

Video Ventures in Multimedia: The Making of an Accountability Database

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Oregon Invests! is a communications tool used by administrators in Oregon State University's College of Agricultural Sciences. It incorporates text, graphics, audio, and video into an interactive computer database that portrays the economic, social, and environmental consequences of more than 300 Oregon Agricultural Experiment Station research projects.

Refinement of this database is ongoing. Its written reports and video clips are updated regularly. They are fully reviewed every two years. The computer interface is modified as new needs arise, and we continually monitor target audience feedback to determine which content and format delivers the most effective results.

This article focuses on the audio and video elements of *Oregon Invests!*, documenting the planning, acquisition, digitization, editing, and integration of QuickTime™ video clips into the database. It should be helpful to videographers and anyone else who is learning to incorporate audio and video into their multimedia projects.

Project Background

Higher education has taken a severe beating in Oregon. Educational programs have been eliminated, tuition has risen dramatically, and faculty and staff have had to fight to maintain current wages.

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A property tax limitation, approved by voters in 1990, is doing most of the damage. Between 1993 and 1995, Oregon's support for higher education dropped 10 percent. No other state in the nation sliced more from its higher education budget during that period. As we look to the future, most states are planning to increase their investments in higher education. Oregon is again facing about a 10 percent cut between 1995 and 1997. The situation is forcing all branches of higher education to prove their worth to state legislators and taxpayers.

Oregon's Agricultural Experiment Station director understood the need for accountability when he arrived at Oregon State University in 1987. He and other administrators sensed that many people wanted to know more about Experiment Station research and the ties it had to local economies, social issues, and the environment. Within a year, several OSU economists and a communications specialist began developing a communications tool that would eventually be known as *Oregon Invests!* This interactive computer database was created with Claris'® Filemaker Pro™. It is a flat-file database known for its user-friendly environment and versatile formatting capabilities.

Oregon Invests! I, released in early 1992, contained text and graphics for about 90 research projects. When *Oregon Invests! II* was released later that year, the database had grown to nearly 300 projects. I was asked to join the production team in 1993. That year, we enhanced the *Oregon Invests! II* database with about 50 video clips and natural sound. *Oregon Invests! III*, released in 1994, removed all the original video clips and replaced them with sound bites and related cover video for about 75 projects. By this time, the database had grown to more than 300 projects. We are now planning *Oregon Invests! IV*, which will incorporate further changes to meet the needs of our target audiences.

Project Planning

As the audio and video elements of *Oregon Invests!* began to blossom, project planning became one of the most critical factors to its success. My first assignment, back in 1993, was to enhance the database with videos that would "bring the reports to life." I obtained a copy of the database, went to our file video, and selected scenes that seemed to relate to re-

search projects in the database. We marveled at our ability to put moving pictures and natural sound onto a computer screen, but soon realized file video was not adequate. It lacked the impact of interviews and demonstrations that were directly related to the research projects.

In 1994, our planning effort was much more calculated. The Experiment Station director encouraged all researchers to update current research reports, submit new ones, and to expect a videographer nosing around in the coming months.

I set out to schedule my visits, but quickly learned that the task would be much more complicated than a typical video production. In most cases, I had to arrange a different interview and location for each video clip. This was quite an undertaking, as my 1994 production schedule included nearly 100 video clips. I attempted to set appointments with individual scientists, hoping to capture their projects at "peak visual times." After making a few 100-mile trips and returning with nothing more than a 20-second video clip, it became apparent I would have to revise my strategy.

My solution was to ask Experiment Station superintendents and campus-based department heads to help me with the scheduling. We settled on days that worked best for a majority of their researchers, then I designed travel plans that would keep costs to a minimum. The process was similar to working on a jigsaw puzzle, since the Experiment Station has researchers at about a dozen sites across the state, and just as many departments on campus. Some of the facilities are located as far as 450 miles apart.

This method of scheduling worked well under the revised system, but was not without challenges. Some of my contacts—unaccustomed to thinking visually—had trouble selecting projects with visual potential. Others forgot our appointment, intentionally avoided the video shoot, or were not prepared to discuss or demonstrate their projects. This was frustrating, as in some cases, I had driven hundreds of miles to meet them.

