The Virtual Cutting Room

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When I show students a picture of the first film editing tool I used, they laugh, and I expect them to. The upright Moviola I learned on in the mid-nineteen-seventies looks like a cross between a Model A Ford and a Singer sewing machine. It actually featured a clutch and a brake. A quick side trip to Wikipedia tells me the Moviola was developed in 1924 out of a failed effort to make a home movie viewing apparatus—and it looks like it.

Today I edit on a laptop computer. It is quick. Unlike the Moviola or its replacement, the Steenbeck, it offers me a hundred sound tracks and a similar number of picture tracks. I can also add titles, do complex sound mixes, and create multilayered animated or montaged sequences, all things that used to demand a complex supporting industry behind the editor. Significantly, I can also, with a famous "push of a button," publish my creation to the world. I can train someone else to use a system like this fairly competently in a marathon weekend and have been doing so more or less since the first broadly available professional system, the AVID, came out in the early nineties.

When I first started teaching media production, it was as a member of the *Paper Tiger TV Collective*. We had an 80s agenda of putting the tools of media production in the hands of the audience. Our ideology was neatly expressed in a bumper stick we sold to make money.[1]

Don't Just Watch TV, Make It!

Our DIY approach was based on a radical notion that the production of culture, especially visual culture, was in the hands of large corporations who used the mass media to create their own agendas, namely to sell products, including war, using dubious methods, and that the only way to recapture democracy was to offer an alternative system for creating and distributing cultural information.

Significantly, this strategy included not only access to the means of producing visual media—cameras had been in the hands of artists since the sixties—but the platform for distribution, in our case the thousands of public access stations that sprang up in the wake of cable television in the U.S. A valuable lesson was to see media not in terms of objects or products but in terms of cultural-technological systems.

The Paper Tiger group owned a camera only sporadically. Our main tool was a video editing system, a large, clunky system with several decks and a controller. It was the editing that gave us a way of creating works that could "occupy the space of television" in a subversive, creative and exciting way. The homemade aesthetic garnered both praise and contempt then and now, but the message got through.

I first taught non-linear editing in the context of community media centers such as Manhattan's Downtown Community TV, where free classes supported a democratization of access during a period when the tools still had a high price tag.[2] Today I teach in a large public university. My students are almost all born after the advent of the digital media era. Their motivation for studying media production is various, but notions of self-expression, and ideas about jobs and careers in the media loom large. For my students, who can take a picture with a cell phone and send it from one side of the lecture hall to another without me being aware of it, it is this very ease that is in a way the biggest problem.

For me the first corrective is historical. A bit of the history of any software (and the predecessor methods it replaces) allows students to develop a sense of the factors that have gone into the design, both in terms of what problems it was designed to solve, and also, on whose behalf. The other thing this does is help situate the student as a cultural producer in a historical context.

Part of this is the mandate of a liberal arts university (which extends beyond technical training or the art school sandbox). The other is to try to get students to see the difference between knowing the software and actually knowing the skills. This difference is mystified by context; editing is presented as learning editing software, and by an industry that gives out, for instance, proficiency certificates for software.

A larger and more complex problem, one with philosophical implications for teaching and learning any software, is that the skill set of the software encourages certain kinds of thinking about the creation of media. This is the problem of any language: How can you say something in that language when there is no word for it? While the capabilities of software are amazing, they are still framed within its own world view, which has to have limits (defined by industry, needs of artists, platform capacities, etc.).

Finally, one cannot help but feel that the fact that most media production tools come from a handful of very large corporations is a concern. While the open-source movement has made strides, it cannot offer alternatives to most media software.

For now, all I can do is try to give students as nuanced a view as I can of the role of technology in society and encourage them to think of tools as things made by human beings. I try to incorporate reading from the history of science and history of technology, noting that this is particularly key for communication technologies that intersect with the self. But the best route that I've found is not in philosophical discussions, but through my own experience. I started with 16mm film, moved to reel-to-reel half inch video with a grease pencil, etc. I also share my early computer experiences with the Control Data 3600 machine ensconced in the basement of the math department at Berkeley where I first learned Fortran. I tell them about the punch cards we laboriously created for each line of code. I even, at the risk of some eye rolling, tell them about midnight trips to the math building to access the key punch machines, the modern equivalent of telling your grandchildren you walked five miles through the woods to get to school.

