3. NEEDED: THE RIGHT STUFF

Once the potential design/s, purposes, and topics for videotape research are determined in an ethically sound manner, specific preparations for videotaping can take place. There are important decisions to prepare for the process of videotaping, although many of the decisions may need to be deferred, reconsidered, and even reversed once in the research context.

The decisions made regarding the choice and uses of videotaping equipment inevitably influence the outcomes. Videotaping is inherently an interpretive process. One chooses certain angles and thus excludes others, but even deciding to take a broad, encompassing view is also interpretive since this implies holism as well as a distanced, etic perspective. Focusing on some objects requires that others be out of focus, and zooming in on some things requires that other things on the periphery are excluded (Young, 1975). These are all interpretive decisions that are based on what is important to the researcher, while another researcher could very well make quite different decisions as to what is important. The choices made reflect the video taper's constructions of social reality, which is powerfully influenced by political orientation (Suchar, 1991; Caulfield, 1991) as well as social class, ethnicity, and gender (Chalfen, 1989).

Even the same researcher can have a different interpretation at a second point in time. For example, during one phase of my research I attempted to spot every cluster of children and would turn to that kind of grouping whenever it occurred, regardless of what else I was observing. Several months later, after the fieldwork was completed, I again observed the tape and tried to time the durations of other kinds of groupings. Of course, the priority given to clusters during the videotaping meant that many segments of other groupings were interrupted as the camera was turned to a cluster. This occurred countless times, and was very frustrating. The earlier, broad stationary segments were also not very helpful as groupings often walked out of the camera's angle of vision. Clearly the camcorder is limited in its ability to record all aspects of a phenomenon; it always presents a single perspective (Mehan, 1982).

Choosing Equipment

To produce good videotape research, the choice of good videotape equipment is crucial. Whether the equipment is purchased, leased, or borrowed, it is imperative that the equipment meet the demands of the research context. Contexts vary a great deal, and thus the specific decisions made must be tailored to your unique situation. Yet several guidelines can be suggested that can help in the choices made. In this chapter visually oriented equipment will be considered, while I will examine the choice of microphones in chapter five. It is important to consult a reliable source on the quality of available equipment. For this book I used my own experience, that of a colleague who teaches television, and the most recent *Consumer Reports* evaluation (July, 1995 at this writing). But there is nothing that compares with personally trying out several different kinds of equipment personally and discovering what works best for your specific research needs.

Is it feasible to have more than one camcorder? Jackson (1987, pp. 114-115) describes using teams of researchers who collaborate in a study. However, he notes that sometimes adding more people creates new difficulties that may outweigh possible gains. As more researchers enter a site, the social context is more and more likely to change in significant ways. He concludes that collaboration can be a nightmare. It can also be very expensive (Rouch, 1975). In my study I was assisted on several occasions by one of my students, but on only one or two occasions were we at the research site at the same time. I believe the problems Jackson describes are probably related to numerous researchers on location at the same time.

I recall dreaming of having two or more cameras suspended from the ceiling of the hallway I studied, facing in opposite directions, so that I could see the continuation of activity when a person left the visual field of the first camera. That could be an option in some circumstances, as multiple cameras could capture more data and even result in some triangulation of data because of the differences in vantage points. Using more than one camera presents the question of how to record the data on tape. One option is to have two videotapes recording simultaneously, one in each camera. Beresin (1993, p. 11) used this

method in videotaping a playground, with one camera on the playground and another in a second floor window of the school. She began with the second floor camera and added the playground camcorder only after sufficient trust had been established by her regular presence on the playground (p. 161).

Combining the two signals from two video cameras can be accomplished by using a video mixer or switch, although this requires someone to watch two screens and switch a single videorecorder between the two cameras when targeted activities change from the visual field of one camera to the other. In this case, the switching would be permanent, and if one later decided that other events were more important than the one the switcher decides to follow, the data would be violated by the possibly irrelevant switching. Another option is a somewhat more expensive video mixer, which would allow more than one image on the screen at one time. The difficulty here is that resolution or clarity is lost when an image is smaller on the screen, possibly resulting in data that is less useful. Multiple cameras means greater expense either for switches, mixers, or multiple tapes, and greater complexity for setting up and running equipment. I am sure multiple cameras can work well in some situations, as when the activities recorded do not reoccur regularly, but there are significant trade offs for this approach. Perhaps the complexity and expense of multiple cameras will be resolved by future innovations in video technology; switching between camera records could occur after the fact using hypermedia technology (see chapter six).

