6. TRANSCRIPTION, ANALYSIS, AND CONCLUSIONS

Transcription can be an overwhelming process in qualitative research using videotape because of the hundreds of details that a single brief segment of videotape includes. To list everything in a photograph can be very time consuming, and to exhaustively transcribe even a couple hours of videotape is a herculean task because of time consumption and cost (Lancy, 1993, p. 104).

The question, then, is *what* do you transcribe? This question, of course, relates to the theoretical basis of the study as well as the related issue of the importance conferred on various kinds of data. While observing and videotaping researchers must note a wide variety of contextual information, yet they must also attend to the reasons for their choices of events that are given prominence. Qualitative researchers tend to begin with the broad perspective, then "funnel down" to specifics. As one records video data, as well as during the playback of the video record, major categories will surface--and be chosen--that need to be recorded. While transcribing is often assumed to come before data analysis, Kendon (1979) describes content analysis of video data as *preceding* transcription. Thus multiple viewings of video recordings constitutes a preliminary analysis for determination of major structural units, and once these are determined transcription of data related to those units can occur.

Beresin (1993, pp. 14-15) describes how she developed several kinds of transcripts simultaneously during her qualitative research. She developed a videotape transcript for speech, a second for gestures, a third for gaze, a fourth for patterns of movement, and other transcripts for other topics. As a result each area could be analyzed separately, or transcripts could be placed side by side for comparative study.

One mechanical difficulty that can develop during the transcription and analysis process is stretching or breaking the videotape. These become more likely when the tape is played repeatedly, as is required for microanalysis of small segments of tape. Because of the danger of breakage, never use the original tape for any analysis; use a copy.

If you copy a tape, use two high quality machines or a dual video deck. You can make copies on any videorecorders, but you might consider using the camcorder on which the tape was made as the playback unit when dubbing a copy since the position of the head during playback should be precisely the same as when it was recorded. Use the audio-type cable connections rather than the antenna connections to keep the quality of the copy higher. While copying tapes to other tapes is acceptable, the ideal is to transfer the data to videodisks since they do not wear out and access to a taped segment is quicker and easier than using the fast forward and rewind on a videotape player (more on this later).

Reliability and Validity

It is during the transcription phase of videotaping that issues of reliability and validity might be considered. Reliability, the consistency of observing a specific event from one time to another by the same observer--intraobserver reliability--contrasts with consistency between different observers of the same event--interobserver reliability. Videotape allows precise measurement of quantitative reliability since the observer/s can examine the identical event from the same position multiple times. For qualitative researcher, too, reliability is enhanced by using video as definitions can be reformulated or refined to increase reliability (Lancy, 1993, p. 117). If the main goal is enumerated reliability, one can do the statistical procedure necessary to identify the degree of reliability (Gephart, 1988). My two elementary school aged sons and I did this with some of the videotaped data in my research--we compared counts of various categories of behavior.

In contrast, qualitative reliability of videotapes is more difficult to summarize and has received less attention in the literature (Kirk & Miller, 1986, p. 42). It is possible to express reliability of verbal transcription, perhaps, by comparing two transcriptions of verbal data by either the same person or different people. Every time the two transcriptions have the same word would be a hit, and every time a different word was transcribed would be a miss. These, in turn, could be expressed as kappa coefficients and level of significance determined. I suspect agreement would be very high with such a procedure! Reliability

becomes more difficult to measure with visual data because there are so many kinds of data in a single picture, and these are multiplied when one adds time and sequence dimensions with the moving pictures of videotape. With precise description of categories, it is possible to measure hits and misses between observations, and again produce kappa coefficients. The difficulty, of course, is that quantitative representations are attempting to summarize qualitative data. Since reliability is often difficult to determine with qualitative research, it is more reasonable to consider validity, which is a major strength in qualitative work (LeCompte & Preissle, 1993, p. 341). Before validity can exist reliability is required, thus evidence for validity is sufficient to demonstrate reliability. Validity moves us beyond consistency in observation to congruence between perspectives, establishing credibility and trustworthiness of research, so that data from different research tools, observers, studies, and theories may be triangulated into a more comprehensive picture of the whole phenomenon studied (Patton, 1990, pp. 464-470; Lincoln & Guba, 1985, pp. 305-307; Marshall & Briggard, 1975; Fielding & Fielding, 1986). Videotape can be used in recording any of these sources of congruence, but videotape is particularly helpful in aiding the convergence of participant and researcher perspectives, which is central to establishing qualitative validity (Mehan, 1979, p. 22). Other factors in videotape research that can help assure a degree of internal validity include an extended time of videotaping, self-monitoring of the researcher, openness to data, a search for exceptions ("negative cases") of an emerging trend, member checks, and an audit trail (LeCompte & Preissle, 1994, pp. 341-348; Lincoln & Guba, 1985, pp. 301-304, 309-316, 319-320; Patton, 1990, pp. 463-464). Any of these could be evidenced by video record. In contrast, external validity is more assured by a comprehensive description of the general and specific contexts of the study, again aided by video either in gaining contextual data for verbal description or sharing contextual data visually. Most of these listed means of establishing internal and external validity have been considered in earlier chapters as being important aspects of good videotape research. Perhaps most significant to qualitative videotape validity is that the images formed by a camcorder are more direct and mechanistic reflections of reality (Collier & Collier, 1986, p. 7; Ball & Smith, 1992, p. 6, 16), and thus tend to be more believable and credible because of the assumption that "pictures cannot lie." Credibility and believability of a record is ultimately the bottom line in the quest for validity.

