PERCEPTION, AESTHETICS, AND CULTURE IN NEW MEDIA

VIEWER PERCEPTION OF THE FILM LOOK IN LIGHT OF HDTV OR,

FILM VS. VIDEO

by
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ABSTRACT

The goal of this research is to determine if viewers (mass audience and media professionals) perceive differences between film-originated and video-originated television programming. A secondary goal is to produce a video clip in what is traditionally considered film style, paying the same attention to detail that is normally reserved for a film production. The "Kraus and..." dance company was selected to provide appropriate material for the research. A parallel film-based and video-based dance performance was produced and then shown on side-by-side screens to 250 subjects. Fifty of those viewers (selected to achieve an "expert" and a "mass audience" sample) were also asked to view a series of film and video clips and participate in a depth interview. "Dance in Parallel", the film and video program, is submitted as part of this thesis.

These studies demonstrate that viewers can see a difference between the film-originated and video-originated materials when viewed side by side, and can usually tell which is which. There are consistent patterns that have more to do with cultural fashions than with direct observation and hence the interaction of content and format is much more subtle than we had imagined.

Although there is much that remains to be done in this area of research, the results from these first studies should be taken into account when considering a new television standard, i.e.high definition television.

Thesis Supervisor: Richard Leacock
Title: Professor of Cinema

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For some deeds it just isn't possible to give enough thanks. This thesis is dedicated to my daughter Sumi, who has grown up in my workplace, wherever it happened to be, sleeping many nights in the studio and on the cutting room floor and, hopefully learning an adaptability to life as opposed to a neurosis from it all.

Immeasurable thanks are in order as the scale of production in this thesis project demanded a sizable crew. The nature of the media requires collaboration –I could never have done this without the support from all of the people in the "Parallel Shoot" and "Form Follows Format" crews. Rather than have a chapter of acknowledgements, I have included a "Form Follows Format" program beginning on page 31, listing everyone whom contributed to the parallel shoot and performance.

Significant contributions to the project came from several sources. I wish to give abundant thanks to Nicholas Negroponte, Russ Neuman, and the Movies of the Future Project. Also I want to thank Tod Machover for his encouragement and support.

To Dorothy Shamonsky, my friend and collaborator, "when do we start the next one?" The performance would not have happened without her.

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To all of those who participated in my studies, thank you for taking the time.

Last, but not least, I thank Ricky Leacock and Glorianna Davenport, for giving me reign to depart from the norm.

PLATE 1- 156KB, SUMI ASLEEP ON THE FLOOR OF "THE CUBE"

APPENDIX B INTERVIEW CODING SCHEME

Individual I.D.	*Status*	*Identification of Film and Video*	*Preference for Film or Video*
1 to 57	**P** Production **E** Engineer ***** Others **M** Mass	**C** Correct **X** Incorrect	**F** Film **V** Video **N** No preference

Appendix B consists of selected transcripts from the Study II interviews. Excerpts from these are used throughout the thesis. To make the reading flow more smoothly, I have devised a coding scheme so that the quotes can be referenced in the appendix. In the body of the thesis, interview quotes appear withh a subscript number. That number is the I.D. number of an interviewee appearing in Appendix B.

INTRODUCTION

"What the audience wants is not logic, but emotion."

-BillyWilder

The project presented herein had several goals. The first was to see if viewers could tell the difference between film-originated and video-originated programming. Another was to see if they had aesthetic preferences for film or video. The last goal was to find out if video, when shot "film style", had greater aesthetic appeal than usual. To answer these questions, we first produced a parallel dance program, shooting 35mm film and broadcast quality video in a traditional film style approach, and then conducted two studies with the edited material. The results clarify differences in viewer response to film and video. Thus, they have direct bearing on any endeavor where aesthetics is a consideration, especially upon the impending selection of a new television standard.

A new form of television is imminent, and the decision to adopt this new standard will be based primarily on economics. In light of this, the results from this investigation are put forth so that we do not lose sight of other significant issues, those related to production, transmission, aesthetics and the impact on consumers. This essay focuses primarily on the aesthetics issue raised by the possible transition to exclusively video-based production. In two pioneering studies, viewers were first asked to distinguish film from video while viewing parallel content. They were then asked which image they preferred.

These studies set out to better understand the viewing public's perceptions of the "film look" and the "video look". Study One took place within the context of a multimedia art performance. The participants were unaware that they were going to be part of a study. Study II was set up to simulate the home television viewing experience and was conducted in a small viewing room at M.I.T.'s Media Laboratory.

There are two motivations for this research. The first has to do with my own interest regarding people's perceptions of media. In 1983, I was producing work in both film and video. In several experiments I mixed film-to-tape transferred footage with video generated footage. The significant difference between the look of the film-originated and the video-originated materials was intriguing. To better articulate what the visual differences were, I produced a series of multi-format shoots and intercut the two sources. This generated some discussion but left many questions unanswered.

The other motivation has to do with more global issues. Given that the next television standard will be determined primarily by economics, I as a media-maker am concerned that the aesthetics issue not be buried. Many decisions will affect the consumer and little is known about whether viewers can differentiate between high and low resolution, or to what degree they care about the quality of the image that stares out at them from the little box in their living room.

My hypothesis was that when shown side-by-side identical content originated in film and video, viewers may not be able to tell which is which but would be drawn to the film for aesthetic reasons.