In my study I only used one camera at a time, varying positions from day to day and later varying angles by following data and using the zoom lens. This resulted in data similar to what multiple cameras could accomplish, without the expense and complexity. I did use two cameras at one point in my study, however. At the conclusion of my interviews, when I had the children interview one another in the hallway, I also had my assistant videotape me from a distance as I videotaped the kids. Again, my goal was to see what the videotaped hallway interviews looked like to the kids and outsiders, for methodological examination. Another approach is for the researcher to use a second person as cameraperson, with the camera being cued by the research (Lancy, 1993, p. 69). The most important differences between camcorders today are the features available, not the brand name on the outside. The old adage that more money results in better quality is not always relevant; very good research is possible using some of the lowest cost equipment. Special circumstances may require distinctive equipment and unusual features, but a standard camcorder will record sufficient data in most contexts.

As this is written, three formats are predominant: the standard VHS, the smaller VHS-C, and eight millimeter models. There are also premium variations of the latter two known as S-VHS-C and Hi8, although the difference in clarity between these and the cheaper formats is insignificant unless you need to examine very fine details, and you will need an extraordinary screen to see those details. The reel-to-reel video recorders of the 1970's are long gone, as is the short-lived Beta format, and the U-Matic format is almost exclusively used in broadcasting. Which of the available formats is best for qualitative research?

I used a standard VHS camcorder in my research. VHS is very reasonably priced and produces very good quality results compared with the other two formats. It also can record for two hours without changing the tape, compared with only a half hour or so with the others when run at standard speed. At this writing, videotapes for VHS are much less expensive than for the other two formats and, at least in rural areas, are much more readily available. The downside to VHS is that the camcorder must be larger to accommodate the larger tape, and carrying around a large camcorder for more than a few minutes can be extremely tiring. My videotape assistant used the VHS-C format, and every day or two we copied her tapes onto a VHS videorecorder. This kept us from going bankrupt with the cost of VHS-C tapes, but whenever you copy a tape you get a poorer copy than the original, unless you copy to videodisk. In our situation the decrease in quality was not significant. Some of the VHS-C and eight millimeter cameras allow you to record at a slower speed so that a tape will last a longer amount of time. But slower speeds always mean poorer quality images. Another difference in cameras is the viewfinder. Is the more expensive color viewfinder better than the black and white variety? I found that the black and white image of my camcorder was not very predictive of the color results on the monitor at home. Fortunately, the black and white image on the viewfinder tended to underpredict good pictures; the color monitor brought out some details I thought were lost. As a result I spent some time making adjustments to the camera that were unnecessary--what looked poor in the viewfinder sometimes turned out quite good on the color screen. The down side of

this is that something could look poor in black and white and be poor in color as well. So all things being equal, I would opt for the color viewfinder, but good data can result from a black and white viewfinder as well. Another distinction is the standard small, one eye viewfinder and the newer three inch screen that some more expensive models have. For seeing what you are getting, and for the convenience of holding the camera on your lap, the screen models can be an advantage. Yet the monitor screen can also increase reactivity as the image that is so accessible to you is also easily accessed by others standing nearby. The three inch screen may significantly interfere with obtaining data, although I must admit that a number of children stopped and looked into my tiny viewfinder as well. Perhaps the smaller viewfinder discourages some of this reactivity. On some camcorders with the smaller viewfinder, the cover glass can be removed so that the tiny screen can be seen from a distance of about a foot, which is suitable for watching while holding the camera in the lap and is a bit easier to use for those of us with glasses (Collier & Collier, 1986, p. 212).

