regime commitments?"

☑ Sin, C. H. (2007). Using Software to Open up the 'Black Box' of Qualitative Data Analysis in Evaluations. *Evaluation, 13*(1), 110-120.

> The author reflects on a program evaluation of a large-scale multi-component community and neighborhood renewal initiative in Britain, commissioned by a government department. He argues that QDAS can facilitate a transparent account of research, which is often missing in the reporting of qualitative research findings. QDAS can demonstrate the way "data are manipulated, managed and represented is part and parcel of the social construction of evidence used in evaluation." (p 116) The article discusses the role of QDAS in team research, primarily regarding the process of coding.

Solove, D. J. (2004). *The digital person: Technology and privacy in the information age.* New York: New York University.

> The author discusses the tensions between privacy and transparency as they relate to personal information in government and business. He claims that there are at least four general functions of transparency: 1) To shed light on governmental activities and proceedings, 2) to find out information about public officials and candidates for public office, 3) to facilitate certain social transactions such as selling property or initiating lawsuits, 4) to find out information about other individuals for a variety of purposes (p 140). The main point of the book is that both transparency and privacy can be balanced through limitations on the access and use of personal information in public records.

☑ Spickard Prettyman, S., & Jackson, K. (2006). *Ethics, technology, and qualitative research: Thinking through the implications of new technologies.* Paper presented at the Strategies in qualitative research using QSR software. Retrieved September 1, 2011 from http://www.qual-strategies.org; http://www.qual-strategies.org/previous/2006/papers/prettyman/index.html

> The authors argue that the digitization of audio, video, and photographic data make it possible to create, process, and analyze this data in new and different ways but that the ethical implications regarding the use of this data is often ignored. They recommend that qualitative researchers attend to ethics throughout the process from the conceptualization of questions to reporting the results. Issues such as confidentiality, validity, and rapport might surface and the related ethics must be considered in ways that might be different than in conventional, text-based studies.

APPENDIX C: MEYRICK'S LITERATURE AND EXPERT PANEL

Literature in Meyrick's review

Blaxter BSA Medical Sociology Group (1996). Criteria for the evaluation of qualitative research papers. *Medical Sociology News*, *22*(1), 68–71.

Boulton, M., & Fitzpatrick, R. (1996). Evaluating qualitative research. *Evidence Based Health Policy & Management*, *1*(4), 83–85.

Cobb, A. K., & Hagemaster, J. N. (1987). Ten criteria for evaluating qualitative research proposals. *Journal of Nursing Education*, *26*(4), 138–143.

Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage. Department of Health. (2004). *Choosing health: Making healthy choices easier*. London: Department of Health.

Greenhalgh, T., & Taylor, R. (1997). How to read a paper: Papers that go beyond numbers (qualitative research). *British Medical Journal*, *315*, 740–743.

Hamberg, K., Johansson, E., Lindgern,G.,& Westman, G. (1994). Scientific rigour in qualitative research: Examples from a study of women's health in family practice. *Family Practice—Oxford University Press*, *11*(2), 176–181.

Hammersley, M. (1987). Some notes on the terms 'validity' and 'reliability'. *British Educational Research Journal, 13*(1), 73–81.

Hammersley, M. (1990). *Reading ethnographic research*. New York: Longman.

Khan, S. K., Riet,G., Popay, J., Nixon, J., & Kleijnen, J. (2001). Study quality assessment. In *Undertaking systematic reviews of research on effectiveness* (Stage II, phase 5, pp. 1–18). York: CRD, Report 4.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Malterud, K. (1993). Shared understanding of the qualitative research process: Guidelines for the medical researcher. *Family Practice—Oxford University Press*, *10*(2), 201–207.

Mays, N., & Pope, C. (1995). Rigour and qualitative research. *British Medical Journal*, *311*, 109–112.

Oakely, A. (2000). *Experiments in knowing: Gender and method in the social sciences*. Cambridge: Polity Press.

Popay, J., Rogers, A., & Williams, G. (1998). Rationale and standards for the systematic review of qualitative literature in health services research. *Qualitative Health Research*, *8*(3), 341–351.

Rogers, A., & Popay, J. (1997). *Inequalities in health & health promotion: Insights from the qualitative research literature*. London: Health Education Authority.

Seale, C., & Silverman, D. (1997). Ensuring rigour in qualitative research. *European Journal of Public Health*, *7*(4), 379–384.

Secker, J., Wimbush, E., Watson, J., & Milburn, K. (1995). Qualitative methods in health promotion research: Some criteria for quality. *Health Education Journal*, *54*, 74–87.

Sherrard, C. (1997). Qualitative research. *The Psychologist*, April, 161–162.

Strauss, A., & Corbin, T. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. London: Sage.

Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology and Health*, *15*, 215–228.

Expert panel members in Meyrick's review

Prof. Mildred Blaxter (sociologist)
Prof. Jennie Popay (public health/sociology)
Prof David Silverman (sociologist)
Prof. Michael Berger (psychologist)
Dr. Lucy Yardley (psychologist)
Dr. Judith Green (public health)
Dr. Madeline Gantley (anthropology)
Prof. Pamela Gillies (public health)
Prof. Raymond Fitzpatrick (public health)
Prof. Gareth Williams (public health/sociology)
Dr. Mary Boulton (public health)
Dr. Anne Rogers (public health/sociology)
Dr. Kathryn Beckett Milburn (public health)
Dr. Clive Seale (sociology)
Dr. Jonathan Watson (public health)
Dr. Jane Meyrick (public health/psychology)

APPENDIX D: RECRUITMENT AND SCREENING

Email and Web Post

Are you a doctoral student who used NVivo for your dissertation within the last 6 months?

