APPROACHES TO QUALITATIVE RESEARCH

A Reader on Theory and Practice

Edited by

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However, in most of my grandparents' stories of this type, the suffering younger characters must resort to clever subterfuge in order to induce their elders to change. *This* story, in contrast, represents a youthful victory in an open and publicly declared contest, the tactics of subterfuge being relegated to minor characters, helper figures, both on the course and in the stand.

8. This and the following information was related to me during the same three-day period of taping, but it does not form the immediate context of conversation for the racetrack narrative.

9. In her later letter to me, Beatrice explained that Hod Buzzel "didn't represent me as he should have; he didn't do a damn thing for me, except try to sell me out to the Besses." (The Besses were the wealthy farming family of Beatrice's first husband.)

10. One of my original purposes in presenting this narrative was to challenge the notion that women are passive victims of patriarchal oppression. Without denying the constraints of socially reified gender ideologies on women's expressiveness, it seems important to recognize women's active role in constructing their own identities and, in the process, transforming social ideals. Beverly Stoeltje discusses the dialectic between individual behavior, changing environments, and ideals of womanhood in "'A Helpmate for Man Indeed': The Image of the Frontier Woman," *in Women and Folklore: Images and Genres*, ed. Claire R. Farrer (Prospect Heights, Ill.: Waveland Press, 1975), pp. 25–41.

11. Victor Turner views performances as reflexive occasions set aside for the collective or individual presentation of the self to the self in "Images and Reflections: Ritual Drama, Carnival, Film and Spectacle in Cultural Performance," in his *The Anthropology of Performance* (New York: The Performing Arts Journal Publications, 1987), pp. 121–32. For a discussion of how personal narratives are tools for making sense of our lives, see Barbara Myerhoff, "Life History among the Elderly: Performance, Visibility and Remembering" in *A Crack in the Mirror: Reflexive Perspectives in Anthropology*, ed. Jay Ruby (Philadelphia: University of Pennsylvania Press, 1982), pp. 99–117.

12. In several lengthy postessay discussions, Beatrice, my grandfather Frank, and I discussed both the story and what happened to it during the process of transmission. After hearing the revised version (in which my grandmother's comments were included), Frank stated that he had learned to see features of the society in which he grew up that he had never really been aware of before. Beatrice was less enthusiastic about my alternative reading, but agreed that my perspective was thought-provoking. For her, the more general issue of how stories are transformed with each new telling was the most interesting point of the essay, and she expressed a desire to continue working on projects of the same type.

13. Equally serious is the tendency to discount as vestiges of false consciousness attitudes or behaviors that do not fit into our own vision of feminist practice. In a cogent critique of this tendency in feminist research, Rachelle Saltzman demonstrates how women who use sexist-male jokes within their own gender group see this activity as an expropriation for use rather than an acceptance of a belittled female identity, in "Folklore, Feminism and the Folk: Whose Lore is it?" *Journal of American Folklore* 100 (1987): 548–67.

14. Quotation from a letter written to Beatrice's second husband, Frank Hanson, 6 August 1944.

CHAPTER 25

Unleashing Frankenstein's Monster?

The Use of Computers in Qualitative Research

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Computer usage within sociology is not a new phenomenon. Sociologists use computer programs for analyzing data. Most computer programs are applied to quantitative methods. Qualitative sociologists have in large part avoided the use of computer programs in the analysis of their data, which primarily consists of the analysis of text (gathered through observations, documents, and interviews) for patterns and meanings. Qualitative sociologists do not usually report the actual techniques they use in their qualitative data analysis. Few have codified their techniques. (There are some exceptions: Glaser and Strauss 1967; Charmaz 1983; Strauss 1987.)

The arrival of lower-priced personal computers and their portability made the computer available to the qualitative researcher in the field and office. At present there is a great demand for software programs for microcomputers. Yet there is a fear as well as promise concerning the use of computerized technology applied to qualitative research, not unlike the fear o Frankenstein's monster.