Analysis of Videotape Data

I believe that the analysis of videotaped data has many advantages over analysis of other kinds of qualitative data. Important segments can be extracted and repeatedly viewed for details by a single observer, or a segment can be viewed by several different observers for analysis. Multiple viewings of the same event is simply impossible in standard fieldwork without a video or film recording device, and multiple segments of similar events can be directly compared and contrasted without relying on written descriptions alone. Computer programs can aid this comparison and contrast process, either as an adjunct to videotape--the computer word processor screen and video screen side by side--or with the videotape and computer programs linked (to be considered shortly). But in every case the most important analytic tools are the human eyes and brain observing the screen (Jackson, 1987, p. 122).

Video analysis is more difficult than making videotapes because it involves abstracting and creating new knowledge, suggest Collier and Collier (1986, p. 169). They also decry the lack of analytic tools for pictorial data (p. 13). However, many standard analytic procedures used by qualitative researchers with verbal data can be adapted for use with videotape data. Several examples will be provided shortly.

Who should do the analysis of videotape data? While some might emphasize the prominence of the researcher, because of his or her familiarity with how the research was conducted as well as the surrounding environment, Collier and Collier (1986, pp. 23-27) describe analysis as a cooperative effort between participants and researcher. Participants become educators, teaching the researcher their perspectives.

Additional outsiders might also be included in the video analysis. Multiple observers bring different life experiences and perspectives to the analysis, potentially creating a more encompassing view of the video data. Collier and Collier (1986, p. 194) mention using teams of people, both participants and outsiders, to analyze visual data so that discussion can ensue and produce a higher level of analysis than one person alone. By using those observed and outsiders in the analysis, both emic and etic perspectives

can be compared and contrasted. The more varied the analysis, the more likely that significant aspects of the situation will be revealed and the more likely at least some of the analysis will reflect latent meanings and values. There is also greater likelihood that convergence of views between observers will occur, a form of triangulation as a means of validity. One can also examine convergence between multiple analyses of the same videotape segment by the same person as evidence of intraobserver reliability; a second viewing may produce confirming or disconfirming data for the analysis. Yet the cost of such analyses, particularly fine-grained examination of zoomed in activities, can be prohibitive (Lancy, 1993, p. 104). Any kind of video analysis is very time consuming (Collier & Collier, 1986, p. 148). Keep careful notes about how you do your analysis of videotapes. These, combined with videotape logs and field notes, constitute an audit trail which can be examined by outsiders for methodological strengths and difficulties. The audit trail also constitutes an potential means of establishing validity of qualitative research (Lincoln & Guba, 1985, pp. 319-320).

While Collier and Collier (1986, p. 170) believe that verbal and visual records should not be separated, I think there are times when video and audio segments of videotape deserve separate analyses, which can be followed with comparisons and contrasts to provide additional insight to visual-audio linkages. Mehan (1982, p. 70), for example, analyzed the audio segment of videotape for three components in classroom events: initiation, reply, and evaluation. Some of his audio transcriptions required visual cues as well, such as children raising their hands to initiate in class. Erickson and Schultz (cited by Lancy, 1993, p. 103) separated visual and oral analyses by examining kinesic and other nonverbal components of speech visually while using "voice print analysis" with verbal material.

