

# THE ROLE OF THE VIDEO PROFESSIONAL IN A RESEARCH ENVIRONMENT

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**Abstract:** The video professional that enters the research environment is likely to encounter both exhilarating resonances and boggling confusion at the hands of researchers. There will be situations when standard video practice exactly compliments the researchers' work. There will also be situations when it is necessary to break every rule held sacred by video practitioners. This paper is an attempt to outline some of the many ways in which the research scientist and the video professional can coexist productively. The focus will be on usage of video as a presentation tool.

## OVERVIEW OF VIDEO ACTIVITIES

From the perspective of a profession that regards image quality as some kind of holy grail, research demands on video might seem disappointingly low. Yet the demands are much broader than those required by the mainstream video production world. The following are some of the ways in which we've used video in research at Xerox PARC:

- Video as a real time communication tool. This would include office-to-office video links as well as more common teleconferencing applications.
- Video as a demonstration tool. A most effective way to present dynamic research material without the expense of actual live demonstration.
- Video as archive. Some researchers have found it useful to record the progress of their work at intervals

to use later as status checks. We routinely videotape seminars and presentations as reference material for later use. Conscientious documentation of this sort allows assemblage of "video history" tapes at a later date.

- Video as an analysis tool. Anthropologists and psychologists have been using audio, video, and film as tools for analysis for many years. Recently we've seen the application of these techniques to user-interface design, meetings, interaction and collaboration studies.
- Video as a change agent. As politicians use video for persuasion, so have researchers adopted the techniques of using video to present complex ideas in concentrated, exciting ways in order to influence research directions and decisions.
- Video as an exploratory tool. Some of our experiments have been: using large screen video to build video environments; using complex computer/video images and animation as a method of data presentation; using scenarios and acting as a way to prototype product use; combination of video and live action as multimedia performance presentation.
- Video as a subject of research. Links between computers and video go several ways. Currently, computers control videotape and videodisk; computers incorporate video into windows and documents; video records computers doing what they do. Other research areas include video image manipulation, compression, and storage; video to

print; high speed links; mobile video conferencing; display technology; interactive video.

These topics, along with shepherding familiar video artifacts such as VTRs, monitors, carts, tripods, lights, projectors, etc. form the range of activities in which our video department is called upon to participate. We aren't involved in all the detailed aspects of all of these topics, of course, and it would be unusual to find many video professionals that would participate in technical research except in a superficial way. The area where there is most opportunity for utilizing standard video production skills is in the area of video as a demonstration or presentation tool.

### VIDEO IN PRESENTATION

A researcher's primary product is communication of his or her research, and the primary vehicle for this communication has traditionally been the research paper. Although researchers often work with a secretary, graphic artist, and photographer to produce their papers (see Fig. 1), the final paper contains ideas and writing which belong almost exclusively to the authors. In addition, the result is a detached work in which the personality, look, and speech patterns of the authors play little or no part in the perceived validity of the paper. In fact, even the quality of writing is secondary to the content, since the reader is hardly expected to compare the paper with Shakespeare or

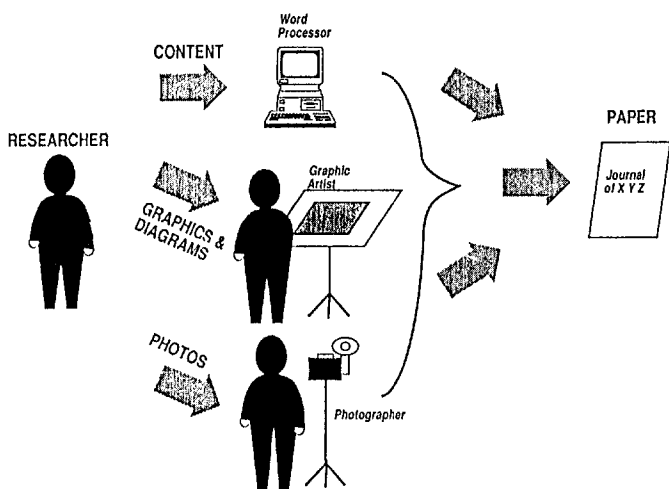


Fig.1 RESEARCH PAPER MODEL

even Scientific American. As the research video augments and sometimes replaces the paper, the look of things suddenly becomes much more important since the researcher himself/herself becomes the medium by which the content is communicated.