Mary Shelley's novel, *Frankenstein*, was published in 1818 and reflects the dramatic revolutionary changes in England between 1789 and 1832, during which time the working class was asserting its right to vote and the country as a whole was moving from a preindustrial small-scale agricultural community to a large-scale industrial economy. In many ways, Frankenstein's monster was a symbol of revolutionary change with its accompanying destruction and promise of a new beginning. Those in power feared the working class with its lack of "traditions" would "take over" and become uncontrollable if given the vote, such that chaos and instability would reign over English society (Smith 1992, pp. 317). Victor Frankenstein describes his creation in the following way:

> . . . I suddenly beheld the figure of a man, at some distance, advancing towards me with superhuman speed. He bounded over the crevices in the ice, among which I had walked with caution; his stature, also, as he approached, seemed to exceed that of man. I was troubled: a mist came over my eyes, and I felt a faintness seize me. . . . I perceived, as the shape came

> nearer . . . that it was the wretch whom I had created. I trembled with rage and horror . . . (Shelley as quoted in Smith 1992, p. 89).

The fear Victor Frankenstein experiences coming face to face with his monster is often involved in the researcher's relationship to the computer. Just as Frankenstein's monster was held in awe and fear, there is a strong feeling among some qualitative researchers that while computers have the potential to revolutionize the field, there is also the possibility for things to run out of control. A range of fears are expressed as the researcher first begins to consider and proceeds to use computer technology to do qualitative work. This paper outlines five fears critics express concerning the use of computer software programs for qualitative data analysis.

I. ART VERSUS TECHNOLOGY

There exists the fear that machine technology will separate the qualitative researcher from the creative process. For some analysts, the experience of doing qualitative work is more comparable to artistic work. Just as the artist prefers a brush or pencil and paper, so too do some qualitative researchers. Machine technology seems incompatible or inconsistent with art. There is a strong fear that the technology will turn the researcher into an unthinking and unfeeling human being. Some qualitative researchers have commented on how much they like to work with paper or to be able to write in the margins of their interviews (see Richards and Richards 1989). Others describe the process as "mystical," "private," or "idiosyncratic" (Conrad and Reinharz 1984). There is a sense that the machine will turn research into a commodity. With the additional qualitative software features of hypothesis generation and testing of hypotheses which are now available on some computer software programs, there is the additional fear of "data dredging"—and an overreliance on technology to do one's thinking by simply having the software relate code categories automatically, using very little theoretical insight.

II. BLURRING THE LINE BETWEEN QUANTITATIVE AND QUALITATIVE ANALYSIS

Computer software programs automate the organizing, indexing, and retrieving of documents to generate counts of occurrence of codes or concepts on data which can then be input into a statistical software package. Some critics feel that these software features may serve to blur the line between qualitative and quantitative data analysis. For many of the new software programs, there is no limit on the size of the data they can handle or the number of files. The volume of data now collected for some qualitative studies is comparable to quantitative research, and there is the potential fear that qualitative research will be reduced to quantitative research. Qualitative researchers' emphasis on volume is of concern for a variety of reasons.

Fear of Imposing the Logic of Survey Research onto Qualitative Research

Qualitative researchers may impose the logic of general survey research and increase their sample size in hopes of generalizing their results to some empirical universe. Yet, generalizations made by qualitative researchers derive from a different logic. They are not generalizing about content but are looking to discover underlying patterns or forms within their data that have applicability to a whole range of different contexts. The logic of survey research, on the other hand, often requires that the size of the sample meet certain statistical inference issues such as needing "x" number of cases to ensure that one's results are significant at the $p = 0.05$ or $p = 0.01$ level. These assumptions about numbers are driven by the need to form empirical generalizations. Some qualitative researchers lose sight of this point when they become fixated on volume. Qualitative analysis is driven by a need to make analytical generalizations. Howard Becker (1953) studies marijuana users, not to generalize about marijuana users, but to study a process of getting involved in a deviant subculture. Numbers are important, but they are based on theoretical considerations, such as the level of saturation of code categories. According to Strauss (1987), "theoretical saturation" occurs "when additional analysis no longer contributes to discovering anything new about a category" (p. 21). A researcher needs to study more cases until he or she is not learning anything new.