I also ask students, and mine often see themselves as creative types for whom math and technology are anathema, to think about what is under the hood: the nuts and bolts of binary numbers, sampling and color spaces. I ask them to contemplate the history of technology as a set of complex social interactions that are historically determined.

Over the last several years, I have worked with colleagues to conceptually redesign our courses for all incoming media students. No longer will film, video and emerging media be taught in separate silos. The vaunted convergence, one that we live with continually, needs its place in the classroom. With a small grant and a lot of work, we ended up with a new course. The biggest drawback is that it is a large lecture course. A raked auditorium, a projector and a PC make up the learning environment, one that is better designed for classic pedagogical models, where information is poured into empty, pitcher-type brains, than any modern idea about interactivity.

About five years ago, one of my favorite teaching tools was one that allowed for open, fast paced, and highly interactive discussions in easily designed fields using diagrams, text, numbers and pictures, very high speed. The tool I used was the chalkboard. It was then replaced by the whiteboard (where the hell are the markers!) and now by a computer and projector. Frankly, most digital tools are clunky in comparison. Some of them are actually pernicious. Edward Tufte's analysis of PowerPoint (there's no bullet list like Stalin's bullet list!) as based on an intensely hierarchical model of information delivery is relevant here. I think a genuinely interactive learning environment is still a thing of the future.

Any such utopian classroom cannot be based on naïve assumptions about the joys of communication with others. When the Internet first became a useable tool, I worked on several projects where grant money was available to link groups of students in different locations for discussions, for media production, or whatever. My end take is that these collaborations were difficult to maintain and not too helpful. The model for teaching technology that I have found the most useful is the Freire-based approach of the Educational Video Center[3] where New York high school students learn media production as a tool to help them engage with and critique the world around them. Power relations become apparent. The dimensions of the heavily mystified nature of working-class life in America emerges. Editing is a collaborative discussion/argument about the creation of meaning.

I teach both emerging media and video classes. The first time I taught an advanced web design class, I was nervous. I went to ask a colleague. "Don't worry, of course they'll know more than you will." In fact, promoting a culture of knowledge sharing was seen as central and natural. As the teacher, I quickly got over the ego problem of no longer being the fountain of all knowledge. Students pull stuff off line, copy code, ask each other how they did something, share tricks and problem solve. That type of approach is one I would like to foster more in other courses, where the craft tradition and hierarchies from the media industry tend to define teaching.

A Short History of Digital Editing

I remember, when I was just out of film school, sitting in a kitchen on the Lower East Side and being introduced to a young French engineer who was going out to California to work with George Lucas to develop some of the first digital sound-editing technology. That must have been the late 70s, but in my own experience it was not until AVID's non-linear editing systems started to emerge in the early 90s that filmmakers really made the switch to computer-based editing software. The AVID was an expensive system, with a lot of hardware for actually converting the analog media to a proprietary digital file format. Its interface created the form that virtually all systems use today: multiple windows for source material, viewing and a timeline for the edited sequences.

AVID was a real breakthrough. I remember getting a tour at a time just before computers became capable of encoding media digitally, of a system called "The Montage." It attempted to give editors the random access that video's linear tape form was incapable of. The unit took up most of a large room and had a wall covered about two dozen VHS decks loaded with duplicates of the same media shuttling back and forth. The idea was that when you wanted a shot, one of the decks would have the footage in position to edit quickly!

Another platform that brought media into the computer era was the Amiga Video Toaster, which could generate titles and effects for video live, effectively becoming a computer-based video switcher.

AVID always had challengers. Media 100, which came out in 1993, was a simple, cheap, easy to use and very high-quality system, and Adobe Premiere tended to find favor among new media developers for video content for CD-ROMs for instance.

While AVID still dominates the high end of the market, Apple's Final Cut Pro, a less expensive product, has taken over the mass market. Initially, AVID was based on a Mac platform, more congenial to any kind of graphics or media work. As the PC started to catch up in the mid-nineties, AVID switched

to Windows environment. Folklore has it that this is what prompted Steve Jobs to hook up with a group of ex-Macromedia designers to develop what became Final Cut Pro, a program that sold initially for a few hundred dollars compared with AVID's many thousands.

Today these two dominate the market, with Adobe Premiere playing a distant third. They all feature virtually identical front ends. This is in itself a kind of tragedy.

