VIDEO CARTRIDGE/CASSETTE SYSTEMS—COMPARATIVE TABLE (U.S.)®

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COMPANY/ADDRESS	NAME OF SYSTEM	INITIAL MARKET	INTRODUCTION DATE	MEDIUM	CARTRIDGE	EQUIPMENT COST	MATERIAL COST/HR.	RECORD CAPABILITY	PLAYBACK	RESOLUTION BANDWIDTH	AUDIO	COMPATIBILITY	AFFILIATIONS
FILM SYSTEMS													
CBS Inc. EVR Division 51 West 52nd St. New York, N.Y.	EVR (Electronic Video Recording)	Industrial-institutional / Home	Nov. 1970 / Mid 1972	Encoded photographic system; 8.25 mm silver halide film, 3 mil thick; speed: 6 ips (60 frames/sec); program is electronically encoded on film; color occupies 2 tracks, mono 1 track; diazo-type film under development	Single reel; 7" dia., 0.5" thick; color plays 25 min., mono plays 50 min.; diazo film will give longer playing times	Industrial version $800; home version $400	Color $38, mono $23 (incl. processing, lots of 2000); pre-recorded color cassette $30/half hr., mono $14.40/half hr.	No	Flying-spot scanner	Color 300 lines mono 500 lines 4 MHz	Magnetic; mono 2 tracks	None	Motorola (U.S.) Rank (U.K.) Bosch (Germany)
RCA Corp. 30 Rockefeller Plaza New York, N.Y.	SelectaVision	Home	Late 1972	Encoded laser/holographic system; 0.5" wide embossed vinyl strip, 2 mil thick; speed: 7.5 ips, produced by heat pressing method	Plays 30 min.	$400	Color $4-$6 (incl. duplication); pre-recorded color cassette $10/half hr.	No	Laser-vidicon	300 lines	Embossed	None	
Abto Inc. (ABC/Technical Operations) 1926 Broadway New York, N.Y.	ABTO	Broadcast	Now being marketed	Optically-encoded color system; standard Super-8 mono film; speed: 3 ips; can also playback color film on player			$12	No	Flying-spot scanner		Magnetic	Optical film systems	
Sylvania Electric (General Telephone & Electronics) 730 Third Ave. New York, N.Y.	Scanner Film Theater	Home		Super-8 color film; speed: 3 ips	Plays 30 min.	(Built into color TV receiver)	Film $64, processing $45	No	Flying-spot scanner			Optical film systems	
Norddeutsche Mendle 2B Bremen-Hemelingen West Germany		Home	1972	Super-8 color film; speed: 3 ips	Plays 30 min.	$560	Film $64, processing $45	No	Flying-spot scanner	250 lines; 3 MHz	Magnetic	Optical film systems	
Vidicord Holdings Ltd. 3 Wigmore St. London, England	Vidicord	Industrial-institutional		Super-8 mono film; color version planned; speed: 3 ips	Super-8 reel or cartridge			No	Vidicon		Magnetic	Optical film systems	
MAGNETIC TAPE SYSTEMS													
Cartridge Television, Inc. 1115 Broadway New York, N.Y.	Cartrivision	Home	Mid 1971	Magnetic tape; 0.5" iron oxide; speed: 3.8 ips	2-reel; 7"x6.6"x1.5" (210 min.); 5"x6.6"x1.5" (30 min.)	$800-900 (incl. color TV receiver); $400-500 player only; $200 camera-cassette	$12.50/hr. for 120 min.; $17/hr. for 30 min.; $32 for color half hr. prerecorded	Yes (records every 3rd field)	3 magnetic heads	225 lines color; 3 MHz	Magnetic	None	Admiral Corp.
Ampex Corp. 401 Broadway Redwood City, Calif.	Instavision	Industrial-institutional / Home	Mid 1971 / Mid 1972	Magnetic tape; 0.5" iron oxide; speed 7.5 ips (30 min) or 3.75 ips (60 min)	Single reel; 4.6" dia., 0.7" thick; 30 min (7.5 ips), 60 min (3.75 ips)	$800 mono playback; add $100 for mono record or color playback; $200 for color record; $350 for camera.	$26 if 7.5 ips, $13 if 3.75 ips; prerecorded color cassette per half hr. $20	Yes	2 magnetic heads	300 lines mono 240 lines color	Magnetic 2 tracks	Japan Type 1 mono VTR' (reel-to-reel)	Toamco-Toshiba (Japan)
Sony Corp. (Japan) Sony Corp. of America 47-56 32nd Place Long Island City, N.Y.	Videocassette	Industrial-institutional / Home	1971 / 1972	Magnetic tape; 0.75" iron oxide (also chromium dioxide); speed: 3.15 ips	2-reel; 8"x5" (90 min)	$400 playback; $100-$150 recording adapter with built-in tuner	$12.50; prerecorded color cassette per half hour: $20	Yes	2 magnetic heads	3.3 MHz mono; 250 lines color	Magnetic; 2 tracks	None	
Philips Gloeilampen-fabrieken (Netherlands) North American Philips 100 East 42nd Street New York, N.Y.	VCR (Video Cassette Recorder)	Home	Late 1971	Magnetic tape; 0.5" chromium dioxide; speed: 5.6 ips	2-reel; 5.8"x5"x1.4" (60 min)	$500-$600; built-in tuner and clock timer	$20; prerecorded color cassette per half hr.: $20	Yes	2 magnetic heads	3.3 MHz mono 3 MHz color	Magnetic; 2 tracks	Agreements with Grundig, Telefunken, Zanussi	
Arvin Industries, Inc. 1531 East 13th St. Columbus, Ind.	CVR	Home		Magnetic tape; 0.5" chromium dioxide; speed: 160 ips (high speed tape transport); long. scan; 6 min. tape cycle	Single reel; 10" dia., 0.7" thick; 60 min.	$1000-$1500 incl. color TV receiver	$10		Stationary Magnetic heads	2 MHz	Magnetic	None	
Matsushita Electric (Japan) Matsushita Corp. of America 200 Park Ave New York, N.Y.		Home		Magnetic tape; 0.5" iron oxide; speed: 7.5 ips	2-reel; 30 min.				2 magnetic heads	270 lines mono 240 lines color 4.5 MHz mono 3.5 MHz color	Magnetic; 2 tracks	Japan Type 1 mono VTR's (reel-to-reel)	
DISC SYSTEMS													
AEG Telefunken (Germany) Telefunken 1841 Broadway New York, N.Y.	Teldec Videodisc	Home	1972	Foil-plastic disc; mono; 625 lines; 1800 rpm	9" (5 min), 12" (12 min) discs	$140 player; $240 changer	$5 (12 min.)		Pressure transducer pick-up off densely-packed microscopic grooves	250 lines; 3 MHz	Combined with video groove	None	Decca (London Records) partner in Teldec