For this study it was necessary to produce the stimuli. Identical content was needed to eliminate content-based biases. A parallel shoot was arranged to obtain identical programming. In Study I, viewers watched the parallel program side-by-side on two large

video projection screens and were asked to complete a questionnaire asking which screen was film and which was video. They were also asked which screen they liked best, if either. Study II consisted of two parts. First subjects viewed a series of program clips and were asked to write down whether each clip was film or video originated. Then they were shown the same parallel program that was seen by the viewers in Study I, but this time it was seen side by side on television monitors. Subjects participated one or two at a time and completed the same questionnaire as in Study I with the addition of a page pertaining to the series of clips.

Chapter One places the studies within the broader context of current media developments. Chapter Two describes the production processes for the parallel shoot and the performance. In Chapter Three, the studies and the results are described in detail. Chapter Four concludes with a summary of the research and suggestions for future studies.

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CHAPTER ONE: NEW WAVE TV

"It has been said that television holds the promise of being the medium that can bring the peoples of far places emotionally face to face with one another's manners, customs and problems, and thereby make them understand that they are all essentially human."[1]

This chapter looks at the current movement of technological growth in media: the choices we have, the race for a new standard and the importance of new media on the media-makers themselves. There is a big commotion about a new kind of TV. But in the chaos there are issues that should be closely examined before a new standard is selected. Viewers' needs, the quality that is attainable and technological status are all aspects that need to be considered. Will a new standard render obsolete the existing production, transmission and reception devices? It has been hypothesized that the next television standard may be good enough and look good enough to wipe film off the face of the planet. These issues should be considered, but as usual, economics will be the prime determinant.

There are presently at least fourteen proposals for improved resolution television that have been submitted to the FCC for approval. At the most basic level these systems fall

into two categories, those that are compatible and those that aren't, (compatible means that you don't have to go out and buy a new TV set to continue receiving the same quality image that you get now). To break it down a bit further, there are systems that are 1) incompatible with NTSC, 2) compatible with NTSC but requiring more than one 6-MHz channel, and 3) compatible with NTSC and using just one 6-MHz channel.[2]

The most widely known and only system that has actually made it to production is the Japan Broadcasting Corporation's (NHK) High-definition Television (HDTV), which began development around 1970. Although not originally intended as a production medium, it has acheived that status in Japan and the US. NHK's HDTV production standard has 1125 scanning lines per frame, 60 fields per second, 2:1 interlaced scanning and a 16:9 aspect ratio. This 1125-line HDTV, though incompatible with existing systems, is essentially an upgraded version of the present National Television Standards Committee (NTSC) broadcasting system.

TABLE 1- 189KB, "High-definition television update", R.K. Jurgen, IEEE Spectrum, (April, 1988)

Why the hurry to select a new standard? Most consumers are not knocking down walls to have ATV. Many of them haven't even heard of it yet. The answer is economics. "The first receiver to market will set the de facto standard." (W.F. Scheiber, M.I.T.)[3] At its start, high-definition television (HDTV) was presented as the quantum leap to theatre quality video. However, on the road to theatre quality video, HDTV has hit a number of roadblocks. NHK had hoped to see their 1125-line system set a worldwide standard. But this will not happen. The Europeans voted against the incompatible system and have been developing their own version of ATV. It is probable that 35mm film will remain the only worldwide standard. Brenda Fox of the National Cable Television Association (NCTA) states, "We're beyond the point of having a universal (television) standard. It's been dismissed."[4] As for the United States, HDTV met with mixed reactions. Objections were based partly on fear of an economic monopoly by the Japanese. If the Sony 1125 HDTV does succeed, it could take over the American market causing major upheaval to the U.S. industry. Some fear that 1125-line sytem will take over first in the VCR and videodisc domain, and that consumers will be so enthralled by the quality of the image they will stop watching network television and the broadcasters will be out of work. Additionally, should NHK's 1125 HDTV become the new standard it would put all current equipment into obsolescence.

There are a few production houses worldwide that produce high-definition programs. At present this is a very expensive and unwieldy production method necessitating a down conversion (transfer) to the 525-line NTSC standard for transmission.

A lot of money is being spent in this race to make high quality television. NHK's HDTV, even with its pitfalls, is touted by many as the answer to our dreams in terms of picture quality. Some claim that it has much higher resolution than projected 35mm motion picture film, especially by the time the picture reaches our neighborhood theatre.[5] But then maybe it's not a technical question of resolution but rather a question of aesthetics.

Should a new television standard be adopted, what will it mean to the media community? "In view of the large number of parties involved, and the overwhelmingly economic nature of their interests, it is clear that decisions about Advanced TV Systems (ATV) are mainly about jobs and money, and only marginally about beautiful pictures."[6] It is time to look at the importance of aesthetics. Film director George Lucas was quoted by Variety as saying, "We're going in for a period of high quality theaters. There's going to be a bigger interest in good presentation. The whole issue of high resolution video and the whole video process and how a film is linked to them- I think eventually we will move into that realm. Video technology has really advanced over film technology in all areas except resolution."[7] There is much talk of high definition video replacing film since, with all of the significant technological advances in video, film in comparison appears to be standing still. But perhaps the question isn't about whether one medium advances and one stands still. Perhaps the question is, "What kind of artistic and aesthetic forms will be created from these new developments in video?" Brenda Fox of the National Cable Television Association (NCTA) said that in Washington, DC, a reverse trend is taking place. Big screen theatres are being built again because the public doesn't like the small screens.[8] This indicates that aesthetics are indeed important to the viewing public.