Alternatives? Why lament EMC2, the first non-linear editing software, one that, much more than any of the current products, took the idea of non-linearity to heart in a post-modern way? In fact, there are capabilities in the software that are only just being explored. The key to Final Cut Pro's success is that it operates as a shell around Apple's QuickTime media file system. This gives it a lot of flexibility. Final Cut Pro's ability to interact with XML, and QuickTime's ability to encode metadata make for interesting possibilities, such as collaborative editing, or even user-generated movies.

The Pros and Cons of Editing in the Digital Age

Easily the worst thing about media production software, particularly editing software, is that when someone learns it, they think they therefore know how to edit, how to tell stories with audiovisual material. Even more irksome is that then they get hired at a third of my salary as editors! As someone who learned editing as a craft with a long apprenticeship, one that I would be hard-pressed to make a living at now, I find this a bit distressing. It is typical. In fact, I have heard colleagues many years younger than me lamenting their lack of marketability because of a dated knowledge of media software.

The other thing is that the software is designed for and surrounded by the ideology of the creation of a seamless professional product. That seamlessness, at least from my cranky point of view, hides the ideological underpinnings of a system that needs constant examination by the media, not buttressing. Of course, one can create other kinds of media with these tools, and people do every day, but it is a danger.

In fact, on a simple level, editing and other media production tools are the products of large quasi-monopoly players. I try to make students aware these are proprietary tools. I talk about the open-source movement, although open-source graphics tools are very scarce. For video editing, they are mainly Linux-based.

On the positive side, non-linear editing tools are pretty easy to learn. For most people, the process is intuitive. On the media literacy side, learning editing teaches important lessons about the construction of media reality in a post-Matrix world.

In addition, there is a large idea about the emergence of sampling and "Remix Culture" and the interchangeability of media products under a digital regime that emerges from using editing software, software that allows one to mix and match pretty any type of digital media. Still images, mp3 audio, animation, archival material, family photos: all are grist for the editor's mill. The idea of standing on the shoulders of others emerges; editing demystifies the great man idea, and proprietary notions of cultural production.

The spread of video editing tools and education read does mean that individuals can learn to create media that competes with the products of the culture industry. This puts the camera on a par with the pen in a certain respect, a plus for democracy.

The editor's craft, although more or less unsung, is a wonderful education for the unsentimental eye, an education in seeing what is there.

Best Practice

My most successful approach to editing is usually an exercise using documentary footage, material that I edited myself. Much more than narrative documentary is made in the editing room. Space is defined, story is discovered, the viewer's interest engaged. The story I have used for years is based on an African cabbie who returns to his homeland. The two or three scenes that students can cut in a short time include drama, music, color and a lot of action. The ability for the students to wrestle with the raw material and come back with a story that takes viewers to a specific place is a compelling process that they remember. In addition, while there is a possible charge of exoticism, the material I use came from a film whose goal was to give viewers insight into the plight of ecological refugees from the Sahel, surely preferable to patriarchal promotional material: the famous Gunsmoke episode that a consultation with YouTube will confirm is still, fifty years later, the favored material for many editing courses.[4]

In fact, culturally-bound definitions of narrativity are always a ponder. I have taught non-linear video editing in Siberia to the presumed cultural heirs of

Sergei Eisenstein, and in Africa to Africans with a very different history of representation. The trick, whether in the US or in Africa, is how to use the tools we have to produce new meanings, rather than reducing new worlds to the trite banality of mass media's interpretations.

No software can do that alone. What is needed is a comprehensive framework for teaching, one that is neither technologically deterministic, nor technophobic, one that links ideas about literacy and critical thinking with ideas about cultural production and the role of technology.

[1] The page ‹http://papertiger.org/history includes a downloadable bibliography›.

[2] Downtown Community TV Center was founded in Lower Manhattan in 1972 by Jon Alpert and Keiko Tsuno. See ‹http://www.dctvny.org/›.

[3] Steven Goodman's *Teaching Youth Media: A Critical Guide to Literacy, Video Production & Social Change* gives a good overview of the EVC pedagogical approach. See also ‹http://www.evc.org/›.

[4] Various versions of this material can be found with a Youtube search for "Gunsmoke Edit," "Gunsmoke editing exercise," etc.

Works Cited

Goodman, Steven. *Teaching Youth Media: A Critical Guide to Literacy, Video Production & Social Change.* New York: Teachers College Press, 2003.

Tufte, Edward R. *The Cognitive Style of Powerpoint.* Cheshire, CT: Graphics Press, 2003.