Does your dissertation include an education research component? (It can be in a field outside of education as long as the research addresses an education question)

Earn $100 for participating in a 60 minute telephone interview about the use of NVivo.

I am conducting a study on perceptions among doctoral students and their committee members regarding the benefits and problems associated with using NVivo in a dissertation.

If you agree to participate in the study, you will be asked to provide me with a copy of your final, successfully defended dissertation, and you will be asked to participate in a 60-minute telephone interview (some time after your defense). The interview will focus on an exemplary qualitative research article of your choosing, the use of NVivo in the dissertation, and any negotiations you observed among your dissertation committee about the use of NVivo or the presentation of findings in your dissertation.

I will also ask you to identify the committee member who was most interested in how you arrived at your findings and who might be willing to participate in a similar 60-minute telephone interview.

The confidentiality of the interview content will be protected by the researcher, although the committee member and the student will be made aware of each other's participation in the study.

All participants will be compensated $100.00 for their time.

Data collection will occur any time between now and August, 2013, depending on your availability and the timeline for completing the dissertation.

For more information, please contact Kristi Jackson at kirsten.jackson@colorado.edu, or 303-832-9502.

Screening Questions (students)

Required answers in parentheses following the question

1) Are you a current or former client of Queri or Kristi Jackson? (No)
2) What school is granting (or has granted) your degree?
3) Are you willing to participate in a 60-minute telephone interview between now and August, 2013 about the role of NVivo in your dissertation? You will be compensated $100.00 for your time. (Yes)
4) Have you successfully defended your dissertation within the last 6 months, or do you anticipate doing so by August, 2013? (yes)
5) Does your dissertation include a research question related to education? (Yes)
6) What is the name of the committee member who cares (or cared) the most about how you arrived at your findings?

I will contact potential committee participant to ascertain willingness to participate. If he/she is unwilling, you will not be able to participate in the study.

7) How many diagrams or screen captures did you include in the written dissertation related to the use of QDAS or NVivo?
8) Do you still have access to NVivo and to your database? (Yes)
   I would like you to have it available while I ask you questions about how you used it. Note: I will not see the database, I will just be asking questions about it, and you can answer questions in a way that satisfies your own IRB requirements.
9) I will also have you send me an exemplary qualitative research article prior to the interview, and this will be a focus for part of the interview. Are you willing to provide this article? (Yes)
10) Briefly (in a sentence or less) describe:
    a) Your theoretical orientation
    b) Your methodology

Screening Questions (committee members)

1) Are you a current or former client of Queri or Kristi Jackson? (No)
2) Are you willing to participate in a 60-minute telephone interview about the role of NVivo in *NAME OF STUDENT*'s dissertation between now and August, 2013? You will be compensated $100.00 for your time. (yes)
3) I will also have you send me an exemplary qualitative research article prior to the interview, and this will be a focus for part of the interview. Are you willing to provide this article? (Yes)

APPENDIX E: CONSENT

University of Colorado Boulder

CONSENT TO PARTICIPATE IN A RESEARCH STUDY:

CURRENT OR RECENT DOCTORAL STUDENT

Study Title: Qualitative Methods, Transparency, and Qualitative Data Analysis Software

Key Personnel:

Name	Role	Department	Phone Number	E-mail
Kirsten Jackson	Principal Investigator	School of Education, CU Boulder	303-832-9502	kirsten.jackson@colorado.edu
Margaret Eisenhart	Faculty Advisor	School of Education, CU Boulder	303-492-8583	margaret.eisenhart@colorado.edu

Your participation in this research study is voluntary. Please think about the information below carefully. Feel free to ask questions before making your decision whether or not to participate. If you decide to participate, you will be asked to sign this form and will receive a copy of the form.

1. Purpose and Background

The purpose of this study is to better understand the ways researchers conceptualize transparency in the qualitative research process. While many researchers invoke the importance of a transparent account of qualitative research, little has been done to study how researchers approach transparency in a specific project or how they conceptualize it broadly. In addition, while some qualitative researchers claim that qualitative data analysis software (QDAS) helps promote a transparent account, others say the use of such software interferes with the analysis. In the midst of a large amount of expository literature about these topics, this study will inform the debate with data from first-hand accounts.

2. Study Tasks and Procedures

You will be asked to provide a copy of your dissertation and will be interviewed after successfully defending it. You will also provide a copy of an exemplary qualitative research article; it may be one cited in your dissertation, but not necessarily. After the principal

investigator has reviewed both documents, you will be sent a complete list of interview questions so you may review them prior to the interview (optional). You will then be interviewed by telephone. The interview will focus on the article, the way you represent NVivo in the dissertation, and any disagreements or negotiations you observed among your committee. You will be asked questions like:

- *What are the most important ideas your descriptions of NVivo are meant to convey to readers?*
- *If you have visualizations to illustrate your use of NVivo (e.g., charts, graphs, models, screen-captures):*
  - *What are the most important ideas these are meant to convey to readers?*
  - *Are the visualizations and the description complementary?*
- *Among your committee, what (if any) discussions took place regarding the way NVivo was used in analysis or represented in the dissertation?*

3. Duration
The interview will last approximately 60 minutes

4. Risks and Discomforts
To the best of my knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. The most likely risks associated with your participation in this study are the unpleasant emotions that might be revisited if you discuss any discomfort you experienced while working on or defending your dissertation, although their duration is likely to be brief if they are triggered. The interview is not designed to dwell on these memories or to generate unpleasant emotions.