Guiseppe Rotunno, ASC, was cinematographer on the first full length feature to originate in HDTV, Julia and Julia . He said he wanted to try something new. Ironically, or maybe not, he says he prefers the the transfer to film (which is how the film is being distributed for theatres) and not the tape.[9] Harry Mathias, cinematographer of twenty years, reports that he is not an enemy of high definition but of short sighted solutions to it.[10] Many people within the media industry are concerned that much is being sacrificed for short term goals. As one ABC engineer put it, "We figure that NTSC is an experiment and it hasn't finished yet." Consensus seems to be that HDTV will be great for special effects in the film industry. The effects are said to be of better quality than film, especially in multi-layer compositing, and to take less time, which in post production, equals money. Hollywood is not yet shaking in its boots for fear of being replaced by a new video technology. Speaking for the production community at large, veteran cinematographer Harry Mathias said, "I don't think that the marketplace is asking for HDTV right now...Everybody has an open mind *at best*."[11]

1"Historical Sketch of Television's Progress", L.R. Lankes, SMPTE, **51** (1948), excerpted from A History of Motion Pictures and Television, edited by R. Fielding (U. of CA Press, 1967)

2"High-definition television update", R.K. Jurgen, IEEE Spectrum, (April, 1988)

3 M.I.T. Communications Forum, "The Politics of HDTV", April 21, 1988

4 M.I.T. Communications Forum, "The Politics of HDTV", April 21, 1988

5 "Resolution Requirements for HDTV: based upon the performance of 35mm motion picture films," A. Kaiser, H.W. Mahler, and R.H. McMann, Television: Journal of the Royal Television Society, (April 1985)

6 "Advanced Television Systems for the United States: Getting There from Here", W.F. Shcreiber, April 1988

7 "HDTV: The Sharper Image," Christine Bunish, In Motion

8 M.I.T. Communications Forum, "The Politics of HDTV", April 21, 1988

9 "HDTV: The Artists Speak", N. Lee, p85, American Cinematographer, (September, 1987)

10 "Interview From Hollywood", HDTV Newsletter, 2, #4, p22 (Advanced Television Publishing, 1987)

11 "Interview From Hollywood", HDTV Newsletter, 2, #4, p22 (Advanced Television Publishing, 1987)

CHAPTER TWO: PRODUCTION
A Parallel Shoot and "Form Follows Format"

"My own thoughts about the two mediums are that film has a past tense feel to it, that we are watching something that has occurred. Video on the other hand has a present feel to it. Curiously, the only tense I was concerned with was the future and not having enough of it to accomplish this task in a few short weeks."

-Henry Ferrini, Director

Video has a reputation for getting short-changed when it comes to production values. But if video is shot film-style, thereby enhancing its quality, will it have increased appeal to the production and viewing communities? A goal for the parallel shoot was to give video the same attention to detail that is normally reserved for film.

- How closely can video and film resemble each other when shot under optimal parallel conditions?
- To what degree does lighting create the "film look" and the "video look"?

From the interviews that were conducted it is apparent that despite what would seem to be technically obvious answers, production people and engineers alike have opposing opinions on the preceeding questions.

These two questions have elicited highly opinionated answers but lack the visual evidence to prove a point. There are many factors that come into play that can cause video to look more filmic or film to have a more video look. The nature of a parallel shoot can allow for controlled experimentation of these variables. From this we can learn more about the capabilities and limitations of each media, in addition to the aesthetic opinions of the viewing public.

HISTORY OF THE WHOLE PROJECT (or how it came to be)

In any production there are a series of phases that need to occur in order to reach project completion. There is first the seed of an idea, and if one goes the giant step beyond, there is pre-production. This is usually the most time consuming phase if the project is to come off well. Pre-production consists of all of the organization that will either make or break the success of the project such as budgeting, crew recruitment, project design, space and equipment needs and plenty of other necessary details. If that reaches maturation then there is the actual production. Finally there is the post-production. Oh, one more thing; if you want the results of your labors to be shown anywhere then you have to deal with distribution.

The seed was planted long ago. I have had an interest in multi-media production for a number of years and have always been thrilled by live performance. Throughout the past six years I have shot a lot of dance. In autumn of 1987, the manager of a Boston based dance company approached The Film/Video Section at M.I.T.'s Media Laboratory. She dropped off a videotaped performance and some brochures about the company. *KRAUS and...* was interested in a video/dance collaboration. I talked with my friend and collaborator (Dorothy Shamonsky) about the project's possibilities. We had a history of being able to work well together under the stresses that accumulate during any production.

Meanwhile, I was also thinking about my thesis and the form it would take. In my position as a research assistant, I was learning about high definition television (HDTV). Having heard of HDTV a few years before, I had from the first had an interest in this medium of the future, this new, supposed vastly improved television. Now we were using Sony's 1125-line HDTV in a study that we conducted at The Audience Research Facility (ARF). We went to 1125 Productions (a high definition production house) in New York City to edit together a tape for our study and ran a highly successful "Study A" at ARF during December.[12]

A video/dance collaboration and HDTV: What do the two have in common? Some of my early work in multi-format production used dance as subject. It occurred to me that a parallel shoot in three media would be an exciting thesis project and using a professional dance company would be fun.

The performance part of the picture began in my mind as more of an "icing on the cake" venture and naively, oh so naive, I thought that it wouldn't require a tremendous time commitment on my part. The performance was going to consist of a combination of dance and media. The first piece on the program would show the parallel video and film footage, side-by-side, on two large video projection screens. The dancers would dance the same piece live and would be in sync with the projected imagery for part of the time. The audience would be given a questionnaire and asked to write down which screen was film and which was video. This would become *Study I*.