Sacrificing In-depth Analysis to Meet High Volume Standards

Wanting to become more quantitative by focusing more on volume means that a qualitative researcher may sacrifice in-depth analysis of data in order to pursue high volume analysis. John Seidel describes this development as one symptom of "analytic madness" (1991, p. 107) and suggests that volumes of data "will drive the analysis" and may result in a researcher "missing interesting and important things in the data" (p. 109). Ironically, the very features of computer software programs which help to computerize the process of coding, retrieving, and sorting of data can also serve to limit the type of in-depth data analysis characteristic of qualitative work.

III. DICTATING THE DEFINITION OF A FIELD AND TYPE OF QUALITATIVE DATA ANALYSIS

Michael Agar (1991) and others (Seidel 1991) caution that computer programs may dictate the very definition of a particular field of study. Agar notes the following concerning the field of ethnography:

> As more and more colleagues acquired computer know how, I heard less about what ethnography was and how to think about it, and more about the newest hardware and software and what it could do, about memory capacity and hard disk access, about the latest laptop and illuminated screen. I worried that the means was beginning to replace the end, that the com-

> fortable certainty of bytes and baud might replace the ambiguities of indeterminate pattern and emergent research. . . . The computer had shifted, in my worst-case scenario, from an aid in doing ethnography to a definition of what ethnography might do (Agar 1991, p. 182).

Computer software program structures often set requirements for how a research project should proceed. This raises concerns among some critics that computer software programs will determine the types of questions asked and the specific data analysis plan:

> Thus, we continually refer to computer-assisted qualitative research to emphasize that the computer should be used to enhance, not control, the work of the investigator. While we should take advantage of the computer's abilities, we should not let our analyses hinge primarily on what a particular software program can do. . . . If we compute first and think later we may well lose the essence of qualitative sociological work (Conrad and Reinharz 1984, p. 10).

Horney and Healey (1991) have also made this point in a paper which compares two different computer programs for analyzing qualitative data. They analyzed a single data set using two different computerized software programs. They conclude:

> Computers change the nature of how data are interpreted and different programs provide different points of view. This is at odds with the common opinion that efficiency is the primary benefit computers bring to the research process. . . . An analysis task thus needs to be matched with the researcher's familiarity with a program and with its metaphors (Horney and Healey 1991, p. 12).

IV. MAKING THE RESEARCHER MORE ACCOUNTABLE

Another controversy with the computerization of qualitative data is the issue of validity and reliability of the data gathered. Validity refers to whether a measure is actually measuring what a researcher thinks it is measuring. Reliability refers to whether or not the measure produces the same result each time it is used to measure the same thing. For many qualitative researchers the way one measures validity is often stated somewhat vaguely: Validity is "how closely one comes to capturing the lives of the people they study"; others talk about "how well a researcher respects the nature of the empirical world." Strauss (1987, p. 258) addresses the issue of validity still another way. In answering a question concerning how much confidence a researcher should have in an analysis he states:

> Even experienced researchers may not always be certain before they have chewed on their suspended pencils long enough to know where precisely are the holes—or be certain that, after review, they know there are no important holes—in their analyses. Whether experienced or inexperienced, a common tactic for reducing uncertainty is "the trial"—try it out on other people, individuals, or groups, informally or formally (p. 260).

Little work is published on formal validation or reliability of research works by independent observers within qualitative research. Without a formal language for describing the reasoning chain from the codes to the researcher's conclusion, many possible interpretations can lead to the same conclusions. This makes the process of independent verification even harder.

Computer programs hold out the promise and peril of enabling qualitative researchers to answer the question of how confident they are in their analysis (i.e., Do they really have their core categories right? Are their categories detailed?). Computer programs for analyzing qualitative data require researchers to be more explicit in the procedures and analytical processes they went through to produce their data and their interpretations. The inclusion of artificial intelligence technologies into some qualitative analysis tools will ultimately allow faster, more detailed, and more verifiable coding. Asking qualitative researchers to be more explicit about their method and holding their interpretations accountable to tests of validity and reliability will raise some controversies: Should there be strict tests of validity and reliability for qualitative data? Are we again imposing the logic of quantitative measurement requirements onto qualitative data? What standards for validity and reliability should be used in qualitative research, if any?

Being more explicit about the procedures used to analyze data can make secondary analysis/replication of research studies of qualitative data more possible. At present, it is difficult to follow the exact methodology used in many qualitative studies. If procedures are made more detailed such that secondary analyses are possible, several issues may arise: How do we resolve differences in interpretation of the same data? Whose interpretation is correct? Are several interpretations possible? If so, under what conditions is this true?