Developing Categories

Analysis usually moves from initial impressions to more systematic procedures (Collier & Collier, 1986, p. 172). This often involves developing categories and coding data with those categories. Complex code sheets with many different categories can be developed (p. 243). At the other extreme is describing themes in the videotape, using a very open-ended approach. Lancy describes the possibility that open-ended analysis may not reveal coherent patterns, and thus the videotaped activity may elude systematic analysis (p. 230). Yet it is always important to be open during analysis and experience the fluent wholeness of the video record (Collier & Collier, 1986, p. 170). Categories used in analyzing videotape data can be emergent from the context or infused from outside the context. Unique insights can particularly be possible by using metaphorical and analogical descriptors that may tap processes at work. In my research I used *constant comparison* procedures (Glaser & Stauss, 1967) to help develop categories grounded in the videotape data. I began by naming indicators of potential categories of activity by answering the question, "What is this an example of?" Very early in my work I realized that children grouped together in the hallway, sometimes at the teacher's initiative and sometimes without it. By comparing codes, I found consistencies of meaning across numerous codes, reflecting a category. In my case, videotape and personal observation revealed that children's groups took on different physical shapes and these shapes appeared to be related to distinctly different functions of the group, which I thought could be related to different meanings to participants (this was confirmed in later interviews). Over time, certain categories become central in the ongoing analysis of video data, which are termed "axial categories," and finally a "core" category can emerge that relates all the other categories and is the nucleus of the emerging theory. In my research, the groupings fell into the axial categories of school lines, phalanxes (walking side by side), and clusters of children. The core category was the cultural meaning of these groupings to children--whether they were imposed groups oriented toward school culture (the lines), or spontaneously formed peer culture groupings (the clusters), or fusions of school culture and peer culture (the phalanxes).

Analytic Induction and Constitutive Ethnography

Znaniecki (1934) formalized a data analysis procedure which involves two steps: the development of a hypothesis from specific events and then, as additional examples of those events are examined, the comparison of that hypothesis with possible alternative explanations (pp. 261-262). The hypothesis is continually reformulated to fit all observed examples. Later follower's of Znaniecki's method of analysis, termed *analytic induction*, underscored the search for exceptions to the hypothesis as central to hypothesis

reformulation (e.g. Robinson, 1951). The goal is to explain all of the data with a comprehensive hypothesis.

Mehan (1979, pp. 21-30, 206) adapts analytic induction to the analysis of videotape data, emphasizing that the researcher's and participants' perspectives should converge in the process of seeking explanations for behavior. However, Mehan emphasizes that the very act of asking participants for information about events influences the way they respond, and thus he recommends observing behavior as it naturally occurs to determine if it conforms to emerging hypotheses. Mehan's adaptation of analytic induction, which he terms *constitutive ethnography*, involves observing an event carefully while developing "recursive coding rules" that describe the event comprehensively. The process begins with transcribing the audio portion of the videotape, which is then compared with the video mode and identities of speakers--when possible--are added, as are notations of nonverbal activities. Descriptions of specific sequences and episodes are developed, which are then compared with other events to determine degree of similarity. The emerging model is then modified and compared with initial observations. The emphasis throughout is determining where the "seams" of behavior are, the natural dividing points in the flow of behavior (p. 29). These events are then coded using mutually exclusive categories. Later the videotapes are observed by participants and researchers in a joint study session, which allows participants to correct or verify the interpretations of researchers and explore the distinctive ideas of those studied. The joint study sessions also allow participants to gain new insights into their own behavior (p. 206).

Microanalysis

Erickson (1992) describes a somewhat similar procedure termed *ethnographic microanalysis*, which emphasizes the *how* of human interaction rather than the *what* (p. 205). He emphasizes that this method of analysis should only be used when standard methods of describing behavior fail to produce needed details. Like Mehan, Erickson also links his procedure with analytic induction (p. 220). Microanalysis involves describing and measuring or tracking an event or behavior in detail by repeated examination of sequences (Collier & Collier, 1986, p. 184).

Erickson recommends filming one or more entire days of data so that interactions can be examined for typicality. Key contrasts between recurrent events can then be identified, as well as unique and rare events (p. 207). The researcher attempts to determine how well the conclusions generalize across the recurring events within the immediate context and then across different contexts (p. 208). Analysis begins during the videotaping, as the choice of people or events is an analytic decision. However, the majority of analysis occurs after the completion of videotaping (p. 217). Erickson's method of analyzing videotapes involves five steps (pp. 217-222). Initially the emphasis is on the whole of the event, as the researcher examines an entire sequence without pausing or using slow motion. Field notes are written while watching the video, much as would be done in a standard field setting.

The second step is identifying major boundaries between events. This involves playing and replaying the tape, both forward and backward, at those places where boundaries between events are thought to exist. Locating boundaries involve finding three phases in the event--the beginning, the focus of activity, and the conclusion which leads to the next event. Predictable changes in body language and use of space often accompany these three phases.