5. Benefits
You have been asked to participate because of the importance of your perspective as a researcher using NVivo. It is possible that you will find some satisfaction by acknowledging your abilities as you talk about your experiences, and it is also possible that you will end the interview feeling better about the experience than when you began the interview, simply because it gave you a forum to talk about it.

6. Confidentiality
Confidentiality of your information will be protected in several ways:

- Copies of your consent form will be stored in a research office in a locked filing cabinet. The only key to the cabinet will be under the control of the Principal Investigator.
- The locket cabinet will also contain the only document connecting your name with the pseudonym that will be used on both digital and hard-copy labels of your data.
- During transcription, analysis, and the reporting of findings, only your pseudonym will be used.
- The digitally collected interviews, digital transcripts, and digital analytical notes will be stored in DropBox, a secure, password protected site.
- Data will also be imported into NVivo, a qualitative software program, which must reside on a local C Drive. The NVivo project will be password protected, and the computer that stores the project will have additional password protection. Both

passwords will be known only to the principal investigator. Password-protected copies of the NVivo database will be backed up on DropBox each week during the study.

- Because the study may use excerpts from your dissertation in the analysis, an individual who reads your dissertation or knows about your research topic might be able to discern that you were one of approximately six to eight students who participated. In addition, the faculty member on your committee will also be aware of your participation.

- At the end of this consent form, I will ask you to indicate if you would allow me to include any of your data my final dissertation, conference presentations, and publications (such as journal articles or book chapters).

- In addition, at the end of the interview, if you suspect that any of the data can identify you and you prefer not to be identified, I will omit this data from the analysis (and the discussion of the data will not be recorded in the transcript or used in any way).

- All copies of the original data, including your dissertation, digital recordings, digital transcripts, and printed transcripts, will be destroyed three years after the study concludes. The NVivo database will also be deleted.

These are some reasons that we may need to share the information you give us with others:

- If it is required by law.

- If we think you or someone else could be harmed.

- Sponsors, government agencies or research staff sometimes look at forms like this and other study records. They do this to make sure the research is done safely and legally. Organizations that may look at study records include:

  - Office for Human Research Protections or other federal, state, or international regulatory agencies

  - The University of Colorado Boulder Institutional Review Board

7. Compensation

All participants will be paid $100.00, to be mailed via check at the conclusion of the interview.

8. Participant Rights

Taking part in this study is your choice. You may choose either to take part or not take part in the study. If you decide to take part in this study, you may leave the study at any time. No matter what decision you make, there will be no penalty to you in any way. You will not lose any of your regular benefits. III will tell you if I learn any new information that could change your mind about being in this research study. For example, I will tell you about information that could affect your health or well-being.

9. Contacts and Questions

For questions, concerns, or complaints about this study, call 303-832-9502

If you are injured as a result of participating in this study or for questions about a study-related injury, call 303-832-9502

If you have questions about your rights as a research study participant, you can call the Institutional Review Board (IRB). The IRB is independent from the research team. You can contact the IRB if you have concerns or complaints that you do not want to talk to the study team about. The IRB phone number is (303) 735-3702.

10. Signing the Consent Form

I have read (or someone has read to me) this form. I am aware that I am being asked to be in a research study. I have had a chance to ask all the questions I have at this time. I have had my questions answered in a way that is clear. I voluntarily agree to be in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

I agree to keep the identity of my committee member confidential, and understand that he or she will make a similar pledge on his or her consent form in order to be able to participate.

Name of Participant (printed)

_____

Signature of Participant _____ Date _____

Potential uses of data

Initial one:

_____ I agree to allow all narrative and visualizations from my dissertation to be

used in the final analysis of this study, including conference presentations and

publications.

_____ I do not agree to allow all narrative and visualizations from my

dissertation to be used in the final analysis of this study, including conference

presentations and publications. Please specify the data to be excluded:

University of Colorado
Boulder

CONSENT TO PARTICIPATE IN A RESEARCH STUDY:

COMMITTEE MEMBER

Study Title: Qualitative Methods, Transparency, and Qualitative Data Analysis Software

   Key Personnel:

Name	Role	Department	Phone Number	E-mail
Kirsten Jackson	Principal Investigator	School of Education, CU Boulder	303-832-9502	kirsten.jackson@colorado.edu
Margaret Eisenhart	Faculty Advisor	School of Education, CU Boulder	303-492-8583	margaret.eisenhart@colorado.edu

Your participation in this research study is voluntary. Please think about the information below carefully. Feel free to ask questions before making your decision whether or not to participate. If you decide to participate, you will be asked to sign this form and will receive a copy of the form.

1. Purpose and Background

The purpose of this study is to better understand the ways researchers conceptualize transparency in the qualitative research process. While many researchers invoke the importance of a transparent account of qualitative research, little has been done to study how researchers approach transparency in a specific project or how they conceptualize it broadly. In addition, while some qualitative researchers claim that qualitative data analysis software (QDAS) helps promote a transparent account, others say the use of such software interferes with the analysis. In the midst of a large amount of expository literature about these topics, this study will inform the debate with data from first-hand accounts.