12 "The Mass Audience Looks At HDTV: An Experimental Study of Subjective Responses to NTSC and HDTV Technologies, W.R. Neuman, S. O'Donnell, S.M. Schneider, and L. McKnight, March 22, 1988

THE PARALLEL SHOOT

What exactly is a parallel shoot? A parallel shoot is taking two or more cameras and aligning them as nearly as possible, then shooting simultaneously with the goal of attaining virtually identical framing. The resultant parallel footage permits examination of any number of variables that exist between the two or more media. This arrangement can exhibit minor variances depending on the intent of the production but remain relatively the same. To date, parallel shoots have been used primarily for psychophysical testing of film and video resolution.

The idea of doing a parallel shoot first occurred to me in 1983. I had a curiosity about the "film look" and the "video look" and at the time produced several small-scale multi-format shoots. The opportunity arose this year to do a more in-depth study and to conduct audience response testing through M.I.T.'s Audience Research Facility (ARF).s

When I began to talk about the idea, I was met with a wide response ranging from people who didn't know there was a difference between film and video, to heated debate about which was better, or why bother–it's perfectly clear that a viewing audience won't even notice a gross costume change from one scene to the next. With all of the energy going into the development of a new television standard, I thought it would be interesting to see if the general viewing public could tell the difference between film and video generated programming or if they demonstrated a preference for one or the other.

The only existing parallel footage that I knew of was test patterns that I was certain the viewing public would be rather unexcited about so I decided to create my own. Fortune on my side, I found quite a large pool of interested people. Unlike other artistic endeavors, the process of making media is a highly collaborative venture without which a project cannot come into being.

My goal was to produce a three way parallel shoot using NTSC video, 35mm motion picture film and HDTV. It was imperative that these all possess the same framing as much as the physical equipment limitations would allow. The ideal would be to shoot an existing or standard style commercial production so as to match contemporary production values. Early in the process I attempted to locate an interested producer but was unsuccessful in finding access to a show currently in production. Getting high definition equipment also proved futile, so we settled on 35mm and NTSC video.

There are many obstacles in obtaining a successful parallel shoot. Having witnessed the results of a very expensive but unsuccessful attempt, by trained professionals no less, I was all too aware of the problems. Getting identical footage from two cameras placed

side by side is not an easy task. With two operators you get two pictures. When one zooms, the other has to be right there, when one tilts the other has to tilt, when one focuses the other needs to focus. We eliminated the dual operator problem by mounting both cameras side by side on a plate on an Elemac dolly. The Director of Photography (D.P.) operated the cameras with the help of a professional Assistant Cameraman (A.C.) and an experienced dolly grip. The D.P. aligned the two cameras so that a video assist on the Arriflex film camera was unnecessary. Needless to say it is a complex process but one that is worthy for assessing true viewer response to different media.

TECHNICAL PARAMETERS

Location: The parallel shoot occured in The Philippe Viller Experimental Media Facility (The Cube). The Cube is 61'4" x 62'8" x 45'11" tall (see Table 2).

Cameras Used:

- Arriflex BL3 35mm Motion Picture camera with a Cooke 20-100mm T 3.1 lens
- Ikegami HL79 EA Video camera with a Canon J-13 9-117mm T 2.2 lens

The Arriflex was fixed on a 6" riser plate and the Ikegami was mounted on an O'Connor 50 fluid head. Both camera assemblies were mounted side-by-side on a 13" plate which was then mounted on a Worall head. This allowed coordinated tilt and pan motion of both cameras. The Worall head was used for two reasons. One is that it can support the weight of the two cameras and the other is that being a gear head, it allowed very precise moves. The focal lengths were fixed for each shot. Matte boxes were used on both cameras to control flare from the lights. Academy aspect ratio was maintained on the 35mm camera.

The Ikegami was customized with a crosshair and raster generator. This is similar to the crosshair seen through the film camera but electronically generated. This made it easy to align the two cameras. The tricky parts were calculating the parallax, focal length and distance to optimize as much as possible the matching of the frames. We were constantly having to choose the focal length that would give us the shot we were looking for. Was it better to move the dolly or change the focal length?

The other major consideration was the image size. A one inch video tube would have given us a closer match to the 35mm image size but in our case we had a 2/3" tube, which is closer to the image size of 16mm film. We had to consider depth of field when choosing focal length and distance.

The 5247 Kodak film stock was chosen because it is close in speed to a video camera. We rated the 35mm at ASA 125 and thereby matched it to the 125 ASA rating of the Ikegami. Our luminance range varied between 100 and 150 footcandles.

TABLE 2 - 84KB, Cube Plan by Greg Tucker

The original source audio cassette was played from a Harmon Kardon TD202 cassette deck and dubbed directly onto a Sony APR-5003 2-track 1/4" reel-to-reel, with center time code track. The time code on the audio was generated with the internal Sony generator on the deck.

For audio playback at the shoot the Sony APR-5003 went through an AudioArts "WheatStone" 16x4x2 board, into a Yamaha P2200 power amplifier and out through (2) Klipsch Lipschorn loudspeakers. The timecode from the Sony APR-5003 acted as the master for the 1" video deck.

To give an idea of the exactitude typical of a film style shoot and to demonstrate the variance between the two cameras, here is an excerpt from the camera reports:

	35mm	**Video**
Scene 1	T 3.1/22mm 24' focus 2'5" camera to floor	F 2.8/9mm 25' focus 2'8 1/2" camera to floor
Scene 2	T 3.1/90mm 30' focus 2'5" camera to floor	F 2.8/39mm 30' focus 2'8 1/2" camera to floor
Scene 4	T 4/90mm 15' focus 4' 1/2" camera to floor	F 4/39mm 15' focus 4'4" camera to floor

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LIGHTING DESIGN

The lighting design for the shoot was a complex issue. Lighting for dance is different from lighting for film is different from lighting for video. You get the picture. The lighting designer worked closely with the Director of Photography (DP) to create a light plot.