The organization of the three phases in several selected tape segments makes up the third step in analysis for Erickson. Linkages between sequences of activities are located, elaborating the skeletal structure identified in the second step. The researcher considers how each participant in the interaction contributes to the event, including the mutual influence between those involved, not just the individual actions in isolation. After the completion of the third phase, the statements and nonverbal communication of participants are transcribed, guided by the analytic purposes of the research. During this phase the cultural influences upon interaction become most salient.

The fifth and final phase of analysis involves comparing the segments analyzed in earlier phases with the remainder of the videotapes to determine representativeness. Other segments may be microanalyzed for comparison, and frequencies of typical and non-typical events may be determined. The

researcher also examines the whole videotape record to determine if there are exceptions that make conclusions less than comprehensive.

Collier and Collier (1986, pp. 176-178) emphasize that microanalysis of videotape can reveal the internal dynamics of activities. In their approach to microanalysis, similar segments of videotape can be viewed side by side, emphasizing sequence at first by using slow motion and scanning, both forward and reverse. Slow motion, they note, is especially helpful for gathering details, while high speed scans help in finding broader patterns (pp. 181-182). Microanalysis can result in diagrams of behavior patterns (p. 184).

The Colliers include microanalysis as an optional component in their broader outline of video data analysis (p. 178): 1) watch the film repeatedly in its totality, an "immersion" that can last for weeks, 2) inventory the film by categories of activities, spaces, or other appropriate components using codings or standardized protocols, 3) focus the analysis on newly discovered ideas and the original questions for the research, using microanalysis of details if needed, 4) make conclusions by organizing details in the context. These steps are a helpful way to outline the analysis of videotape, although I think it is important to emphasize that one can be at different stages with different topics at the same time, and that there could be multiple cyclings of the four stages.

Kendon (1979) describes a multiple tiered variation of microanalysis, in which behavior is understood to exist at more than one level simultaneously. Kendon identifies an entire interactional event as a "formation," which subsumes the second level of "presentation"--location and orientation of participants. A third level is "posture," the positions of those interacting, which frames sequences of behavior. A position involves a fourth level of analysis, the specific actions which are termed "points." The levels are successively recognized during analysis, each requiring repeated viewing of the videotape for thorough description. Kendon's variety of microanalysis may be particularly appropriate for conversation-interaction video analysis (Goodwin, 1981; Condon, 1970; Psathas, 1990) but be less applicable to qualitative research more generally.*The Video-Computer Connection*

Computers have increasingly become an important component in qualitative research (Pfaffenberger, 1988; Tesch, 1990). A relatively recent development in videotape analysis makes use of computers and sometimes video disks. The advantage is that computers provide a more systematic and direct way of analyzing videotapes, although both are still merely tools to help the most important part of analysis--the human brain--do its work.

In my research I made use of a computer and video in perhaps the least sophisticated way possible--the video monitor was placed next to the computer monitor. My transcription involved a standard word processing program, using my handwritten field notes as the basic text, and adding details from what I saw on the video screen. I made careful notations of time every few minutes on my handwritten notes as well as the computerized notes, so key segments of film could be located during analysis. Each day, I printed the results of these efforts so I had a paper copy ("hard copy") of the notes as well as the files in the computers. Later, as I used several of the analytic procedures described earlier, I played relevant segments of tape over and over, and made either handwritten notes or notes on the word processor. I also used word-search capabilities of the word processor to find other written and corresponding video segments on related topics. While my word processing program allowed me to see two screens at once, I found it was more convenient to simply place the transcribed notes for two related segments side by side for comparison and/or watch the video segments one after another. Computers are wonderful tools, but they do not do everything equally well; the manual method was more satisfactory for me, although still a bit cumbersome.

Some have moved a step beyond the side by side approach--either manually or on the screen--to mix the written word and video segments. Michael Hale at the University of Georgia, for example, has developed the *Videotape Data Analyzer*, which links a video player with his own qualitative research software (Tsao, Hale & Fan, 1994). This system displays the videotape in a corner of the computer screen, while the rest of the screen can be used for writing notes or inserting codings for the notes. Segments of tape associated with specific codes can be automatically located on the videotape by inserting the coded word or a time code which is added to the tape on one of the stereo channels. The program also has

graphing abilities. The Videotape Data Analyzer requires a standard computer, an adapter, and a specialized videorecorder.