The researcher can choose to treat videotaping as simply another "process" to activate — that is, the researcher presents the material to the camera in a straightforward way, relying on the camera to capture this stream of

presentation as if it were a visitor getting a personal demonstration (see Fig. 2). But, what if time-constrained conferences and an increasingly video-literate audience demand more clarity, brevity and impact? Enter the video department, claiming expertise and experience in making clear, short, powerful videotapes. The researcher is suddenly in the position of being dependent on a video producer to determine the proper look and presentation of his material. Thus, the video professional takes on the role of a major collaborator in the researcher's output (Fig.3).

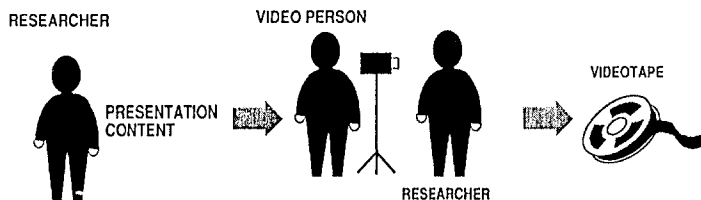


Fig.2 VIDEO PERSON AS "PICTURE PROCESSOR"

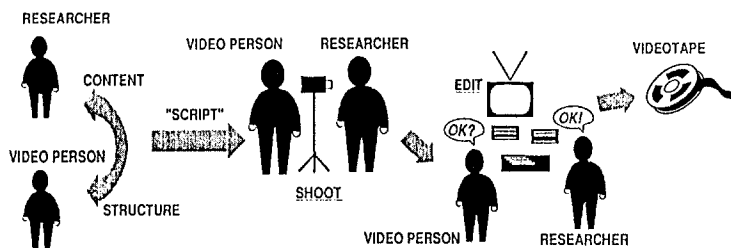


Fig.3 RESEARCHER AND VIDEO PERSON AS "CO-PRODUCERS"

From our experience, this leads to an important observation on the video producer's contribution to video presentation of research: it helps greatly if the video producer is acquainted with the technical subject matter being presented. We've found that a typical demonstration videotape process involves the video producer first digesting the technical details of the presentation and then framing the editorial content to make it logical and understandable to the prospective audience. During the production, the producer must constantly monitor the shooting and stop to check for logic and consistency whenever there is a question. In this way, the producer is the first test audience — and often the last — to give feedback on the style and substance of the material before the primary presentation. It is not always possible for the producer to know the technical subject matter and the researcher should always overrule on content issues, but the producer must always ask the questions when something is not clear to him or her.

Image and sound quality are the responsibility of the video crew, but if the researcher observes a few simple guidelines, the crew won't have to fight so hard to achieve it. Although there are standard video production techniques, every field situation presents a custom set of problems to be solved by the video team as they strive to get the best image and the best sound to serve the content, within the confines of time and budget. In general, in order to serve the content the picture and sound must be smooth and the least distracting possible. Some of the elements needed for this are:

- **Audio:** Choose as quiet a location as possible, far from processors with disk drives and fans, air conditioners, wind, talking and laughing, telephones. Place microphones close to the sound source — a lavalier microphone pinned close to the collarbone in the middle of the body is a good location for speech. Dressing the microphone cable behind a tie or collar is a small detail, but it removes an otherwise distracting visual element. Avoid using the on-camera microphone if at all possible, since this will place the pickup element far from the voice source. Too often very little attention is paid to getting good audio, but it can be more important than the visual part of the tape.