Backlight:

8 PAR NSP (Narrow Spots),1Kw, 3000'K
4 PAR MFL (Medium Floods), 1Kw, 3000'K
Color: Lee 183 Moonlight Blue

Sidelight Stage Right:

3 PAR 64 NSP, 1Kw, 3000'K
3 PAR 64 MFL, 1Kw, 3000'K
3 6x9 Elipsoidal Spot, 750W, 2800'K
Color: Roscolux (Rx) 101 Diffusion, Rx 08 Pale Gold

Sidelight Stage Left:

3 PAR 64 NSP, 1Kw, 3000'K
3 PAR 64 MFL, 1Kw, 3000'K
3 6x9 Elipsoidal Spots, 750W, 2800'K
Color:Rx,101 Diffusion, Lee 1/2 Daylight Color Correction, Rx 803 Pale Gold

Frontlight Downstage:

4 6x12 Elipsoidal Spots, 750W, 2800'K
Color: Rx 55 Lilac

Upstage:

4 6x16 Elipsoidal Spots, 750W, 2800'K
Color: Rx 55 Lilac

JOURNAL

Preparations: Parallel Shoot: February 8, 1988

9:45 a.m. Crew members begin to arrive on the scene, (The Philippe Villers Experimental Media Facility, more commonly known as "The Cube" around The Media Lab). Au Bon Pain has generously donated breakfast so the crew is standing around drinking coffee and eating croissants before the massive workload ensues. There is everything to be done to create "the set" for the shoot. We have one day to turn over the entire cube floor (something that has never been done in its entirety until this morning), load in, hang, and focus the lights, lay out and tape down the dance floor, set up the audio board, the video gear, and the cameras, and be ready to go by 9a.m. the following day. Due to the minute size of our budget we have an almost exclusively untrained but enthusiastic volunteer crew. Joseph Levendusky, the lighting designer, knows that this will slow us down significantly but its what we have so we make do. Joe is not due to arrive back from Chicago until early afternoon (we paid close attention to the weather reports knowing that at this time of year a heavy snowfall in either Chicago or Boston could paralyze, or at the very least severely impair, our whole production).

The first order of the morning is to flip the floor. This task is accomplished within two hours with six workers at a time. Two teams of two flipping and two pulling taps out of the unflipped floor and then putting back the correctly colored tabs to match the flipped floor. After this was completed, we laid out the dance floor. This required a lot of care due to the floor being in terrible repair. After one end of the floor was taped, three "stompers" would stomp the length of the floor to try and flatten it out as much as possible and one person at the destination end would be ready to tape as the stompers arrived at the end. We still called it a "rippled effect" floor. It was free and we didn't have a lot of room to complain. Tom Sullivan, our audio engineer, was readying the sound equipment throughout the day. Director Henry Ferrini arrived about noon and we discussed the camera angles that he'd selected. Joe came straight from the airport and arrived somewhere between noon and one. The lighting truck arrived about 2 p.m. We unloaded and went to work on hanging the lights.

Throughout the day various other elements were scheduled to arrive. The Arriflex BL3 and the dolly, track and other accoutrements arrived throughout the afternoon. Due to the fact that the building is not wired for certain practical applications, it was necessary to move the Ampex one inch deck from the fourth floor to the lower level, (which equals the basement). New faces showed up to lend a hand and familiar ones, to contribute their part to the production. While picking up the film equipment, our A.C., Greg Collier, ran into a friend and professional colleague and we "picked up" a dolly grip. And so David LaBracio, unsuspecting innocent bystander, tumbled into our production, fortunately for us. Around 5 p.m. the Ikegami 79E arrived with its owner and our Director of Photography (Jim Griebsch) and things were falling into place. The camera unit began to set up the cameras in parallel.

Crew changed faces a bit throughout the day but there were several hardcore people who worked into the late night. At about 1 a.m. the remaining crew crawled home knowing that the lighting had a way to go, but the fatigue factor was beginning to dominate and we knew that to stay later was asking for trouble. And we did have a full day in front of us.

Parallel Shoot: February 9, 1988

The excitement and anxiety of February 9 was enough to get me out of bed at 6 a.m. Dorothy and I had to pick up the muffins from the Milk Street Cafe and get coffee (and whatever else) prepared for crew arrival, which was scheduled for 7:30 a.m. Dorothy was in fine form as she had fractured her arm in a fall on the ice the previous week. Joe appeared and went to work to finish the focusing.

We had our first (and really the only) setback right at the start. Two of the circuits on the crane (where many lights hung) blew and it took a long while to get that fixed. The first shots did not actually get going until 10 a.m. contributing to a frustrated Henry. But once the cameras were rolling, it went well. In typical film fashion, the going was slow. Each shot took at the very least, a half-hour to set up for the minute or so that was actually recorded on film and tape. The choreographer, insisting that the dancers be out by 3:30, stuck to her plan. Which put us back on schedule.