The final stage of planning involved a thorough review of selected research reports. I needed this background to conduct informed interviews for each research project.

Video Acquisition

Acquiring video for *Oregon Invests!* was much easier than the project planning. As a videographer, I am more comfortable dealing with the creative side of projects, as opposed to logistical details. I dedicated about five weeks to shooting video for *Oregon Invests!* between June and October. Most projects required a five- to 10-minute interview with a researcher, research assistant, or a student, and about a half hour to shoot the necessary cover video or demonstration. Setting up and breaking down my video gear required about 15 minutes at each location. Travel time between locations ranged from five minutes to more than three hours. I shot video for about 100 projects, but selected only 75 that were suitable for the database. About two dozen interviews were unusable due to an audio problem.

We must compress our *Oregon Invests!* video clips because of computer storage limitations. This can degrade image quality. I will discuss video compression later in the paper, but this is an appropriate time to mention that videographers need to think carefully as they shoot scenes for QuickTime™ movies. Large, easily identifiable objects, contrasting colors, and limited subject matter movement generally provide the best images. Small objects and details within a scene are often lost, or severely degraded, when compressed and decompressed for computer playback. In addition, rapid pans, zooms, and subject matter movement can accentuate the imperfections of compressed video.

When an editor creates movies using QuickTime™, the program saves video information from a specified number of key frames per second (the editor decides how many key frames to save per second) and drops a good deal of the information that exists between key frames. This compression scheme and your computer's data processing rate can affect the smoothness of a movie's playback. Imagine taking ten photographs of a pole vaulter attempting to clear the crossbar. You would capture much of what occurred, but miss some movements in between each photograph. The same thing can happen when creating compressed movies in QuickTime™. The movie may not play smoothly if too much information is missing between key frames.

I have also found it is important to shoot "talking heads" with a wide or medium shot. Most people's lips move very

quickly when they talk. As I have mentioned, compressed video saves only specified key frames and cannot provide true lip sync. Close-ups can accentuate this imperfection.

Digitization and Editing

After reviewing more than six hours of interviews and another 12 hours of cover video, I selected a single, 15- to 20-second sound bite for each project. I used Data Translation's® Media 100™ editing system to digitize selected sound bites and cover video.

If the researcher demonstrated a specific technique, I generally let the clip roll without using additional cover video. In all other cases, I kept the researcher's "talking head" on screen for about five seconds, then cut to more interesting cover video. To date, I have used "cuts only" editing. Dissolves and other transitions can quickly increase the size of your QuickTime™ movies.

Converting to QuickTime™

As I mentioned earlier, computer storage limitations forced us to compress our video clips. I found myself experimenting with QuickTime™, trying to strike a balance between acceptable image quality and file size. My decision was to record the movies with average picture quality (60 on a scale of 0 to 100), 30 frames per second, and a key frame every 10 frames. These preferences may not work for everyone, but they seemed to provide the best image quality possible, with a file size of 5 or 6 Mb.

Under ideal circumstances, I would have created my QuickTime™ movies on the Media 100™ and exported them over the campus network to the *Oregon Invests!* coordinator. Unfortunately, we did not have a network connection for our editing system. I had to figure out another way to deliver the product.

Our compressed movies were too big for a floppy disk and we did not have a portable hard drive available that could store more than five or six movies at a time. My solution was to transfer each of the digitized, edited movies to VHS videotape. Next, I took that tape to a multimedia lab on campus that is equipped with a VHS videotape player, a Macintosh® Quadra™ computer, QuickTime™ software, and a SyQuest™ drive. I used

this equipment to "redigitize" my QuickTime™ movies, then transferred the clips to a series of SyQuest™ cartridges. The *Oregon Invests!* coordinator has a SyQuest™ drive and was able to transfer these movies from the SyQuest™ cartridges into the *Oregon Invests!* database.

This whole process should become easier in the future, as we connect our Media 100™ editing system to the campus network. I plan to create and store the QuickTime™ movies on our editing system, and then export these files over the campus network to the *Oregon Invests!* project coordinator.