2. Study Tasks and Procedures

You will be asked to respond to questions about NAME OF STUDENT's dissertation, provide a copy of an exemplary qualitative research article; it may be one cited in STUDENT'S NAME's dissertation, but not necessarily. After the principal investigator has reviewed the article, you will be sent a complete list of interview questions so you may review them prior to the interview (optional). You will then be interviewed by telephone. The interview will focus on the article, the way STUDENT'S NAME represented NVivo in the dissertation, and any disagreements or negotiations you observed among the committee. You will be asked questions like:

- *What are the most important ideas that NAME OF STUDENT's descriptions of NVivo are meant to convey to readers?*
- *If NAME OF STUDENT included visualizations to illustrate his/her use of NVivo (e.g., charts, graphs, models, screen-captures):*

      o   *What are the most important ideas these are meant to convey to readers?*
      o   *Are the visualizations and the descriptions complementary?*
- *Among the committee, what (if any) discussions took place regarding the way NVivo was used in analysis or represented in the dissertation?*

3. Duration

The interview will last approximately 60 minutes

4. Risks and Discomforts

To the best of my knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life. The most likely risks associated with your participation in this study are the unpleasant emotions that might be revisited if you discuss any discomfort you experienced while serving on the dissertation committee, although their duration is likely to be brief if they are triggered. The interview is not designed to dwell on these memories or to generate unpleasant emotions.

5. Benefits

You have been asked to participate because of the importance of your perspective as someone who played a role in guiding/assessing a student who used NVivo. It is possible that you will find some satisfaction by acknowledging your abilities as you talk about your experiences, and it is also possible that you will end the interview feeling better about the experience than when you began the interview, simply because it gave you a forum to talk about it.

6. Confidentiality

Confidentiality of your information will be protected in several ways:

- Copies of your consent form will be stored in a research office in a locked filing cabinet. The only key to the cabinet will be under the control of the Principal Investigator.
- The locket cabinet will also contain the only document connecting your name with the pseudonym that will be used on both digital and hard-copy labels of your data.
- During transcription, analysis, and the reporting of findings, only your pseudonym will be used.
- The digitally collected interviews, digital transcripts, and digital analytical notes will be stored in DropBox, a secure, password protected site.
- Data will also be imported into NVivo, a qualitative software program, which must reside on a local C Drive. The NVivo project will be password protected, and the computer that stores the project will have additional password protection. Both passwords will be known only to the principal investigator. Password-protected copies of the NVivo database will be backed up on DropBox each week during the study.
- Because the study may use excerpts from NAME OF STUDENT's dissertation in the analysis, an individual who reads the dissertation or knows about NAME OF STUDENT's research topic might be able to discern that you were one of approximately six to eight faculty who participated. In addition, NAME OF STUDENT will also be aware of your participation.

- o At the end of this consent form, I will ask you to indicate if you would allow me to include any of your data in my final dissertation, conference presentations, and publications (such as journal articles or book chapters).
- o In addition, at the end of the interview, if you suspect that any of the data can identify you and you prefer not to be identified, I will omit this data from the analysis (and the discussion of the data will not be recorded in the transcript or used in any way).
- All copies of the original data, including NAME OF STUDENT's dissertation, digital recordings, digital transcripts and printed transcripts, will be destroyed three years after the study concludes. The NVivo database will also be deleted.

These are some reasons that we may need to share the information you give us with others:

- If it is required by law.

- If we think you or someone else could be harmed.

- Sponsors, government agencies or research staff sometimes look at forms like this and other study records. They do this to make sure the research is done safely and legally. Organizations that may look at study records include:
    - Office for Human Research Protections or other federal, state, or international regulatory agencies
    - The University of Colorado Boulder Institutional Review Board

7. Compensation
All participants will be paid $100.00, to be mailed via check at the conclusion of the interview.

8.　Participant Rights
Taking part in this study is your choice. You may choose either to take part or not take part in the study. If you decide to take part in this study, you may leave the study at any time. No matter what decision you make, there will be no penalty to you in any way. You will not lose any of your regular benefits. III will tell you if I learn any new information that could change your mind about being in this research study. For example, I will tell you about information that could affect your health or well-being.

9. Contacts and Questions

For questions, concerns, or complaints about this study, call 303-832-9502

If you have questions about your rights as a research study participant, you can call the Institutional Review Board (IRB). The IRB is independent from the research team. You can contact the IRB if you have concerns or complaints that you do not want to talk to the study team about. The IRB phone number is (303) 735-3702.

10. Signing the Consent Form

I have read (or someone has read to me) this form. I am aware that I am being asked to be in a research study. I have had a chance to ask all the questions I have at this time. I have had my questions answered in a way that is clear. I voluntarily agree to be in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

I agree to keep the identity of my committee member confidential, and understand that he or she will make a similar pledge on his or her consent form in order to be able to participate.

Name of Participant (printed)

_____

Signature of Participant _____ Date _____

Potential uses of data

Initial one:

_____ I agree to allow the interview transcript to be used in the final analysis of this

study, including conference presentations and publications.

_____ I do not agree to allow the interview transcript to be used in the final analysis

of this study, including conference presentations and publications. Please specify the data

to be excluded:

APPENDIX F: INTERVIEW QUESTIONS

<u>**STUDENTS**</u>

1. Before we begin:

    a. Do you have questions about the consent form?

    b. Do you have a copy of the article you sent me to refer to if needed?

    c. (If applicable) Did you receive my file with the visualizations and do you have it with you?

    d. Do you have access to your NVivo database during the interview?

    e. The interview is divided roughly into three discussions:

        i. The exemplary article you chose.

        ii. The way you describe the use of NVivo in your dissertation and oral defense.

        iii. The opinions of the committee members regarding the warrants of your claims and any negotiations you might have had with then committee members (or that you observed among them).