PARALLEL SHOOT BUDGET

Technical Production Crew	**Duration**	**Cost**
Producer	4 months	0
Co-Producer	4 months	0
Production Manager	2 months	$200.00
Director	1 month	$100.00
Director of Photography	1 week	$100.00
Lighting Designer	2 weeks	$225.00
Assistant Camera	2 days	0
Dolly Grip	2 days	0
Audio Engineer	2 weeks	0
Video Engineer	2 days	$50.00
Gaffer	2 days	0

Tape Operator	2 days	0
Production Assistants (20)	2 days	0
Facilities Supervisor	3 months, consult basis	0
Technical Consultants (2)	2 days	0
Photographers (2)	2 days	0
	Sub Total	**$675.00**

Talent	Duration	Cost
Kraus and…	1 day	$400.00
	Sub Total	**$400.00**

Post-production Crew	Duration	Cost
Off-line Editor (2)	1 week	0
On-line Editor	2 days	0
	Sub Total	**0**

Equipment & Stock	Duration	Cost
35mm Camera Package	1 day	$840.00
Ikegami 79E	1 day	$100.00
3000' 35mm raw stock		0
Processsing		0
Film-to-tape transfer		0

1" tape stock & audio tape		$450.00
Insurance	2 days	$125.00
Lights		$270.00
Gels		$95.00
Marley dance floor		0
Food		$240.00
More food		0
Misc, tape, floor plans		$70.00
	Sub Total	**$2190.00**

Facilities	**Duration**	**Cost**
Production location	2 days	0
Off-line Editing	7 days	0
On-line Editing	6 hours	0
	Sub Total	**0**

	Total Cost for Parallel shoot	**$3265.00**

*A 0 means a donation of equipment, labor, money, facility or food.

PARALLEL SHOOT CREDITS

Parallel Shoot Project Concept: Kim Foley

Producers: Kim Foley & Dorothy Shamonsky

Director: Henry Ferrini

Director of Photography: James Griebsch

Associate Producer/Production Manager: Ruth Henderson

Lighting Designer: Joseph Levendusky

Gaffer: George Dobson

Audio Engineer: Tom Sullivan

Assistant Camera: Greg Collier

Dolly Grip: David LaBracio

Video Engineer: Steve Kuettel

Tape Operator: Ben Rubin

Technical Crew:

Jim Paschetto, Nina Hasin, Sabrina Birner, John Botti, David Larkin, Abigail Deser, Bernice Schneider, Stewart Krusee, Matthew Schneider, Layla Strieff, Mike Conway, Betsy Holland, Hans Michaud, Mario Bourgoin, Bill Coderre, Joel Kollin, Steve Strassman, Karim Ajania, Sarah Dickinson

Facilities Supervisor: Greg Tucker

Technical Assistance: Stuart Cody & Vicki Bippart

Photographers: Adina Sabghir & Peter Schweitzer

Off-line editors: Kim Foley & Henry Ferrini

On-line editor: Spencer Gentry

Film processed by DuArt

Post Production Facilities:

Ferrini Productions

Century III Teleproductions

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- The Council for the Arts at MIT
- Music and Cognition Group at the Media Laboratory at M.I.T.

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- The Media Laboratory, M.I.T., Nicholas P. Negroponte, Director
- Film/Video Section, Richard Leacock, Director
- Audience Research Facility, Russ Neuman, Director
- Music and Cognition Group, Tod Machover, Co-director
- Movies of the Future Project, Andrew Lippman, Director

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- Minerva Graphics
- Strand Theatre
- Stuart Cody, Inc.
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THE PERFORMANCE "form follow format"

Two days after the parallel shoot, Dorothy, Joe and I had a meeting to discuss the upcoming performance. We had major issues to discuss. The floor plan had to accommodate the dancers' space needs and rear screen video projection system. Then there were the lighting requirements–not just for the performers, but also for the projection screens, there could be no light on the screens. And budget items, "No Joe, you can't have $500.00 for lighting, we don't have it," and in the end saying, "OK Joe, we'll find a way."

"form follow format" BUDGET

In addition to this budget, there was a sizable crew who donated time throughout the week of set-up. These people worked without monetary compensation. The budget below lists only outgoing cash.

Technical Production Crew		
Production Manager		$100.00
Lighting Designer/Stage Mgr.		$225.00
Video Engineer		$50.00
	Sub Total	**$375.00**

Talent		
Kraus and…	1 day	$400.00
	Sub Total	**$400.00**

Equipment & Stock		
2 Aquastar Video Projection Systems and screens		$1000.00
Lights		$500.00
Marley floor		$100.00
Bleachers		$200.00
Headsets		$50.00
Meals		$300.00
Misc, tape		$100.00
	Sub Total	**$2250.00**

	Total for Performance	**$3025.00**

'form follows format' PROGRAM

March 11 & 12, 1988

CREW

Co-producers: Kim Foley & Dorothy Shamonsky

Choreographer: Rozann Kraus

Lighting Designer & Stage Manager: Joseph Levendusky

Associate Producer: Ruth Henderson

Audio Engineer: Tom Sullivan

Video Engineers: Steve Kuettel, Stuart Cody

Lighting Technicians: Andrew Bennett, Dave Nelson

Electricians: Nina Hasin, Abigail Deser, Julia Lloyd

Facility Supervisor: Greg Tucker

Technical Crew: Jim Paschetto, Ed Slattery, David Larkin, Stewart Krusee, Steve Strassman, Mike Conway, John Botti, B.J. Davis, T.W. Li, Randy Hertzman, Andrew Mayer, Peter Andrews, Bill Coderre, David Small, Jim Puccio

Ushers: Nancy Compton, Michael Siegel

KRAUS AND...*Dancers*: Ramelle Adams, Marquerite Anne Furfey, Rozann Kraus, Nanette Ruggiero

****

ERASE

Choreography: Rozann Kraus
Dancers: Ramelle Adams, Marquerite Anne Furfey, Rozann Kraus, Nanette Ruggiero

PARINGS

Choreography: Rozann Kraus
Music: Daniel Epstein
Video remake: Kim Foley

HANJI

Choreography: Rozann Kraus
Video: Kim Foley & Dorothy Shamonsky
Music: Toby Mountain
Dancers: Ramelle Adams and Marquerite Anne Furfey

GROUNDWORK

Videodisc: Dorothy Shamonsky
Music: Kim Foley
Dancer: Nanette Ruggiero

IMAGE

Choreography: Rozann Kraus
Music: John Cage
Dancer: Rozann Kraus

FEMINEERED (Excerpt - photos from the M.I.T. archives)

Videodisc: Dorothy Shamonsky

ECHOES OF MEN

The solo version of this work was originally commissioned by the Women's International League for Peace and Freedom; text from a speech by Elizabeth Cady Stanton, 1888.

