

4. THE MECHANICS AND ART OF VIDEOTAPING

Videotaping is an artistic process used with mechanical devices. Because it is an art, many decisions cannot be anticipated but emerge in the research context, or are discovered through trial and error. The artistic aspects of videotaping emphasize how video, like any medium of communication, reflects some of the values and personal aspects of the researcher as she or he uses the machinery of recording. Again, an attitude of openness is imperative when it comes to these decisions. *Setting Up*

In most qualitative research situations, you will probably need to set up your camcorder and associated wires each day. It is important to establish a procedure for setting up equipment so that it is minimally distracting to the social context and yet not time consuming. Familiarity with the equipment prior to beginning the research will help in establishing set up routines.

An important book to read in preparing for qualitative videotape research is the camcorder manual. The manual gives needed details on how to use various functions of the camera, and many frustrations can be avoided by a carefully reading. As you read the manual, think about possible set up procedures as well as the actual process of videotaping research data.

It is also important to spend time getting to know your camcorder thoroughly before beginning research. While features such as the zoom lens require practice before proficiency is acquired, you also need to run through the set up and take down procedures a number of times. As you practice, think about the impact setting up can have on the social context. Learn how to load and unload the batteries and tapes quickly and efficiently without creating distracting noises and actions. Set the camcorder clock using time cues in the field rather than actual time; for example I set my clock and watch by the school bell. Be sure the clock is set so that the *change* in digits is coordinated with time cues, not just the digits themselves. Camcorder clocks and your watch will probably need to be reCOORDINATED once every week or two. Practice using some of the features and controls you think you need in your study; you can never predict what might unexpectedly be needed.

Also practice using the tripod, so that you know what *all* the levers and knobs do, and how to use the lock screws. You will probably find you want to leave the lock screw for horizontal panning loose, but tighten the other lock screws. With practice most tripods allow you to remove or replace the camera in two to five seconds.

I developed a list of steps I used in setting up and taking down the tripod, wires, and camcorder so that I would not forget anything. Your list may very well be different, but you might include:

1. Charged battery installed
2. Lens clean [use special lens paper for cleaning]
3. Lens cap placed in shirt pocket [if the lens is tied to the camcorder, disconnect the string; dangling lens caps are distracting]
4. Fresh tape not broken, installed in camcorder, tested
5. Camcorder meters and clock working and turned on
6. Zoom and focus adjustment motors working, switch for recording working
7. Tripod legs extended, locked, and stable (if using tripod)

8. Tripod pans smoothly, camera securely attached (if using tripod)
9. Battery charger and outlet operational (if used in field)
10. Cords in good condition and out of the way
11. All needed accessories readily available.

When setting up, keep cords, additional tapes, battery chargers, and accessories nearby for immediate access. In my study, at first I kept these immediately under my tripod so I could easily reach them when needed, but also to keep them out of people's way and discourage pranksters from disconnecting the cables. Later, when I was mobile with the camcorder, I left everything else needed in the car (with the windows down to avoid excessive heat) or in the teachers' lounge. *The Early Days*

The beginning of a research study is sometimes a ominous event, as the researcher may wonder where the data will lead, or even if the data will be obtainable or usable once it is obtained. This fear can be counterproductive if it paralyzes, but can be helpful if it makes the researcher more cautious about too quickly making decisions that will truncate the work by delimiting ideas too soon. Videotape is distinctly helpful in the process of beginning research as it helps speed up entry and orientation to the field. The initial impressions of the research site are important to record, and videotape can help preserve these. Video can also help orient the newcomer by surveying the environment (Collier & Collier, 1986, p. 16). Such practical skills as learning the names of people are possible through visual media (p. 20).

Planning ahead is important for the early days of videotaping to be maximal effective. Think ahead about camera positions and angles by using maps and diagrams. You will not be able to anticipate everything, of course. In my research what turned out to be the best location for the camera was not even considered an option in my initial plans.