The use of artificial intelligence technology will support the researcher in theory generation by allowing many more propositions to be tested in a shorter time period. The ability of some computer software programs to ascertain quickly the number of cases which support a hypothesis or set of hypotheses raises several issues, including: Will some researchers use the hypothesis tester as a data dredger? The hypothesis testing potential of some computer software programs may require qualitative researchers to contend with what up to now has been largely avoided—namely, the establishment of something akin to "significance" levels for qualitative analysis. Most qualitative researchers have been using the terms "some," "many," or "few" to signify when a theme is prevalent or not prevalent in their data. One might now ask: In how many cases did the hypothesis hold up? Should a qualitative researcher apply significance tests to qualitative data? When, if at all, is this appropriate? In asking such questions are we not, again, applying the logic of quantitative research onto qualitative research? Some qualitative researchers would argue that even the single occurrence of a given phenomenon can be theoretically important (see Seidel 1991, p. 113). The fact that this theme is not supported quantitatively by the data is applying the logic of quantitative analysis to qualitative data.

V. LOSS OF CONFIDENTIALITY: THE USE OF MULTIMEDIA DATA

Some new computer software programs support the analysis of multimedia materials such as audio, video, and graphics. While the inclusion of multimedia, especially the analysis of audio, video, and graphic materials allows for a much more comprehensive analysis of the data, there are important ethical problems involved in working with these data, especially with visual data. Steven Gold (1989) has taken the lead in discussing ethical issues in visual field work, and I would like to present some of the ethical dilemmas he sees as important to consider. Sociologists have used the principle of confidentiality to protect respondents. This is done by ensuring that research results are not associated with any individual, group setting, or organization. Analyzing audio and visual data makes it more difficult for the researcher to ensure the confidentiality of individuals who participate in research gathering. What if someone recognizes a respondent? What if data is lost or stolen? There are also negative unintended consequences of utilizing visual data in qualitative analysis. For example, Gold points out that the circulation of photographs may result in collective harm to a group by promoting negative stereotypes. He notes this problem in a study he conducted:

> I confronted this problem in the course of studying a Vietnamese refugee community. Photographs of refugees' apartments show expensive possessions, such as television sets or stereo and video equipment, which have been collectively purchased in order to consume native-language media. Certain viewers have seen in these images a justification for the claim made by xenophobes that immigrants are "welfare chizzlers" who buy luxury items with government handouts (Gold 1989, p. 101).

The researcher needs to carefully consider the range of confidentiality issues involved when working with multimedia data. The example of the Vietnamese refugee community cited by Gold suggests that the researcher needs to be aware of the unintended interpretation of multimedia data and how easy it is for such data to be misinterpreted.

TO WHAT DEGREE ARE THE FEARS CONCERNING COMPUTER SOFTWARE PROGRAMS FOR QUALITATIVE DATA ANALYSIS JUSTIFIED?

As a developer of a new computer software program, HyperRESEARCH™,[1] for analyzing qualitative data analysis, I would like to address some of the fears critics express concerning the use of computers to analyze qualitative data.

Becoming a proactive user is vital in overcoming many of the fears analysts express in utilizing computer software. Each researcher must decide how and under what circumstances this technology will be employed in his or her research project. In the novel, *Frankenstein*, the monster pleads with his master not to detest, fear, and spurn the creature he created:

> Remember, thou has made me more powerful than thyself; my height is superior to thine. Oh, Frankenstein be not equitable to every other, and trample upon me alone, to whom thy justice, and even thy clemency and affections is most due. Remember, that I am thy creature . . . (Shelley, quoted in Smith 1992, p. 92).

Lee and Fielding (1991) suggest the problem with computer program technology lies in its misapplication:

> Like the monster, the programs are misunderstood. The programs are innocent of guile. It is their misapplication which poses the threat. It was exposure to human depravity which made a threat of Frankenstein's creation. Equally, the untutored use of analysis programs can certainly produce banal, unedifying and off-target analysis. But the fault would lie with the user (1991, p. 8).