SECTION I: ARTICLE (15 minutes)

2. What do you admire about the article you sent to me?

    a. If needed, prompt for discussions of the research process (if, for example, they hone in on the implications of the findings instead of the warrants of the claims).

        i. Why are these aspects admirable?

    b. Are there other works that are equally admirable, or is this one unique?

        i. Why?

        ii. What strategies could researchers use to achieve this kind of scholarship?

        iii. What things get in the way of achieving this kind of scholarship?

    c. In what ways (if any) did the discussion of the research process from this article influence how you approached your dissertation?

SECTION II: NVIVO (20 minutes)

3. Grounding in NVivo

    a. Why did you decide to use NVivo for this research?

    b. How did you go about learning the software?

    c. Does anyone on your committee know how to use it? If so, what is their level of expertise?

        i. Did they help you with the use of the software? If so, how?

4. Talk about the way you describe NVivo in your dissertation

    (Because I have read the dissertation I can prompt when needed)

    a. Chapter location(s)

    b. What are the most important ideas these <u>narratives</u> of NVivo (in general) or your project (specifically) are meant to convey to readers?

    c. If the dissertation includes visualizations:

        i. What are the most important ideas these <u>visualizations</u> of NVivo (in general) or your project (specifically) are meant to convey to readers?

        ii. Are the visualizations and the narrative complementary?

        iii. Could you convey the same thing by omitting one or the other? If so, how? If not, why not?

    d. Are there aspects of your use of NVivo that you thought about including but omitted?

        i. If so, what were they and why did you omit them?

        ii. Would you use them in other contexts (e.g., a publication or a community presentation)?

5. Open NVivo on your screen (due to the telephone interview, I cannot see inside the database) and feel free to move around in it while I ask you some questions. Be sure to consider your own IRB requirements while you answer these questions and feel free to skip a question in order to guarantee your IRB requirements

    a. What parts of the database did you use most? Least?

b. What (if anything) are you able to see in the database that you might not have seen if you managed the data by hand?

c. What about NVivo (if anything) limited or interfered with the transparency of this study?

d. What about NVivo (if anything) enhanced or supported the transparency of this study?

6. How did you discuss NVivo differently/similarly in the oral defense and in the written dissertation?

a. What factors influence any differences?

SECTION III: NEGOTIATIONS (15 minutes)

7. Discussions among the committee:

a. Among the committee, what (if any) discussions took place regarding the way NVivo would be used in analysis or represented in the:

i. Written dissertation?

1. What were their positions on using and writing about the software?

2. Did you observe any differences among the committee around the use of NVivo? If so, what were they about?

3. Were you surprised by the differences/agreements within the committee, or did you anticipate them? Why?

ii. Oral defense?

1. What were their positions during the oral defense regarding the use of NVivo?

a. Was it a peripheral aspect, was it important, etc.?

b. Were you surprised by the differences/agreements within the committee, or did you anticipate them? Why?

b. What (if any) discussions took between you and the committee members regarding the way NVivo would be used in analysis or represented in the dissertation?

WRAP-UP (5 minutes)

8. Three final questions about the interview:

    a. Can you identify any ways that my expertise in NVivo might have influenced your responses?

    b. Other feedback for me about the interview? (What went best? What questions were hardest? Any recommendations?)

    c. Are there any portions of the interview, or of your dissertation that you want excluded from the analysis and reporting?

COMMITTEE MEMBERS

1. Before we begin:

    a. Do you have questions about the consent form?

    b. Do you have a copy of the article you sent me to refer to if needed?

    c. (If applicable) Did you receive my file with the visualizations and do you have it with you?

    d. The interview is divided roughly into three discussions:

        i. The exemplary article you chose.

        ii. The way (*student's name*) describes the use of NVivo in his/her dissertation and oral defense.

        iii. The opinions of the committee members regarding the warrants of (*student's name*)'s claims and any negotiations among the committee members.

SECTION I: ARTICLE (15 minutes)

2. What do you admire about the article you sent to me?

    a. If needed, prompt for discussions of the research process (if, for example, they hone in on the implications of the findings instead of the warrants of the claims).

        i. Why are these aspects admirable?

    b. Are there other works that are equally admirable, or is this one unique?

        i. Why?

        ii. What strategies could researchers use to achieve this kind of scholarship?

        iii. What things get in the way of achieving this kind of scholarship?

SECTION II: NVIVO (15 minutes)

3. How familiar are you with NVivo?

    a. Roughly how many researchers do you personally know who use it? Is this a minority or majority of qualitative researchers you know?

    b. How have you used it?

    c. How many students have you helped with it?

    d. When did you start getting acquainted with it?

    e. How would you describe your level of expertise with it?

4. Let's talk a little about the way NVivo is described in (*name of student*)'s dissertation.

    a. Chapter location(s)

    b. What are the most important ideas these <u>narratives</u> of NVivo (in general) or (*name of student*)'s project (specifically) are meant to convey to readers?

    c. If the dissertation includes visualizations:

        i. What are the most important ideas these <u>visualizations</u> of NVivo (in general) or the project (specifically) are meant to convey to readers?