Collier and Collier (1986, pp. 29-62) encourage mapping and surveying the area surrounding the research site during the initial stage of video research, and making a cultural inventory of the site. The cultural inventory includes the groupings of objects and use of space which reflects values and feelings. Six specific components of an inventory are described: 1) economic conditions and reflections of the degree of value placed on material wealth, 2) culture oriented styles of homes, furniture, and community names, 3) decorations reflecting values and identities, 4) activities implied by objects, such as crafts, recreational and sports equipment, music, literature, and foods, 5) degree of orderliness of objects and associated meanings of that order, and 6) degree of hospitality. Such an inventory is very amenable to videotaping, and can be a very useful way of establishing rapport, particularly if those studied direct the video inventory. The cultural inventory is supplemented with other contextual information such as names and identities of people, sequences of events and actions, proximity in spacings of people, and other setting characteristics (p. 163). These provide surface details that are the framework for ascertaining deeper levels of significance and meaning (Manning, 1987, p. 46).

Be prepared for participants' concern and interest in the camera, and questions about your purpose and plans. I have not counted, but I know I was asked several hundred times "What ya doin'?" by interested children during my study. Eventually most people come to ignore the camcorder. However, some people may continue to give the camera attention, as did a few children in my study who enjoyed making faces in the camera. I decided to maximize reactivity for a day by providing a monitor for children to watch themselves, with the hope that this would satisfy their curiosity and help them ignore the camera in the future. My experiment did not work; a select few continued to make faces to the very end of my research study! I did discover, as I examined reactive influences, that children tend to perform for the camera more often when with peers than when alone. I also found that there were *zones of visual reactivity*, with reactive influences being more likely as children are closer to the camera and less likely the more they moved off axis from the direction of the camera lens.

The initial days are important, but it is more likely the data will be unusual because of reactivity effects. While some researchers suggest that the video data from initial days of research is irrelevant-- Collier and Collier (1986, p. 142) even suggest that no tape be used--I disagree. It is important to document early reactivity not only because the decrease with time is itself worthy of study, but also to help establish validity by the evidence of lower levels of reactivity. Comparisons in people's reactions also can be made; McCarty (1975) mentions that early reactions to the camera can reveal a great deal about participants. Later on I found that reactivity was least likely when people's backs were to the camera, but unfortunately the camera cannot record important facial messages from this angle.

One of the dangers during the early days of research is the tendency to write fewer field notes when videotaping begins. I noticed in my own research that when I began videotaping I began relying on the camera to obtain data and made fewer field notes. The danger in this is the risk of losing all data for the day if the camera or tape malfunctions. In addition, taking notes helps fill in contextual detail that the camera can miss because of the angle of vision used or insufficient resolution. Particularly if the camera is stationary, it is important to keep good written notes.

Collier and Collier (1986, pp. 161-162) recommend that early videotaping begin with convenient locations and obvious objects and events. Researchers can follow the obvious to see where the "cultural rope" that links one event to another leads them. Attempting to capture everything is impossible, the Colliers emphasize, so the goal is to find interrelationships that produce a trustworthy view of the whole situation. First impressions of the research site are particularly valuable in producing important insights and new questions (p. 168). Sorenson and Jablonko (1975) describe three kinds of video sampling methods that may prove useful early in research. *Opportunistic sampling* involves recording interesting events that are not anticipated. In contrast *programmed sampling* uses a predetermined plan for videotaping, a plan that may be either simple or complex. Third, the *digressive search* deliberately seeks areas beyond current concepts and inclinations of the researcher, identifying and analyzing peripheral areas. *Tips for Making Good Videotapes*

A wide variety of guidelines and options are possible in making usable research videotapes. These are by no means exhaustive or definitive; some and perhaps many of my perspectives could be challenged. However, these ideas are places to begin in examining aspects of video recording. One caution: there are many things to learn about videotaping, and no one can master them entirely. Everyone who does research with videotape can learn from their mistakes, but just as important is the ability to learn why mistakes were made and to discover what the mistakes cost you in the data collected (Jackson, 1987, p. 108). Lighting is important in recording videotape. Color accuracy varies from camcorder to camcorder. If small variations in color are important in your study, this is an important consideration in making a camcorder decision. The amount of light available is also a consideration, although most newer camcorders record remarkably well in low light conditions. When lighting is very low, colors tend to fade and you may end up with virtually black and white images (Collier & Collier, 1986, p. 222). While this may be unsatisfactory for commercial video, it may still produce good data for qualitative research. In some situations black and white pictures may even be preferable to color for qualitative analysis, as hiding color differences may result in the accentuation of broader patterns of action and contrast. The best way to obtain black and white videos is to record in color and turn off the color control on the monitor when you play back the videotape; don't try to record in black and white.