The view here is that the researcher becomes entrapped by the machine technology. Pfaffenberger (1988) suggests a simple rule of thumb for assessing the researcher's degree of involvement with the computer:

> When the microcomputer starts to loom larger in significance than the original goals of the research, when it demands less engagement in the research data and more engagement in the computer, the time has come to reflect on these goals and to re-establish contact with the values and commitments that initially motivated your engagement with the human social world (pp. 23–24).

It is also important to understand the limitations of each computer software program so that the program structure does not entirely dictate the type of analysis planned. Horney and Healey (1991) note that rather than being a liability, the diversity of program structures can often provide researchers with the opportunity for different perspectives on their data and will permit "triangulation" of research results. Triangulation is a method whereby different research methods are used to test the same finding. It is possible that a given researcher can utilize several different software programs, each of which has its particular strengths and weaknesses. A multiple software design holds the promise of enhancing the validity of research findings.

Computer software programs also lessen the labor-intensive aspects of doing qualitative analysis. This is not a trivial issue for the qualitative analyst. Most qualitative researchers still analyze pages of text by cutting, pasting, and filing, using scissors and a typewriter or word processor to arrange the material physically into coded groups on paper. The process of photocopying multiple copies of text, cutting them up into coded passages, and then manually retrieving the coded text takes a great many hours, days, or even weeks. Software programs for qualitative analysis also speed up the coding and retrieval process. As an example, in the software program I co developed for analyzing qualitative data, HyperRESEARCH™, analyzing text can be accomplished by typing the original interviews, articles, or other materials into a favorite word processor, or more sophisticated means can

be used, such as optical character recognition using scanners. Once the material for a subject has been entered into a text file, the researcher can instruct HyperRESEARCH™ to associate that text file with a given "case." The researcher can then display the text file and select portions of text on the computer screen in a manner similar to highlighting a passage of text on paper with a colored highlighter pen. The researcher then assigns a code to the selected (highlighted) text. A code is a name (or label) that points to, or acts as a reference to, the highlighted text. The code is stored on a computerized equivalent of an index card. There is one index card per case. This is analogous to the researcher actually writing a code next to the highlighted paper passage and then recording the code on a 3" × 5" index card with reference to where and in what document it appears. The researcher repeats this coding process for each case in the research study. Each case's index card can contain codes from any number of different source files. A researcher may also code her or his own comments and observations about a given case. For example, a given research project may consist of 20 test subjects (cases). For each of these 20 cases, the researcher has a transcribed interview, a self-evaluation, a questionnaire, and the researcher's own "memos" about the subject (the researcher's comments). All these materials can be kept in distinct files and imported into HyperRESEARCH™ and coded in any order.

A useful feature of HyperRESEARCH™ is the Code List, which contains all the codes used so far. This master list of codes may be manipulated in several ways and is ideally suited for more focused coding. Codes may be deleted, copied, or renamed. Any manipulation performed on a master code automatically affects all specific instances of the code on all index cards. Deleting removes the selected code and its "pointer." Copying a code is very useful when combining similar codes and allows researchers to copy the reference associated with one code (e.g., the pointer to the original text) to a new entry on the index card under the new code name.

Automating the time-consuming labor-intensive aspects of doing qualitative work, that is, the time it takes to code, index, retrieve, and store data, allows the researcher to concentrate on the generation and testing of theory. The inclusion of multimedia, especially the analysis of audio, video, and graphic materials in some software programs such as HyperRESEARCH™, allows for a much more comprehensive analysis of qualitative data and provides the researcher with a fuller understanding of social context than only analyzing text would. To code an audio tape or video disc using HyperRESEARCH™, a segment of audio or video is viewed or listened to, and the beginning and ending points are "marked" by the researcher. Beginning and ending points can be marked with the press of a button. The marked segment of the audio or video source is assigned a code, just like a segment of a text file. The system adds the new code to the index card list and remembers how to replay the selected audio or video clip. This allows the researcher to directly code original source materials and avoid possible transcription errors. In addition, visual or tonal aspects of an interview such as the mood

or posture of the interviewee can now be coded. However, the researcher is not required in any way to use multimedia sources. Each of the coding systems is independent, yet each function interacts with the researcher in the same manner.[2]

Devault (1990) notes how important it is to listen to the language of the interview rather than only analyzing a transcription (text) of that same interview. In a study she conducted on women's experience with housework, she notes that the language women use to convey their experiences often lies in the hesitation with which they state something. She notes that often seemingly trivial passages of transcribed text hide the richness of the data:

> Often, I believe, this halting, hesitant, tentative talk signals the realm of not-quite-articulated experience and finds where standard vocabulary is inadequate, and where a respondent tries to speak from experience and finds language wanting. I tried to listen most carefully to this kind of talk (Devault 1990, p. 103).