5. How did (*student's name*) discuss NVivo differently/similarly in the oral defense and in the written dissertation?

    a. What role do you think you should play in each? (direct, advise, etc.?)

SECTION III: NEGOTIATIONS (15 minutes)

6. Among the committee and between the committee and the student, what (if any) negotiations took place regarding the way NVivo was used in analysis or represented in the dissertation.

    a. Did you anticipate the agreement/disagreement?

    b. How were any disagreements resolved?

7. What lessons did you learn in this instance that will inform your role as chair or committee member in future defenses that employ NVivo or any other QDAS?

WRAP-UP

8. Three final questions about the interview:

    a. Can you identify any ways that my expertise in NVivo might have influenced your responses?

    b. Other feedback for me about the interview? (What went best? What questions were hardest? Any recommendations?)

c. Are there any portions of the interview, or of your dissertation that you want

   excluded from the analysis and reporting?

APPENDIX G: DEBRIEF QUESTION

The following transcript excerpts represent the responses to one of the final wrap-up

questions: "Can you identify any ways that my expertise in NVivo might have influenced your

responses?" line breaks indicate a different participant.

Faculty: I don't think so.

Kristi: You were open with a few criticisms about NVivo, so I'm just hoping that you didn't feel like you had to communicate to me that you thought it was a great tool, if you thought that there were problems with it.

Faculty: No.

Faculty: Boy, that's a good qualitative research question – good job.

Kristi: (Laughs) thank you.

Faculty: Alright, so it's a biasing question – I totally understand why you ask it.

Kristi: And there's not a right or wrong to the answer – I'm just trying to put everything in context.

Faculty: I know that. So yeah, listen, yeah, you sent me a link, and I looked at your name, and then I'm like I wonder who this person is. And then under it, I understood that you did some contract work, so I went to your link, and I suddenly was introduced to the fact that, oh, this is somebody that seems to have consulted, or seems to provide services related to NVivo, and I kind of took you as an expert user. And so I don't feel like I guarded my responses, but I was aware that I was speaking with somebody that was really technically savvy about NVivo, or at least I thought so. So I don't think it influenced any of my responses – I told you what I know and what I don't know and how I think, I'm pretty unabashed about that. But that was something I thought about ahead of our interview.

Faculty: No. Not at all. I'm not afraid to tell you what I think.

Faculty: No I was guessing that you might have some but I went ahead and you know I went ahead and explained some things that I figured you already knew

Kristi: But it sounded like you were pretty candid about both your criticisms and your concerns?

Faculty: Oh, yeah.

Faculty: No.

Kristi: Okay.

Faculty: And I didn't know familiar you were with it – I assumed you were, but you know.

Faculty: Yeah, you and I could not have had that conversation at that depth if we hadn't

shared the background and the path of development from the last 20 years. Yeah, there's too much history there that you and I can quickly draw meaning from -- inside knowledge.

Kristi: And I just want to know if this resonates with you – does that mean it was more positive for our interaction?

Faculty: It helps, yeah.

Student: Right. No I figured there was some sort of connection because the initial email was from Jan and I thought maybe you took course and just asked her to send the listserve and so no, there was no – no influence there.

Student: No.

Student: I'm comfortable with that, because I know I'm NOT an expert. I wasn't trying to come up with the right answer, because you know, I know there's ways I used it or didn't use it that probably . . . you know, again to go back to Duncan, Duncan was . . . you know, qualitative research, there is no RIGHT WAY to do it. Once I kinda got that under my belt, I don't think there's any RIGHT WAY to use NVivo a wrong way. There's probably tools that could be used to help. So no, that didn't really bias.

Student: You know, there was a concern I had, is that it would sound like I was pro-NVivo for you. But I liked using it the first time I tried it, after learning about how to do qualitative and practicing doing qualitative research, and then learning NVivo. So that was the order of my learning on this. Why would I do this any other way? So I was concerned that you would think that I was doing that, but I wasn't.

Kristi: Okay.

Student: Because I put my own . . . when I went to the NVivo training, I did that on my own dime because I wanted this so badly. So I didn't have a grant – I used my own money to go and do this because I was like I really want to learn how to use this well.

Student: Well I thought your dissertation was about NVivo.

Kristi: Mhmm.

Student: Okay, so I would've assumed that you had experience so I don't see that didn't influence any of my responses.

Kristi: Okay.

Student: No. And again I'm not – and again mean this in a nice way – I'm not easily intimidated and so when somebody knows more than I do about something, I don't take it as a challenge. So, to me it's just another tool so again I thought – I didn't think you were on one side or the other throughout the interview. I just assumed that you would know the software because that's what we were talking about.

Student: Yeah . . . I looked at your profile yeah I realize that you're actually work for the company and are one of the key –

Kristi: Trainers?

Student: Experts, I would say.

Kristi: Yeah. So, did that your influence your responses in any way. Did you feel like you have to tell me either good things or criticisms or?

Student: No, no, not. Absolutely not.

Student: No. The whole point is to get an honest reaction, right?

Kristi: Right.

APPENDIX H: TRANSCRIPTION DECISIONS

The following issues and rules were made during the transformation of the data from audio to

text (and when the quotes from the transcripts were extracted from the interview as evidence

in this dissertation):

1) The audible volume of utterances could indicate the importance of a word or phrase
   that was not evident in the text via conventional, sentence case transcription. Rule:
   Capitalized words identified speech that was stated d louder than the preceding or
   following speech, to help capture emphasis in the written quotes.