One feature I think is essential is an on-screen date and time generator. These are almost universally included in camcorders, but you will need to learn how to set them and turn them on. If possible, get a time generator that includes seconds so that events recorded can be easily located and compared. Ideally try to find a camcorder that records date and time in small numbers, preferably in a corner of the screen rather than at the bottom to minimize the loss of data in that section. A few cameras can also generate letters. I do not believe this is necessary as you will want to keep a separate log of contextual details that can be matched by time notations on the log and videotape, and written comments on the video take valuable screen space where data may be needed. In chapter seven computer programs will be described that allow you to enter log notations and other field notes into the computer so that the notes and video segments coincide, yet without loss of screen data. Someday perhaps camcorders will record the exact time nonvisually on the tape, instead of taking valuable screen space. Remote controls may be helpful in some situations and not others. For example, if you plan to set the camcorder in the corner of the room unattended for long periods of time, or conversely if you plan to carry it around all the time, a remote control may be a waste of money. Controls to increase the shutter speed so that playback will be in slow motion can be very helpful if you are doing event analysis involving high speed movements, but this feature is useless for other research. You can do frame-by-frame analysis with any camera since the analysis uses a playback videotape recorder; the high speed cameras simply give you more frames per second to analyze. For most situations, 30 frames a second (the standard number for videotape) are more than enough to analyze! There are many other features that are available on camcorders, some of which will be considered later in this chapter. What is important to remember is to determine which will be needed in your research and not buy features you do not need. It is important to become familiar with different features, perhaps with the help of a knowledgeable salesperson who will describe rather than just sell the bells and whistles, then you can decide which you need and which you do not. The more features, the more there is to break down! Videotapes are an important aspect of videotaping; your video data is no better than the tape you use. However, the differences between kinds of videotape are rather minor and not always associated with a particular brand name or described quality. Sometimes standard high quality outperforms extra high quality tape even with the same brand name! But *do* use some well-known brand name; less familiar, cheaper brands can be second rate tapes manufactured but rejected by a name brand company. I suggest consulting the latest evaluation of videotapes by *Consumer Reports* and purchasing the lowest cost recommended variety in bulk.

At this writing, there are several extra-length tapes available that may be tempting for some qualitative research situations where the camcorder is unattended for long periods of time. One of the problems with extra-long tape (beyond two hours for standard VHS at regular speed) is that the tape is thinner and is therefore more likely to stretch. Even tiny amounts of stretching can distort the accuracy of time equivalence. Even worse is the experience I have had of seeing valuable data stretched or crumpled into an unusable mess. This also can happen due to defective equipment. Videotapes also break, but can sometimes be repaired with considerable effort.

It is important to remember that videotape has a limited life expectancy. Under normal conditions of storage videotape can only be expected to last about ten years before it deteriorates and becomes unusable, and this can be significantly shortened if the tape is used extensively or if it is stored under

conditions of extreme cold or heat (Jackson, 1987, p. 119). Sometimes a good tape will last longer than this, but do not count on it. Be sure to avoid magnetic fields, which can erase or distort videotape data. Most of these problems are inherent in the tape format; eliminating them in the future will probably require the invention of a new video recording format.

One last recommendation regarding videotape. Be sure to order a sufficient number of tapes, and if you are going to copy the tape for analysis (recommended unless you are copying to videodisk), multiply the number needed by two.

Do you need a tripod? In most cases, the answer is yes. A tripod holds the camera in position, essential for nonparticipant observation kinds of recording, but also smooths camera movement if the camera pans to follow specific people or events. I found that when I carried the camera around, so that it became more or less a co-participant with me, I still wanted to set it down occasionally to rest my shoulder. I could place it on the tripod without stopping the camcorder--to avoid loss of data--and sometimes held it in my arms or on my lap, continuing to watch the viewfinder to be sure it was taping relevant information.

There are many kinds of tripods available, at widely varying prices. I recommend purchasing a heavy model so it will securely hold the camcorder. Find a tripod that is tall prior to extending the section that holds the camcorder; in other words, the height should be more from legs than from the camcorder support section, since an extended top stem makes the tripod more likely to tip over. Obtain a tripod built for a camcorder, not for a still camera which is much lighter and not as rugged as is needed for videotaping. It is also important that the top of the tripod swivel smoothly with the camcorder on it (Collier & Collier, 1986, p. 222). Jerky movements due to a poor quality tripod head will distort and even lose data. For qualitative research, it is imperative that the tripod be able to move quickly as well as smoothly; television productions rarely require quick movement, but qualitative research may need this fairly often to follow an activity or capture an event in an unexpected direction. Batteries are an important consideration in preparing for qualitative research. Be sure to purchase a long-lasting battery, providing at least two hours of operation with each charge. I strongly recommend purchasing an extra battery so that one can be charging while the other is used. It may even be wise to have a third battery on hand, as sometimes replacements may be difficult to find on short notice. Battery life decreases with age and use, and you may want to consider activating the battery meter in the viewfinder to monitor its condition. What could be worse than the camera unexpectedly grinding to a halt i the middle of an important event? I was able to use one battery alternating with a connection to an electrical outlet. But I found the juggling of these two sources of power, as well as the need to charge batteries at the site, a bit unwieldy at times. Batteries being charged run the risk of being stolen, and electrical outlets are not always where they are needed. An extension cord may produce unnecessary changes in the environment, and are something else that can go wrong. Buy a spare battery!