Choreography and sound mix: Rozann Kraus
Dancers: Ramelle Adams, Marquerite Anne Furfey, Rozann Kraus

WAYOUT (Premiere)

Choreography, video and sound mix: Rozann Kraus
Dancers: Ramelle Adams, Marquerite Anne Furfey, Rozann Kraus, Nanette Ruggiero

---

RETROSPECT

Typically, a production like this takes many months of preparation and organizing. It also takes a sizable budget. The "real cost" budget for this production was well over $20,000. We came in at $6290 for the parallel shoot and the performance combined. There were several reasons that we succeeded with this budget. Media professionals were interested in the concept and so were willing to work for next to nothing and in most cases nothing. Our "studio" was an in-kind contribution. We received reduced rates and donations for most of our equipment. And we received donations for all of our post-production work.

Lest you think that it is easy to go about a production in the manner that we did, let me forewarn you. The work that went into getting these donations should not be underestimated in the least. Let me stress that in most cases, it took many, many hours to get a small donation and that we were entirely burnt out by the time the performance came to a close. Both Dorothy and I were running fevers during the performances. I think

that we are both in hearty agreement that we will never again undertake a project that does not have an adequate budget to begin with.

On the brighter side, both the shoot and the performance went very well (no major disasters and standing room only crowds at both performances), the parallel imagery was amazingly parallel, and the studies produced very interesting results.

	Total cash outlay for both Parallel Shoot & Performance	**$6290.00**

The budgets were a close estimate. There were several outstanding bills that hadn't come in yet, so the total rose a little.

PHOTO ESSAY

The following photos were taken by several photographers.

Adina Sabghir

Dorothy Shamonsky

Richard J. Solomon

Peter Schweitzer

Kim Foley

Plate 2- 159KB, Entrance to "The Cube"

Plate 3- 95KB, Flipping the floor in "The Cube"

Plate 4- 176KB, Hanging lights 3 stories high

Plate 5- 169KB, Prepping the dolly

Plate 6- 114KB, Shoot preparation

Plate 7- 158KB, Lifting the dolly onto the track

Plate 8- 128KB, Director of Photography, James Griebsch, adjusts camera

Plate 9- 59KB, Crew member takes a break

Plate 10- 133KB, Audio engineer Tom Sullivan

Plate 11- 102KB, Production shot #1

Plate 12- 134KB, Director, Henry Ferrini

Plate 13- 105KB, Production shot #2

Plate 14- 132KB, "Take 3", Photo by Peter Schweitzer

Plate 15- 140KB, Production shot #3, Photo by Peter Schweitzer

Plate 16- 116KB, Production shot #4

Plate 17- 162KB, The Crew

Plate 18- 110KB, The Edit room

Plate 19- 152KB, The 10 1/2 x 14 foot projection screens in the cube for 'form follows format'

Plate 20- 118KB, Technician Stuart Cody

Plate 21- 102KB, 'form follows format' performance, "Hanji", Photo by Adina Sabghir

Plate 22- 142KB, 'form follows format' performance, Photo by Adina Sabghir

Plate 23- 103KB, 'form follows format' performance, Parallel Shoot's "Dance in Parallel", Photo by Adina Sabghir

CHAPTER THREE: THE STUDIES

"Film seems more real."
"No, video seems much more real."
"Who wants reality anyway?"
-Excerpt from a film class conversation

Some of the questions that the studies addressed were:

- Can viewers distinguish the "film look" from the "video look"?
- Does the viewing public have aesthetic preferences?
- Is it possible to measure subjective response to these questions and determine a trend?

What I expected to find:

- If it is the "film look" that most matters, then film will rate higher. If rather its the film-style production that is most important, then film and video would rate close together in terms of viewer preference.

I began to look for studies that had been previously conducted on audience perception of the difference between film and video generated materials. There wasn't much to find and I couldn't locate anything that had attempted to do what I was trying to accomplish. It is my firm conviction that the only legitimate way to test viewers' perceptions of the "film look" and the "video look" is to show them material that has been shot parallel in film and video. The ideal stimuli for a study of this type would be to have a range of content types such as drama, documentary, sports and news to eliminate as much as possible, content biases.

I had suspected that the untrained viewers would not be able to tell the difference between film and video. I figured that the media professionals would do a little better and that perhaps the engineers, who are trained and would be looking for artifacts, would be the ones who had a good chance of being right most of the time.

Plate 24

Top:Film-originated
Bottom:Video-originated

Plate 25

Top:Film-originated
Bottom:Video-originated

STUDY I: "form follows format"

Study I was not a traditional study but rather an informal gathering of information within the context of a multi-media art performance. "Form Follows Format" occurred on March 11 and 12, 1988. The purpose of this study was to see if the audience could tell the difference between a film clip and a video clip of identical content when viewed side-by-side and to see if they had an aesthetic preference for one over the other. The parallel material was part of the first program piece, called 'Erase' and was projected on two 10 1/2'x14' screens. The piece began with live dancers and at a pre-determined cue point, the film and video versions faded up from black, in sync with the live dance. After the piece was finished, the audience was asked to fill out a questionnaire which had been handed to them upon their arrival. These were collected at the door at the end of the performance.