2) Parenthetical speech could clarify the meaning of the prior or surrounding utterances,
   but sometimes did not translate well into the written text. Rule: Parenthetical
   utterances were separated by dashes in the transcript to demarcate clarifying
   statements.

3) In some instances, omitted text from the quotes improved the readability of the
   statement and in others these omissions protected the identity of the respondents.
   Rule: Omissions from the direct quotes were identified by ellipses and were only used
   when the omission did not alter the primary emphasis of the statement (in the context
   of the current research questions); ellipses in the quotes only indicate omission of text,
   not pauses in speech.

4) When extracted from their context, relevant but non-adjacent text (such as the question
   asked) could significantly improve the clarity of the quote. Rule: Square brackets were
   used to insert clarifying information that pertained to the statement but were not
   articulated during that portion of the interview exchange (e.g., clarifying information
   from just prior to or after the quote).

Two other factors regarding the transcription of the data (that are unrelated to confidentiality,

which is discussed in chapter 4) also warrant a brief mention. First, in some instances, part of

the meaning (e.g., sarcasm) was only available via a review of the audio file. The audio files

were therefore imported into NVivo and the transcripts contained timestamps every five

minutes in order to easily access and review the associated audio file. At the completion of the

analysis, these audio files were removed from the NVivo database. Next, recordings of the

interviews in this study included exchanges from the introductory and concluding portions of the interview. These were primarily questions about the consent form, the participant's access to their database during the interview, feedback about the interview questions, etc. Some of the conversations during these segments helped inform my understanding of transparency, and therefore, these introductory and concluding portions of the interview were also transcribed.

In addition to the strategies outlined in the consent form (Appendix E) to protect participant confidentiality, I employed five additional rules when presenting and protecting information from the participants:

No pseudonyms

Although pseudonyms in the NVivo database helped me keep track of individual experiences and pairs during the analysis while protecting the identities of the participants, the collective presentation of quotes from a participant in this dissertation could allow the other member of the pair to deduce the identity of the source. Therefore, quotes from participants were not given a pseudonym in this analysis. Instead, quotes were only identified as originating from either a student or faculty member. Because the NVivo database was used to track the specific contributor of each quote, the potential problem of an over or under representation of quotes from any single participant was managed through continuous tracking of the sources.

Inconsistent pronouns

Because the pairs included a small and finite number of male and female combinations, pronouns would also potentially alert any member of a pair to the comments made by their counterpart. Therefore, pronouns used in this analysis are a writing convention, only, to facilitate readability. They do not reflect the actual demographics of the participants and were

not used consistently for each participant. Because the study did not purport to examine differences and similarities between males and females (nor their pairings with male or female faculty members), this convention presented no serious challenges to the readability of the findings and simultaneously protected the identity of the participants.

No quotes from the dissertations

Because dissertations could be easily identified with readily-available search engines (through keywords and direct quotes), no quotes, figures, tables, etc. from the dissertations were used in this document. Despite this limitation, my access to the dissertations proved critical for the interview (as they allowed me to ask participants relevant questions) and for the subsequent coding (so I could carefully assess the similarities and differences between the way students and faculty talked about working with NVivo, how they described the use of NVivo in the dissertations, and how they positioned it in the oral defense). When relevant, I describe the dissertations rather than quote them.

Examples from my own database

Because the descriptions of the dissertations in this document sometimes benefit from visualizations – particularly when my narrative pertains to any charts, diagrams, models, etc., developed by the participants – I generated comparable visuals from my own database as an example. The purpose is to provide the reader with a visual understanding of the participants' tables, charts, diagrams, models, etc., without exposing their identities through direct replication.

Equal protection

Although most participants raised concerns about confidentiality, the others had no questions or issues regarding this protection. To the contrary, two students and two faculty members explicitly offered to be identified at any point in this analysis. They said they were making this offer in the interest of promoting transparency and public scrutiny regarding their own ideas as well as this dissertation. While their offers were generous, the public identification of some participants and not the others risked an over-emphasis on their stories and data. Therefore, consistent efforts were employed to protect the identities of all participants.

APPENDIX I: DESCRIPTION OF ARTICLES

All articles nominated by participants as an exemplary piece of qualitative research were published between 2003 and 2013, and most were published in international and United States education journals (with the exception of three articles that were published in journals dedicated to psychology and family studies). Eleven articles also addressed an education research question and one was chosen by both members of the pair (the student deferring to the faculty member's choice). One article (Witenberg, 2004) was a literature review of existing research (which some might label a meta-analysis), and two of the other research articles (Prout, 2009; Schlosser et al, 2003) paid little attention to theoretical foundations and epistemological frameworks. However, collectively, the remaining nine articles focused on approaches such as activity theory, constructionism, cognitive developmental theory, cultural reproduction theory, discourse analysis, grounded theory, life story, student development theory, symbolic interactionism, and transfer of learning.

The data in most of the articles was based on interviews, but also relied on case study data, focus groups, intensive field-based data collection, mixed methods, observations, on-line data, and surveys. Two of the articles (Ivankova & Stick, 2007; Cannata, 2010) identified the use of QDAS during analysis (NUD*IST and Atlas.ti, respectively), although participants said the use of QDAS was unrelated to their selection of the article as an exemplary piece of work:

Baker, A. (2013). Exploring teachers' knowledge of second language pronunciation techniques. Teacher cognitions, observed classroom practices, and student perceptions. *TESOL Quarterly,* doi: 10.1002/tesq.99

Barber, J. P. (2012). Integration of learning: A grounded theory analysis of college students learning. *American Educational Research Journal 49*(3), 590-617.