By the way, if you are videotaping outside the United States, be sure to check the electrical current for the battery charger and the plug connecting the camcorder to the wall outlet. Plugging a 120 volt power supply into a 220 volt line is definitely not recommended! Inexpensive transformers are usually available to convert the power down. In many countries, regardless of the voltage, it is a good idea to add a high quality surge protector/battery power backup system. These currently cost less than $100. Camcorders are generally more resistant to line surges than computers, but the wide variation in voltages and power levels, as well as unpredictable blackouts, in some countries make the surge protector/backup a necessity.

Connecting wires are vital to good recording, but these are usually included with the camcorder. Wires should have thick coverings to protect connections, and substantial connectors that won't quickly wear out from connecting and disconnecting. Connectors wear out more quickly than wires in most cases, and breaks in the wire are usually near the connections. Perhaps the best recommendation here is to take care of the connecting wires you have by not twisting or stretching them, and don't excessively tighten connections. Always plug and unplug holding the connectors, never the wires. When coiling the wire at the end of the day, don't make bends too tight. Don't allow cords to be run over or yanked. If you take care of cords, they are less likely to need replacement.

Should you purchase and use a good cleaning tape for the camcorder? This is a question that is not as easily answered as might be thought. Cleaning tapes are used to remove the residue left by videotapes on the recording heads of camcorders and videotape players. The build up of residue can introduce video "noise" and decrease clarity of sound. Yet my colleague who teaches videotaping for television broadcasting tells me cleaning is rarely if ever needed on camcorders if extra high quality videotapes are used. Occasional use of a cleaning tape should not hurt anything, but perhaps even more important is using brand name tapes of high quality. If you begin seeing lines across the screen upon playback or other problems, first try adjusting the tracking on the playback unit, then clean the heads of the playback unit, and finally clean the camcorder heads.

If you plan to do data analysis using the playback unit and not by using a videodisk copy, the choice of videorecorder or videoplayer used for playback is as important if not more so than the camcorder. Features should be checked against the specific requirements of the research analysis. Especially check the still frame, slow motion, fast forward scan and rewind scan, as these are extremely important in finding specific segments for analysis. Look for video "noise" in which lines, static, or other kinds of interference obscure part or all of the screen during these modes (Collier & Collier, 1986, p. 221). In general, more expensive videoplayers are better at displaying stills and slow motion, but check before you decide! If you are only using the playback unit to copy the tape to videodisk, it is still important that it be in good condition (be sure the playback heads are clean) so that the transfer will be optimal. I will consider the issue of high fidelity and stereo sound in a VCR in chapter five. Fairly good viewing is possible by playing the tape through a standard television, but even better quality is possible by using a monitor that can be directly connected by audio-type wires rather than antenna cable (Collier & Collier, 1986, p. 221). Expensive monitors provide better detail.

If you will be recording video in extreme cold, a heated cover may be required for the camcorder and batteries (Collier & Collier, 1986, p. 230). If you move from very cold weather to a warm location, water condensation can occur inside the camera and tapes which will result in operation failure. Many camcorders automatically sense this condition, activate a "dew" light and become inoperative until the condensation is gone. The best way to avoid condensation is to gradually increase the temperature of the camera when moving from cold to warm contexts. Collier and Collier also note that extreme heat, such as can be found in deserts, the tropics, or a closed car in direct sunlight, also produces problems with batteries, cameras, and videotapes.

Beware of taking too much equipment to the site, thereby hindering your mobility. Jackson (1987, p. 115) suggests that equipment be limited to a shoulder bag. I took a bit more equipment than that, but limited myself to what could be carried in a single trip from the car to the school.

Preparations for videotaping are as important as the actual process of videotaping. Thinking through what is needed and how it will be used is imperative in obtaining high quality video data.

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