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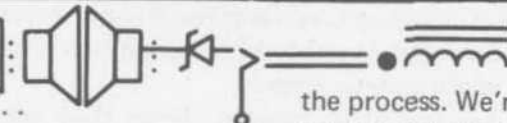
When you're out with the portapak, an attitude for instance, is that of *Minimal Presence* where you try and *pick-up on the process* at hand. You understand that you have a camera in your hands and that this camera is going to change the process to a certain extent but you're aware generally of how that camera affects people and how it might be affecting people in this particular situation.

What you do is sort of go with it and not, because you have a camera in your hands, become a "power" in the situation, but become more or less an "absorber" and let the people initiate what's going on. Let them break open into things if they will and if they care to.

At the other end of the spectrum . . . What to do with it in a situation. I can call an overall strategy that of simply recording and relating. You're there to record, but to record in the sense of the term where you take it to heart. In other words, you *become part of the process* and you relate back to that process through the tape—personally as you will. There is a time to feedback tape and a time not to feedback tape. There's a time to put your camera away and talk to somebody because they want to talk to you and they don't want to talk to the camera. It's a matter of being present in the process.

(. . . The interesting thing is that once he saw that my batteries were out and I couldn't tape any more—that's when he really began to sit down and tell me about Vietnam—the kind of things that I would've liked to have had on tape. But I understand that he didn't want them put on tape, so I didn't whip out the camera and say, "wait.")

. . . And in a sense the camera induced people to try things. In some situations the camera can help to put people in sort of a good guessing way behaviorally, in the sense that they are performing, they are trying things out and they're willing to risk.

Now part of that is because they themselves know that they're going to see it back—if you let them know that they're going to get the feedback and it's not to be ripped off and used some place else to exploit them or make fools of them. When people know that they're more willing to go out on a limb and also if you're not a critical presence in terms of their behavior. If you don't come on to them like this is right and this is wrong.

The whole idea of using the portable (and this will become much more apparent now that the new portable has playback on it, in other words you can play back what you record on anybody's TV set), you can sit in somebody's home and playback the tape you shot on their front stoop.

My whole emphasis is on the Feedback Loop.

It's understanding the process in terms of *possible* feedback that becomes critical in terms of how you shoot and how you are present to an event.

For instance, a happening . . .

I selected 18 minutes out of three hours to playback for them immediately when the whole thing was over. The whole point of the selection was that they would see it back—and what I picked up was people crawling on their hands up a wall, and most critically the couple that found each other with blindfolds and got into necking—right, not knowing each other. Before I played that back, I said publicly that people who were involved in this tape may not want this to be shown. And if they don't that's cool, because it's your information.and you have a right to it. They told me then and later that it was cool that it was done. They didn't ruffle. The reaction on everybody else's part was—"Wow, we could've been doing that, and there we were just laying there waiting for something to happen, instead of making something happen, which was what the piece was all about.

In that situation they didn't even know I was in there with a camera, so the camera had nothing to do with structuring the event; it just decoded the situation/information in terms of what the piece was about and what kind of information would be useful to the people participating after the event was over. In other words, they were able to participate in their own audience participation. What you're selecting are things that are useful for feedback.