Bryant, S. L., Forte, A., Buckman, A. (2005). Becoming Wikipedian: Transformation of Participation in a Collaborative Online Encyclopedia. Proceedings of GROUP: International Conference on Supporting Group Work, Sanibel Island, FL.

Cannata, M. (2010). Understanding the teacher job search process: Espoused preferences and preferences in use. *Teachers College Record, 112*(12), 2889-2934.

Giele, J. Z. (2008). Homemaker or career woman: Life course factors and racial influences among middle class Americans. *Journal of Comparative Family Studies, 39*(3), 393-411.

Harris, D.N., Routledge, S. A., Ingle, W. K., & Thompson, C. C. (2010). Mix and match: What principals really look for when hiring teachers. *Education, Finance and Policy 5*(2), 228-246.

Ivankova, N. V., & Stick, S. L. (2007). Student's persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education, 48*(1), 93-135.

Lam, W. S. E. (2000). L2 literacy and the design of the self: A case study of a teenager writing on the internet. *TESOL Quarterly 34*(3), 457-482.

Magolda, P. M. & Ebben, K. (2006). College student involvement and mobilization: An ethnographic study of a Christian student organization. *Journal of College Student Development, 47*(3), 281-298.

Prout, S. (2009). Policy, practice and the 'revolving classroom door': Examining the relationship between Aboriginal spatiality and the mainstream education system. *Australian Journal of Education, 53*(1), 39-53.

Schlosser, L. Z., Knox, S., Moskovitz, A. R., & Hill, C. E. (2003). A qualitative examination of graduate advising relationships: The advisee perspective. *Journal of Counseling Psychology, (50)*2, 178-188.

Witenberg, R. T. (2004). Subordination of racial tolerance to freedom of speech: Some considerations for education in contemporary multicultural societies. *Australian Psychologist 39*(2), 114-117.

APPENDIX J: DESCRIPTION OF STUDENTS

In addition to the selection criteria identified in chapter 3, the doctoral students (PhD and EdD) were both male and female and were paired with both same-sex and opposite sex faculty (in all four possible paired combinations). Two students were from minority groups and English was a second language for another. The degree-granting institutions for the seven dissertations were in two eastern states (three students), two mid-western states (two students), and two western states (two students). Together, the dissertations included data collection from the perspective of teachers, administrators, faculty, students, community partners, and education researchers; from both privileged and marginalized populations in K-12, collegiate, post-graduate and community partner settings. Data types included individual interviews, focus groups, observations, site documents, internet communications, written questionnaires, policies, and relevant literature. Most of the data analyzed in the dissertations was in text format, although in one dissertation image (picture) and video data were also collected.

The education research topics were in cognition, education leadership, ethics, evaluation research, extracurricular activities, hiring, legal studies, language, policy studies, psychology, research methodology, and technology (sometimes including investigations in multiple areas). Theories and methodologies employed (also sometimes in combination) were constructionism, content analysis, feminism, grounded theory, mixed methods, narrative analysis, phenomenology, positivism, and postmodernism. Specific analytical strategies included coding (abductive, deductive, inductive, constant comparative method, coder reliability testing), content analysis, journaling (memoing in NVivo), member-checking, peer

review, and reflexivity. As researchers, the students represented both insider and outsider

stances toward their primary research topics.

APPENDIX K: STOP WORDS

The following list of stop words (words to ignore during text-mining queries) was borrowed

from *Wordle*, and used as a standard (but editable) list in NVivo.

a	does	himself
about	doesn't	his
above	doesn't	how
after	doing	how's
again	don't	how's
against	don't	i
all	down	i'd
am	during	i'll
an	each	i'm
and	few	i've
any	for	i'd
are	from	if
aren't	further	i'll
aren't	had	i'm
as	hadn't	in
at	hadn't	into
be	has	is
because	hasn't	isn't
been	hasn't	isn't
before	have	it
being	haven't	it's
below	haven't	its
between	having	it's
both	he	itself
but	he'd	i've
by	he'll	let's
can	he's	let's
can't	he'd	me
cannot	he'll	more
can't	her	most
could	here	mustn't
couldn't	here's	mustn't
couldn't	here's	my
did	hers	myself
didn't	herself	no
didn't	he's	nor
do	him	not

of	them	we've
off	themselves	what
on	then	what's
once	there	what's
only	there's	when
or	there's	when's
other	these	when's
ought	they	where
our	they'd	where's
ours	they'll	where's
ourselves	they're	which
out	they've	while
over	they'd	who
own	they'll	who's
said	they're	whom
same	they've	who's
say	this	whose
says	those	why
shall	through	why's
shan't	to	why's
shan't	too	will
she	under	with
she'd	until	won't
she'll	up	won't
she's	upon	would
she'd	us	wouldn't
she'll	very	wouldn't
she's	was	you
should	wasn't	you'd
shouldn't	wasn't	you'll
shouldn't	we	you're
so	we'd	you've
some	we'll	you'd
such	we're	you'll
than	we've	your
that	we'd	you're
that's	we'll	yours
that's	were	yourself
the	we're	yourselves
their	weren't	you've
theirs	weren't	