- **Lighting:** To save time, video is often shot with overhead fluorescent office lighting even though it is cold, greenish, and sometimes casts eye socket shadows. However, the diffuse quality of ceiling lighting is preferable to harsh spotlight lighting done improperly. In general, soft lighting above and at a 45 degree angle to the face is pleasing and functional. The addition of hair lights for separation of the talent from the background is a commonly used technique. Lighting is a delicate art and takes time to get right, so be indulgent of some of the delays due to lighting. For example, while seemingly time-consuming fiddling is going on, a lighting director is trying hard to avoid high contrast ratios, harsh shadows, reflections from jewelry, reflections from CRT displays, reflections from eyeglasses, distracting color combinations, extraneous shadows, flare, color temperature clashes, hard lighting that accentuates wrinkles, sunlight flares — all the time trying to make the image beautiful while working in a cramped office, trying not to step on piles of papers or blow fuses with computers plugged into them. Like writing or optimizing computer code, however, getting the perfect lighting can take forever. An informed client can help reach a quick decision on how much to compromise the image quality for the sake of time.

- **Camera angle:** As a rule of thumb, the lens of the camera should be at the same height as the head of the person speaking. The person should be talking straight into the lens or, if talking to a person off camera, as close to the lens as is natural. It is distracting to show talking heads pointed far off axis (almost profile) to the camera.

- **Clothing:** The most distracting clothing combinations to videotape are pure white clothing, pure black clothing, and close striped patterns such as herringbone or seersucker. These will cause the video camera to overlighten or overdarken to compensate for the clothing, or will cause false colors

(cross-color) and moiré patterns to be produced by the video system.

There are many other video issues to deal with, but just how much video detail should the researcher be compelled to know? In our experience, part of the video producer's duty is to shield the researcher from exposure to too much detail. For example, when something malfunctions on the set, instead of saying "I'm sorry to inform you that we're getting SC/H phase error and code bleed and chroma clip and things are just all ugly and awful," we simply say "We need about 5 minutes" and everyone is much happier.

This is not to say that the researcher should be totally uninvolved. As co-producer and probable presenter, the researcher's knowledge of content and of video technique should overlap with the producer's abilities and understanding, since they must share the myriad of production tasks (see Fig. 4). To help ease the burden of making a videotape, here are some suggested guidelines for the researcher:

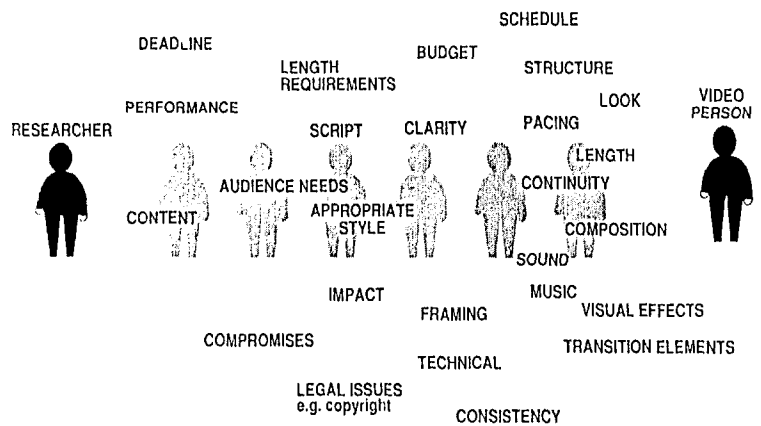


Fig.4 DISTRIBUTION OF VIDEOTAPE TASKS

- **Prepare a script.** A script implies that the researcher has actually given some thought to the content and is not merely planning to be taped over the shoulder while winging a standard demo. A script is a lot of work — possibly more work than writing a paper — but it's very important. A producer cannot make a script for you, but he may try to force you at gunpoint to write one. The producer/director uses the script as a backbone with which to plan shots and timing and effects and, most importantly, uses it to make a budget estimate. Also note that, in the same way a movie can only capture a fraction of a novel, a research video cannot possibly

cover a subject with the same depth as a complex research paper. It is best to focus on a few major visual points.