In other cases, though, lighting may be central to the purposes of research, and more expensive low light cameras may need to be considered. Dark spots at the research site may not be perceived with the naked eye but may be clearly visible on videotape. The latter differences in light were clearly visible in my hallway research videos because of the presence of recessed ceiling lights at regular intervals. The extra high quality videotape formats tend to do more poorly in low light conditions at the present level of technology.

The screen attached to the playback machine may need adjustments for good color reproduction. Objects have different colors with inside artificial light and outside natural light. The human eye automatically compensates for these differences, and many camcorders do as well, but occasionally you

will find shots where the compensation is not adequate such as when some natural light comes through the window of an artificially lit room. If color is central to your study, it may be helpful to include a color chart photographed at the location of your study under normal lighting conditions (Jackson, 1987, pp. 126-127).

Another issue in lighting is the exposure. Nearly all camcorders automatically adjust the lens opening to available light, and this may produce acceptable results in many situations. However, sometimes there may be a backlight problem where bright light from a light fixture or from a window results in the camera shutting the lens too much so that you cannot see what is desired. I ran into this problem in my research when I attempted to record children standing next to a doorway to the playground that had a large window. The bright light from outside shut the camera aperture creating a very dark picture with the youngsters barely visible. This is because automatic exposure adjustments tend to be made on the basis of the *average* amount of light in the shot, thus very bright objects close the lens more than what may be desired. My camera had a button that partially compensated for this problem, but on playback I still found the kids too darkened to see clearly. What would have helped? Covering the window would have solved the problem, but this would also have changed the environmental context. Another possibility is to turn off the automatic shutter and adjust it manually, although this also runs the risk of burning the overexposed image into the camcorder, perhaps even permanently, and the brightness might still obscure the children. Sometimes just positioning the camera in a different location can help. I suspected that the bright overhead lights in the hallway I studied might produce a serious backlight problem, and I did my best to avoid the lights in my camera work. However, on playback I was amazed to find that when I caught some of the lights in the screen there was little effect on the automatic lens, probably because the lighting was indirect.

Zoom lenses are very helpful, and again nearly universal on camcorders. Yet the zoom, especially at extremes, may distort video information (Collier & Collier, 1986, p. 222). This is something to check while examining alternative camcorders available. Lenses that zoom to a greater extent than others can be more likely to distort at extremes. At this writing, the new digital zooming produces inferior quality results compared with standard zooming, and is not recommended. Both manual and power zooming are standard on most camcorders, and both are valuable in qualitative research. I found that using the zoom lens a great deal significantly reduced the charge of the battery from two hours to about one and half hours duration. Remember that when you zoom the lens for a closeup, the microphone does not zoom in with you--special directional microphones can help, but have problems of their own--see chapter five. Zooming in also magnifies the visual effects of inadvertent jiggling of the camera, which may not be noticed until you leave the field (Jackson, 1987, p. 233). This is particularly a problem when holding the camera with your hand, but is also possible if the tripod is accidentally touched. When holding the camera in your hand, try to move your body instead of the camera or zooming (p. 235), and holding the camera against a stationary object will minimize the jiggles.

People walking by may take only a small part of the visual field when the lens is zoomed to wide angle, but they may completely obscure the visual field if the lens is at the telephoto extreme. Perhaps the rule of thumb is to avoid excessive use of telephoto work; zoom out as far as possible while still able to obtain all relevant data. Jackson (1987, p. 232-233) particularly warns against excessive zooming, which he says is much more interesting while videotaping than it is when playing back. Zoom only when there is good reason to do so.