Because qualitative research relies so heavily on the analysis of textual material, there may be a tendency for some qualitative researchers to mainly quote respondents who are most articulate in an interview. This may have the unintended consequence of biasing results toward the more articulate group (and that group which the researcher may identify with). The availability of some software programs to easily code, retrieve, and analyze multimedia source material may break down this tendency and increase the representativeness of meaning among a diverse group of respondents if both verbal and non-verbal behaviors are analyzed.

In addition the ability of some software programs to analyze visual material (pictures, photographs, graphics) as well as video will also help to expand the field known as "visual sociology." Visual sociology is defined as "the use of photographs, film, and video to study society and the study of visual artefacts of a society" (Harper 1989, p. 81). Visual sociology can take advantage of the technology we have developed and apply it to visual methods. As Harper notes:

> Computers, which many consider an antagonistic technology to the camera, may make it easier to use visual data in sociological research. Microcomputers can now digitalize images . . . , and they can be stored in conventional electronic files and easily integrated into text, graph, or other files (Harper 1989, p. 94).

At present it is largely underdeveloped and marginal to the sociology discipline. The teaching of visual sociology would be greatly enhanced by the use of multimedia software programs. Some computer software programs also enhance the analyst's ability to generate and test theory. The HyperRESEARCH™ software program, for example, allows a researcher to test propositions by performing Boolean searches on any code or combination of codes via the use of an expert system. The program also allows for hypothesis testing using artificial intelligence. The Expert System software technology developed by HyperRESEARCH™, for example, uses produc

tion rules to provide a semiformal mechanism for theory building and description of the inference process used to draw conclusions from the data, which allows for the testing of the reliability and validity of data.

It is also important to recognize that computer-assisted programs begin to question the standard ways of doing qualitative research. This is evident in the controversy surrounding the discussion on issues of quantification, validity, and reliability. Quantifying qualitative data can enhance its validity only if one is careful about how this is carried out. Counting themes or categories in the data always needs to be linked to the respondent's own method of ordering the world (gathered from qualitative analysis). As Silverman (1985) notes:

> The aim is not to count for counting's sake, but in order to establish a thoughtful dialogue with qualitatively-derived insights about the setting and actors' version of the situation at hand (p. 148).

By quantifying, the analyst can assess the representativeness of the data as a whole. Researchers will be able to tighten their analysis and perhaps specify more clearly the application of their research findings to the data (Silverman 1985).

The issue of whether the computer will impose inappropriate validity/ reliability standards on the qualitative analyst or if such standards are appropriate still needs to be carefully addressed among qualitative analysts. There also remains the concern as to whether or not some advanced techniques used in quantitative data analysis such as hypothesis testing and more elaborate statistical procedures can be added on to qualitative data analysis without profoundly changing the basic nature of qualitative work.

Computers hold out the promise of revolutionizing the way researchers conduct their analysis, but they also hold out a set of caveats for the qualitative analyst. The researcher who uses these programs should assess their strengths and weaknesses as well as the implications of using computer software programs to analyze qualitative data. It is clear that the interpretation of qualitative data is enriched by the use of computer software programs and that more dialogue is needed on other issues before the fear of Frankenstein's monster is put to rest.

NOTES

1. HyperRESEARCH™ is distributed by Researchware Inc., 20 Soren Street Randolph, MA 02368-1945, USA. Telepone number: (617) 961-3909. Website: www.researchware.com

2. For a more detailed description of all the features of the HyperRESEARCH™ software program please refer to Hesse-Biber, Dupuis, and Kinder (1991), Hesse-Biber and Dupuis (1995), Hesse-Biber, Dupuis and Kinder (1997), Hesse-Biber and Dupuis, 2000.

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