- Be aware of costs. Video production can be very expensive and a knowledge of costly actions vs. cheaper actions will help you in planning. A rule of thumb in the industry for high-end video production is \$1500 per minute of finished show. Adding special effects can easily double this cost, and adding computer graphics might quadruple it. Of course, the average research video might not cost nearly that much, but the same factors contribute to the expense: labor, tape, and equipment rental costs. Actual costs depend heavily on the existing video infrastructure of a research facility and how charges are handled as well as the complexity of the project. If you were to contract out to an external production company, here is a very, very general idea of what you might expect to pay: one 10-hour day of simple production including a small crew and equipment rental can cost between \$1000 and \$5000; each hour of editing can cost \$100 to \$500; and each finished minute of show can require one hour of editing.

- Be aware of time. Video production and post-production are very time consuming and avoiding unrealistic deadlines is desirable. Video production is fraught with enough all night overtime sessions as it is. This is where a script can help an experienced director find where extra time and extra costs (e.g. the helicopter zoom through the front door into the computer screen) might crop up. For example, moving to unnecessary locations takes time and hence money. Unrehearsed speeches take production time to iron out or take lots of editing time to fix mistakes. Crashing software takes time, but the nature of research software sometimes demands that you plan for this (software crashes so often during demos that videotaping should be a required step in the debugging process). Most often, making decisions and changes on the set will waste time and money when the time could have been spent before the crew and equipment were on the clock. All these things will happen, but if you plan ahead they won't happen during *your* production.

Not long ago, few besides typographers and professional printers were concerned with font types, line leading, kerning and other typesetting issues. Today these terms are widely known and are used by even the most casual word processor users. As video becomes ubiquitous in research, the video production concepts I've mentioned will continue to expand the working vocabulary of the researchers' communications world.

#### VIDEO INFRASTRUCTURE

So far, I've proposed that an ideal research video department should have a wide range of production expertise and some technical inclination. What else does it take to have a really good video facility in a

research center? A list of ingredients might include the following:

- A staff of competent, experienced, flexible, good human beings. We've mentioned something about technical competence above, but it is equally important to be flexible and responsive to the video needs of the community. Flexible enough to break rules taught in video school for the sake of an experiment. Responsive enough to encourage the researchers to use the facility again. Waiting a day for a tape copy is acceptable; waiting a week is discouraging; an hour turnaround, on the other hand, inspires repeat use. The ability to respond quickly to requests implies sufficient staff to enable them to continue to be pleasant human beings and not grumpy overworked ones.
- Hardware that allows good image preservation. Nothing is more discouraging than to work hard getting a good image and have it degrade to noise in the editing and duplication process. There must be a good camera, some good lighting equipment, a good field VTR, good microphones, a good computerized editing system with a good switcher and good image processing equipment, and a good duplication system. In addition to that, there should be good playback equipment accessible to everyone at anytime. Finally, there should be enough videotape so that there is never a worry of running out or taping over last week's projects.
- A well documented video library/archive. Having a video archive involves keeping and logging not only edited masters but also original tapes. In a short time, this becomes a major space commitment.
- A supportive management. As mentioned before, video is very expensive and only by taking the long view of benefits derived from good video (public relations, saving researcher demo time, enhanced presentation ability, etc.) will there be ongoing support.
- Graphics and photography department. Graphics, stills, and animation form an integral part of our video repertoire.
- A well-informed community of video users in a facility that naturally integrates video into everyday life.

#### CONCLUSION

Video in a research environment can be exceptionally productive when there is adequate communication between the researcher and the video professional plus adequate knowledge of each other's field. Unlike a lot of traditional video studio and post-production facilities, a research video staff needs to have sufficient technical breadth to handle many different jobs in the video production process without extensive engineering support. They need to respond to booking on very short

notice and they need to be willing to take over all the details of production when necessary. Researchers need to learn to utilize the video resource effectively by observing a few simple guidelines and using good judgment. Video deadlines usually mean airplane

reservations to conferences and these, like TV air deadlines, never slip. The "hassle factor" for using video needs to be very low, or else researchers will simply not use video. Management support is critical. Integration of video into everyday work life is the goal.

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