When using the zoom lens remember that later determination of the size of objects depends upon comparisons; the only way to estimate size of a videotaped object is to have another object of known size in the screen (Jackson, 1987, p. 123). That object of known size must also be approximately the same distance from the camera for adequate determination of size to be made.

Autofocus can present some of the same problems as the automatic lens opening system, although the focus on different camcorders often works in somewhat different ways. In most cases the camera focuses on the objects that fill the majority of the screen, which may not be the things you want to study. With a moving camera, the autofocus may be constantly adjusting. It is tremendously exasperating to watch a segment where something you are studying is taken out of focus because momentarily it takes less than half the screen, as when someone walks by the camera. For some events and objects that are studied in qualitative research, keeping what is studied perfectly in focus may not be essential--you may be able to

observe enough detail even when out of focus. The solution for keeping targeted events in proper focus is to disable the autofocus and adjust the lens manually. Most camcorders allow this possibility, but adjusting the focus is difficult while carrying the camera, and can be very distracting for the researcher and those observed even when the videocamera is stationary. Ethologists often use blinds while videotaping, so the camera is hidden or at least not as obvious as it could be. One-way mirrors and screens have also been used in video research (Dowrick, 1991, p. 13). I toyed with using a blind in my school study, but decided against it. If the camera is discovered, it can undermine the potential for trust; a blind is an attempt to mislead people by conveying the impression a camera is not present. In addition, the blind suggests covert and therefore potentially threatening activity as the motivation for videotaping. Much the same thing could be said about a one-way mirror. Blinds are not as necessary today because people often adapt to the camera's presence fairly quickly, in part because camcorders are so common in modern life. Erickson (1992, p. 214) concludes that when trust has been developed, and participants agree with the reasons for doing research, the camcorder is no more intrusive than a pad of paper for note-taking. It is wise to not draw attention to the camcorder, of course. For example, I covered the flashing red light on the front of the camcorder with black tape, and used corners and less traveled areas of the school for the camera to avoid attracting undue attention.

Panning refers to moving the camcorder from side to side, either to survey the environment, to follow a specific event, or to capture an event at another location than what is currently in view. Fast pans can result in blurred pictures, which may be completely unusable data especially for microanalysis. When surveying or scanning the environment, be sure to use slow panning to avoid both the blurring and possible jerkiness when replaying. On the other hand, if you are following an event by moving the camera's position, let the movement of the objects or people determine the speed of the pan; stay with the event unless the non-moving contextual details are more important than the event.

There are also times when you should forget trying to get good pictures during a pan: if the goal is to quickly capture a detail in another direction, it is better to waste a second of video by quickly moving the camera to the needed position. When making such a change in angle, it is often a good idea to zoom out for a wide angle shot since it is easier to find the relevant action in the viewfinder using wide angle, then zooming in for details if need be. It also helps to keep both eyes open--one eye on the viewfinder and the other taking on the context using peripheral vision. If you are mobile with the camera, it is especially important to keep both eyes open since the peripheral vision of both eyes is needed to avoid obstacles in your path of movement.

Most people are used to very brief visual images lasting only a few seconds because of the many changes of cameras in television programs and commercials (Jackson, 1987, p. 242). But what makes for interesting television can produce very poor research. Often sustained views of an event will allow more careful analysis, and if the sustained view is later considered irrelevant, the fast forward can be used during playback. While videotaping it is often best to keep ones fingers off the zoom and on/off buttons for long periods of time; a long sequence that seems boring in the field may provide extremely valuable information when carefully dissected later on. You certainly do not want that information interrupted with a purposeless zoom, angle change, or the video being stopped!