Discussion

As a videographer, I have concerns about several aspects of multimedia. Compressed video movies do not meet my professional standards. The images often lack detail, while camera and subject matter movements are generally less than smooth. This can be attributed to the reduced amount of video information stored in a compressed movie and the computer's data processing rate. Some QuickTime™ movies experience glitches as the computer processes audio and video information. These movies may pause for up to a half-second before normal playback continues and may cause viewers to miss some of the narration. As a viewer, I often lose track of the movie's message as I try to figure out what I missed.

Another area of concern is the perceptions that a videographer's clients or supervisor may hold relating to QuickTime™ movie production. It is important that clients and supervisors understand the complexities of a project like *Oregon Invests!* With nearly 75 video clips in *Oregon Invests! III*, I produced about 25 minutes of material. Multiple locations, travel time, and a steep learning curve with our new digital editing system required me to dedicate nearly three times the amount of effort and resources that would have gone into a typical 25-minute production.

I have also found that people sometimes overlook the content and technical quality of QuickTime™ movies because they are so impressed with the technology. Even I was amazed the first time I watched a herd of cattle grazing and "mooing" on a computer screen. Still, it did not take long to figure out that sound bites about specific projects were much more effective than generic video and natural sound.

As videographers, we need to remind ourselves and others that multimedia is only a tool for disseminating messages. There is still a real need to deliver clear, understandable messages. If the audio and video are distracting, or the message lacks substance, our educational materials may not be effective. We cannot become lackadaisical about content and should continue to pursue the highest quality hardware and software available.

On the positive side, I see great potential in multimedia. It opens up a variety of educational possibilities designed for our varied learning styles. Some of us learn best through active participation, while others prefer to observe and absorb. Multimedia programs can cater to each of these learning styles using text, graphics, photographs, audio, and video. I am convinced that time will cure the imperfections of this technology and provide videographers with many new and exciting opportunities.

Recommendations

Oregon Invests! opened my eyes to the world of multimedia. It demonstrated the potential of audio and video in multimedia projects, but also helped me to appreciate the complexities of these endeavors. Successful multimedia projects incorporate text, audio and visual images. They may include project coordinators, educational designers, computer programmers, writers, graphic artists, photographers, videographers, or people who possess a variety of these talents. Most important, multimedia projects require extensive planning, production, and teamwork.

Videographers need to understand the importance of planning in multimedia productions. If you want to produce an accountability database similar to *Oregon Invests!*, plan on scheduling and rescheduling a greater number of shooting locations and interviews than are required in most single-subject videos. Anticipate your responsibilities as part of a multimedia team, along with the deadlines and working relationships that evolve from your project.

From the production standpoint, multimedia projects utilize many of the same techniques that videographers have used for years. Shooting and editing are much the same, as long as you understand the nature of compressed video and the way it

displays visual images. Videographers need to concentrate on scenes with large, easily identifiable objects, contrasting colors, and limited subject matter movement. They should avoid rapid pans and zooms.

In determining video clip content for a multimedia project, it is important to use material that is specific to the subject. When I first joined the *Oregon Invests!* team, our goal was to incorporate file video and natural sound that would complement the written research reports. We learned later, through participant feedback, that project-specific video and sound bites were much more effective in delivering the message to target audiences.

My final recommendation regarding accountability databases, such as *Oregon Invests!*, is to understand that not everyone will share your enthusiasm or dedication to the project. University faculty are sometimes frustrated with the number of reports they complete each year. Many are filed away and never reviewed again. For this reason, videographers may find that certain faculty members resist participation in accountability projects. This was the situation with *Oregon Invests!*

In the beginning, it was difficult to convince many researchers that they should respond to an *Oregon Invests!* questionnaire. It was an even greater challenge to convince these faculty that they should explain their research in front of a large video camera. Administrators in the College of Agricultural Sciences attempted to correct the situation by demonstrating and explaining the database to Experiment Station superintendents and campus-based department heads. Over time, the demonstrations expanded to departmental meetings and other opportunities when faculty could see the benefits of participating in this project. Today, Oregon State University researchers often approach the project coordinator, asking how they can be a part of *Oregon Invests!*