. . . Metaphorically, in a sense, people are blind to the process that they are involved in. To be involved in the process is not to see certain things.

You can inhibit by playing back at the wrong time, by taping too much, by boring people with their own activity. You have to be able to pick up on people that are nervous in front of a camera; those who may be pretending they want to be on and don't really want to be. You don't put those things on camera.

. . . When you're shooting tape, you have to understand what sound ambiance is. You have to understand that the microphone picks up the intelligibility of conversation, so you don't have to follow it with the camera. The camera is free to follow other things. Often it's more interesting to follow reactions than to follow the face of the speaker. Stick with the ambient sound, stick with the environment and work with that. There are a lot of things to learn about sound in terms of acoustical space.

The *camera* as it's conceived now, where you look through an eyepiece that's mounted on the camera and goes through the lens on that same box, as Carlos says "it's film, it's ridiculous," it's perspective space—C.B.S., exactly. We can separate the vidicon and put it on a mount on your chest, or you can freehand the vidicon and have the mike in the other hand and be in face to face contact with people. You're more capable of being involved in

the process. We're trying to redesign the equipment. As an engineer said, if they were using large scale integration instead of transistors, all right . . . the stuff wouldn't weigh 22 pounds, it would weigh 2 pounds. That's what's coming if we can get that kind of thing designed.

I hardly ever use a *tripod*, I've gotten so—I've been taking some T'ai Chi because it seems that the T'ai Chi is the most appropriate exercise for video tape. You don't, as in Yoga, go from a stop state to another stop state. You're constantly in motion with T'ai Chi. You develop your legs to such an extent that you can move your whole body in rhythms and so forth off your legs, rather than use a tripod which confines you to a fixed point of view. Also the T'ai Chi method of exercise, the Chi sense of oneself and the whole Taoist approach is very congruent with my own attitude of minimal presence, and also, I think the attitude most appropriate to tape. Where you let it happen—and go with it in most instances.

Anybody sitting down should be able to stop the tape, and they should be able to control the speed of the tape. The *viewing environment* has to be vastly improved; they should be able to flash video of themselves watching the tape—and not only video, they should have electric read-outs on their heart pulse, nervous system, that could be graphed so that they know what their real relation to that information was.

People say how many times can you infold and feedback and so forth, but after awhile the visual information of just the face is not enough. You really want a whole electric scan of how people are behaving in the presence of the activity, and you want that information available to them. So how you're watching tape and how you're seeing it becomes important. You develop a sense of information structures: where is the control point? who has control over the information, the images here, how did they get control, have they got a right to control? What is this surveillance system doing here, who runs this place?

To walk into a church with a camera will freak some people out, a police station, schools . . . especially a school watching a kid bring a videotape in and shoot the teacher and take it home to show his parents o.k.? Why can't these things happen—and they can in fact.

I wonder what the reaction would be if high school or grammar school teachers were videotaped. A teacher should have the right to practice on video. In a school situation you don't force people (and you don't force feedback—if people don't want to see it, you don't force feed them their own image) because the teacher is a public figure and their public behavior affects kids, the kids and society have a right to that information. On the

other hand, teachers should have an available space where they can go self-process to get some control over their own image.

It's the whole business of where the authority is, and the authority goes with the information structure. If the authority is in books, of course the teacher has got it all over them; but if the authority is in video, it's in the hands of the kids that have video. That's another ballgame. The disenfranchised—in this case the youth—go for the new media as a power leverage in the society. You're running guns to the Indians when you give kids video and let them do with it what they want.

. . . this is a cultural weapon . . . you're trying to affect a cultural change—to build up data about culture, and to work at the level of information structures, and cultural structures—rather than on red-hot political issues. Because video can go beyond the perimeters of politics and information systems can go beyond that.

. . . We really have to begin to deal with information on its own terms and we have to understand that there's too much pre-structuring and pre-determining our information. People have a right to be their own information configurators; so if they want to rip things off the air and juxtapose them with their grandmother, they should have a right to.

The information environment is the critical environment and the immediate information configuration that a person works out really determines how well they maneuver, how well they get along, how well they cybernate in the culture. My attitude is that people can configure their own information, and be in as much control of their information and access to other information as is possible.

Just as literacy isolated the visual sense, all these moving images film and video can isolate the kinetic sense. You've got to remember that usually when people watch TV or a movie, they're sitting still. In a sense the kinetic sense is being externalized, that's why the possibility of imitating tape and slow motion, etc., is motion that people can participate in. I can't follow your motions if you're going in real time, but if I study you down to half time—I can study your motions, follow them.

Sitting still and watching tape—that's like reading a book. We need to be able to shoot tape specifically so that people can imitate it, not where you change the camera all around, etc. It's possible for somebody to program—to wake up in the morning and have an exercise routine, or have T'ai Chi pre-recorded with the master—and see themselves back in the evening. It's very important to involve the kinetic sense in the viewing process, rather than sit still for it. You shouldn't be sitting still for anything.