Placement of the camera is an important decision. Wherever you place the camera, it is important to bear in mind that directions only have meaning as they relate to something consistent. It helps to think in terms of the viewer's perspective as videotaping takes place (Jackson, 1987, p. 231). I recall this being an issue as I was videotaping the school hallway--from one side of the hallway children moved left to walk towards the drinking fountains and restrooms and right to the outside door, but when I moved to the other side of the hallway these were reversed. Since both sides of the hallway looked identical much of the time, I had to carefully record in the log or on the video the side of the hallway where I was located, as well as the specific location. Jackson (1987, p. 232) recommends that the camera only be moved when there is good reason to do so, consistent with Margaret Mead's (1975) earlier recommendation. I think this is a good guideline during early videotaping for one or two hour segments, but I think it is important to vary positions from hour to hour and day to day. Multiple placements can help you gain more perspectives, thus more completely representing the whole physical context. Later in the study, when sequences of events are

more predictable, the camera can be positioned where good views of key events are most likely to occur. Still later the camera can be moved to closely follow events. I am sure there are situations where the order of these might be varied, such as when the events to be filmed are known in advance and thus the researcher would try to follow events with the camera during initial phases, and later back off to see the whole more clearly. Placement of the camera, as well as the angle chosen, may influence who and what will be seen as much as what locations will be most represented; some people avoid a camera, others seek out a camera, but eventually most people ignore the camera. The camcorder would not be physically close to key events, as a more distant position may have less of a reactive effect on what occurs--the zoom lens can be used to fill the camera frame. It might be noted that while the telephoto extreme of the zoom may result in less reactivity, I also found that the wide angle extreme could also be used to avoid reactive influences--a camera pointed toward the floor may be ignored, even though the periphery of the frame takes in details not suspected by those nearby. I noticed several times that reactivity increased somewhat immediately after I changed locations of the tripod. Reactivity is influenced not only by camera placement, but also what the researcher watches--I found that a child making faces at the camera often stopped immediately when I turned my head away even though I did not turn the camera.

I found that placement decisions were expedited by studying a map of the locations I planned to videotape. I obtained a drawing of the school from the principal prior to beginning my study, which helped me initially but before long I realized the map was not completely accurate, probably because it was made for some purpose other than research. I made decisions about camera placement from this initial map, but then while videotaping I drew additional maps that were more accurate and represented the different positions of the camera. Herrera (1988) also drew maps during initial phases of research to give himself a role and be accepted by those observed. Taping a map to the tripod helped me identify specific locations as I made contextual notes and the maps also helped in later data analysis.

Decisions about placement of the camera are often emergent from the data, as one forms ideas about the next placement from the results of a prior placement. The best location for the camera for extended observation may be determined by such trial and error, keeping in mind that concerns about good data may need to be balanced with concerns about intrusiveness and reactivity, as well as safety and space for equipment. It is a good idea to occasionally leave the camera location and look back at how the camcorder appears to participants--you might even take a still photo of your setup and study it carefully for sources of excessive reactivity. If you use a mobile camera, consider having someone else videotape you videotaping--you may spot details about your equipment and person that have an undesired influence that can be readily changed.

Another issue in making videotapes is the framing of the visual information. Erickson (1992, p. 216) emphasizes that every participant should be kept within the visual frame which allows all relevant interactions to be investigated. Collier and Collier (1986, p. 213) add that the entire phenomenon needs to be captured within the frame if systematic comparisons and counting are to be done. Gaining the broad perspective of the event is a good idea during initial recordings, I believe, but there is also a case to be made for close up shots of individuals later in a study. This is because the resolution (clarity) of videotape is not extremely high, thus small changes in facial expression or movements may not be observable if everyone is in the visual frame. The whole of an interaction is important for initial analysis, providing needed context for detailed analysis of closeups (Collier & Collier, 1986, p. 213).

Avoid the tendency to center things, as this may produce less useful data when important surrounding details are not evenly distributed on each side of the central event. Make decisions about framing with the goal of capturing maximal relevant data, rather than the centering often characteristic of commercial television and film. In commercial television and film, human subjects are often centered with the head near the top of the screen. My assistant attempted to do this in some of her videotaping, so that children who could be observed at eye level across the hallway filled the screen. Unfortunately, children who passed near the camera not only obscured the view of those across the hallway, but as children approached the camcorder the centered framing lopped off heads and legs. For some time periods the screen is filled with almost obscene images of tummies and crotches! To some extent I was able to minimize this problem by raising the tripod above the height of children and thus look over the heads of

children near the camera, but this additional height produced an angle that was less emic (the camera was significantly higher than children's eyes) but at least when children came near the camera the head and shoulders were emphasized rather than midsections! What angles best capture events? Often a camera facing at right angles to horizontal movement captures more components of the movement, but not necessarily the most relevant details. Finding the angles that produce the most important data is often a matter of trial and error. When experimenting with different angles, keep a log of what was attempted and do ongoing analysis of the results while reviewing the videotape.