Using actual videotape during analysis, with or without such a program, has the disadvantage of having to wait for the video player to fast forward or fast rewind to a selected videotape segment. A short segment can be loaded into the computer's memory, but one must wait for the videotape to locate the second segment for comparison. To locate several segments on a videotape can take several minutes; they cannot be compared side by side unless there are several videoplayers with multiple copies of the tape. Comparing segments from several videotapes is also difficult, requiring you to either change tapes and wait for the fast forwarding, or use multiple tape players, or dub the segments onto a separate tape which is even more time consuming. Much faster access time for video segments is possible through the use of hypermedia systems (Williams, 1992; Barrett, 1992; Seaman & Williams, 1992). This involves transferring video segments from videotape to a laserdisk. Access time from any segment to any other segment is reduced to the time it takes to click a computer mouse, and since each frame of video is indexed, millions of comparisons become possible. Written text and codings of written or videotape data can be linked with recorded speech, still photos, and videotape segments that are on a videodisk, and each of these can be accessed immediately. Problems of deteriorating quality due to extensive playbacks or due to copying no longer exist because information is digitized in a format common to all forms of media: computer codes. Hypermedia systems are being used for video qualitative research at a number of universities across the country, including Georgia State University (Daniel & Golley, 1995) and Massachusetts Institute of Technology (Segall, 1990). The limitation to this approach, at least with the current state of technology, is the tremendously large amount of memory needed to store data (Seaman & Williams, 1992). For example, a single videodisk can only hold about 1 1/2 hours of visual data (Biehla, 1995). A CD rom disk holds even less. To avoid shuffling videodisks, as well as reduce costs, most users of hypermedia currently transfer only selected segments of videotape rather than the entire corpus of their data. That limits the available material to be accessed, delimiting the scope of analysis to the selections of the researcher.

Continually increasing memory capabilities of computers will eventually bring solutions to this problem, as the gigabite replaces the megabite as the standard unit of computer memory. In the more immediate context, some of the limitations of memory with current hypermedia systems can be overcome through the use of larger, mainframe computers accessed through the internet. Through the World Wide Web and Mosaic internet systems, video of any length can be accessed and shared in any part of the world. At present an anthropology interactive video system is in place, headquartered at the Ethnographics Laboratory at the University of Southern California. Unfortunately, there are still some bugs in the developing system, including rather slow access time, some incompatibility difficulties, and lack of precise linkages between text and video (Biehla, 1995). Hypermedia brings a new dimension to video analysis by the potential for blurring the roles of reader and researcher, as the "reader" of a hypermedia computer can develop distinctive links, analyses, and conclusions, and ignore or delete those of the researcher (Seaman & Williams, 1992). The individual using hypermedia is not restricted to the linear form of a researcher's written summary and analysis, but can connect any portion of any variety of media available to any other in any sequence desired. As a result any two "readers" of hypermedia are likely to develop very different analyses from the same body of data. Unique and individualized interpretations and conclusions are thus likely to emerge from such analyses.

Forming Conclusions and the Making of Meaning

Conclusions from analysis require that the researcher creatively move beyond the data, although doing so within the framework of scientific craftsmanship (Collier & Collier, 1986, p. 198). In making conclusions, once again all of the data should be reviewed as this helps determine how the different elements of the analysis fit together into a synthesis. It is important to move beyond the details to regain the big picture, although this time the data is observed from the perspective of prior analysis of details (pp. 203-205).

Because of the potential for unique, personalized analyses and conclusions by the user of hypermedia systems, the conclusions reached from a given study are no longer dependent on the researcher,

although the data *collection* is still powerfully influenced by researcher decisions in the field. The ideal of modernist research is complete objectivity that mirrors reality, accomplished by a distanced view of phenomena. In contrast, ethnographic research tends to emphasize the realistic rather than the objective (Ball & Smith, 1992, p. 16). The disenchantment with positivistic language and science is something ethnomethodologists hold in common with postmodernists, thus postmodernist researchers can gain much by examining the research methods of ethnomethodologists (pp. 68-70).

For those in the ethnomethodology tradition, the interpretation and analysis of videotape data is constructed reflexively (Ball & Smith, 1992, p. 56), a product of the researcher interacting with the site context and those in that context. The researcher attempts to find how participants make sense of what they do and experience (p. 61). This process of understanding is a procedure shared with others that involves looking for order and meanings in practices (p. 62).

Videotape recordings are only the beginning of the making of meaning. The camera is holistic and free from abstraction in its concrete representation of reality. Yet media can also be understood as producing social constructions (Barrett, 1992, p. 1). The camera is not objective because the camera is very much influenced by the photographer's attitudes; that image is always a selective slice of the world (Collier & Collier, 1986, pp. 7-9).

Use back button on browser to return to table of contents and choose next chapter