While speaking of angles and placement, a few words about using the tripod are appropriate. It is often best to shorten and lengthen the tripod by changing the length of the legs rather than moving the center support stem, as an extended support stem makes the camera more likely to jiggle or tip over. Yet this concern for tipping must be weighed against the issue of taking up floor space; shorter legs and an extended support stem will reduce the space needed for the tripod. Should you turn on and off the camcorder, or just let the videotape record endlessly? I think that in most cases it is better to let the camera record for lengthy periods during the initial phases of research. Extended videotaping may permit you to observe contextual details otherwise obscured, underscoring important antecedents and consequences. You can always fast forward over irrelevant segments later, but you cannot recapture what was not recorded. This was an issue early in my research--why should I let the camcorder record when the school hallway was empty? I decided to let it run, and as a result I was able to observe more deviations from class schedules as well as unexpected events such as the effects of a dog entering the hallway. I also decided to videotape much earlier than the beginning of the school day on several instances, which revealed an early morning "babysitting" role of the school hallway as children began arriving nearly one and one half hours before classes began. Later, once you have established patterns of time when videotaping is most likely to be most profitable, turning on and off the camcorder makes sense.

Writing contextual notes or logging is important when using a camcorder. If a tripod is used, these can be written, whereas if the camcorder is carried they will either be retrospective, written after recording, or verbal (see chapter five on verbal recording of notes). Written logs provide important information about the immediate context, such as date, time, camera placement and angles, significant changes, and even notations about relevant weather. If you use abbreviations, be sure to note somewhere what the abbreviations mean--these are easily forgotten months or even days later. The contextual framework for a videotape helps provide clues to the meaning of events, as well as suggesting possible antecedents for occurrences. Of course you also need to keep track of the videotape methods used and emerging constructs and hypotheses using field notes. Erickson and Mohatt (1982, p. 141) expanded their logs to make summary charts that indexed events and subactivities on the videotape, thus functioning as fieldnotes.

Jackson (1987, pp. 244-256) recommends that logs include date and time of recording, general and specific locations of the camera, the identity of those present, who ran the camera, the events that took place, the surrounding conditions, and personal feelings about the events. Collier and Collier (1986, p. 189) add that the log should describe the length of activities as well, marked by specific times they occurred. I think that some of these might be recorded in field notes rather than a separate log, but time, date, and location are crucial--I even listed these on the outside of the videotape (attach identification stickers to the tape, not the box, because tapes can get into the wrong boxes very easily). Jackson suggests that an announcement might be included at the beginning of each tape that describes these details, which is not a bad idea, although I prefer having the specific time and date on the screen itself. He also emphasizes the need for an hour or two of logging at the end of the day, so that important details will not be lost. I found that when I kept the camera stationary I could log in the field, while writing field notes, but once the camera began moving this became impossible. I did some of my logging and field notes during the mobile camera phase using a cassette recorder as I drove from the field site to my graduate classes. Jackson also recommends sequential numbering of the tapes.

Conclusion

Again, one of the most important recommendations that can be made is to stay flexible and be willing to experiment. Videotaping is as much art as it is mechanical process. Some people may be paralyzed out of fear of the mechanical aspect, but the art component may motivate them to master the few

mechanical details needed. In contrast, the artistic side of the endeavor may frighten others, who need to realize that the art is derived largely through trial and error in accomplishing the goals of the research. The mechanical describes the actual physical process of transferring visual events onto videotape, but the art involves the dozens of decisions about how one goes about positioning and adjusting the camcorder. Videotaping for qualitative research uniquely combines artistic creativity and mechanical skill.

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