Though the design of this study was in an art context and very informal it produced some notable results.

METHODOLOGY

The Subjects

The subjects for Study I were recruited by nature of attending a multi-media performance in The Philippe Villers Experimental Media Facility (more commonly referred to as "the Cube") housed in the Media Laboratory at M.I.T. Publicity for the event was generated through the Boston Globe, local area event calendars, postering, mailing lists and word of mouth. Given the informal nature of Study 1, demographics are not determinable, however it can be presumed that it was in general a mixture of an "art crowd" and MIT people. Approximately 270 people attended the performance and from two evenings' performances we received a total of 193 respondents. A number of these were unusable and obviously hadn't been taken seriously, these were discarded.

Apparatus

The Cube is a black box 62' x 63' and 45' high. There were bleachers to seat 100 people, though due to an overflow crowd both evenings, there were people standing on the sides and sitting in front on the floor. The bleachers were 10' deep x 40' long. The distance from the front row of bleachers to the projection screens was approximately 30'. Two Aquastar rear screen video projection systems were used to display the media for the performance. Before each performance the technician fine-tuned the systems. The screens were 10 1/2' high x 14' wide. The video was played back on two Ampex VPR-2 one inch machines, slaved to each other for synchronous play. The video gear was set up in a make shift machine room out of sight and hearing range and headphones were used to cue the tape operator. For audio playback at the performance, tapes were played on the Harmon Kardon TD202 cassette deck into a Sony MX-P21 8x2 mixing board, into the Yamaha P2200 power amp and out through (2) Klipsch Klipschorn loudspeakers. For several of the pieces the audio came from the 1" Ampex VPR deck through the board. The performance required a complex lighting design due to the mixture of live dancers and projected media; it was difficult to balance the lighting so that the dancers would have enough and the screens wouldn't be washed out. Sixty instruments were used, a combination of PAR 64s and Elipsoidal spots. Fifteen gel colors were used.

Procedure

The audience arrived at "Form Follows Format" prepared to experience an evening of live dance, pre-recorded film, video and videodisc and were given a questionnaire along with their program as they entered. As part of the first dance, they were told by the dancers (who continued to dance as they spoke) that they would be seeing film on one screen and video on the other and it was going to be up to them to decide which was which. At a cue point in the dance, an edited version of the live dance appeared on screen and played in sync with the live dancers for a limited period of time. The film originated

edit on the right screen and the identical video version on the left. After the dance was finished, they were asked by one of the ushers to fill out their questionnaire.

Program Material

Study I used a two minute and twenty second dance program, produced in parallel 35mm film and high quality video. The production of the material took place in the Cube at M.I.T.'s Media Laboratory with the help of many, many people. The parallel shoot is described in detail in Chapter Two.

Parallel Dance 'Kraus and...', a dance company of four, performs a dance titled "Erase". This 2 minute 20 second program was originally shot with both a film camera and a video camera mounted side by side on a tripod with the cameras registered to be as close as possible. Both versions were edited with SMPTE time code so that the edits were matched. Therefore the film version and the video version are virtually identical. The material uses dissolves, supers and straight cuts.

RESULTS AND DISCUSSION

Q: In a side-by-side comparison of identical programming which originated in NTSC video and 35mm film, are viewers able to determine which is film and which is video?

A: Of the viewers who answered which screen was which, 50% got it correct and 50% didn't.

Q: Whether or not a viewer can correctly assess which screen is which, do they have aesthetic preferences?

A: Seventy percent of the viewers preferred the video-originated program.

Q: Does seating play a role in the viewer being able to tell film from video?

A: Sitting on one side or the other did not increase the chance of getting it right.

Audience members received a questionnaire with their program as they entered the performance space. After watching the parallel footage, they were asked to write down

which screen was film and which was video. Of 187 respondents, 77 correctly guessed which screen was which, 73 guessed incorrectly and 37 said they couldn't tell which was which. When asked for screen preference, 115 said they preferred the video screen, 46 preferred the film, 20 stated no preference and 6 left it blank. When asked to write down which screen was sharper 151 said the video was sharper, 23 said the film was sharper and 13 didn't say.

When viewed in a two by two table the results get more interesting. Of the 2/3 total viewers who selected video as their preferred screen, ¾ of them guessed incorrectly and thought they were choosing film, whereas of the viewer's who preferred the film, 95% correctly said it was film.

Of the viewers who correctly determined which screen was which, 59% preferred film. Of the viewers who guessed incorrectly, 97% preferred the video, thinking it was film.

Eighty percent of the participants said they preferred film when in fact 70% of those were unknowingly selecting the video as their preference. Comments from respondents who guessed incorrectly:

"I found it hard to tell on the projected image."

"The ghosts were a dead giveaway."

"Only side by side does the preference get established."

"No contest. Right screen same old hard video."

Many viewers have the idea that film is sharper, evidenced by comments like these:

"I think film is a "sharper" medium than video."

"Because screen A was sharper I tended to think it was film."

"I have an idea that film should be sharper although I'm not sure why."

Comments from respondents questionnaires that got it correct:

"Fast motion of dancers is degraded by the film-to-video transfer."

"I have seen better film than your sample."

"Sharp, refined color!"

"I like clarity. Screen A appeared more realistic because there was little blurring of motion. I like realism."

"I like the color and sharpness of A but the motion in B."

And:

"The media used for the image would depend on the subject. The left screen was more lifelike."

"I could care less about the difference between A and B. Both seemed acceptable."

For the Saturday evening performance the audience was asked to check off if they were sitting in front of screen A or screen B. I had wanted to make certain that results wouldn't be unfairly biased due to seating arrangement, and they didn't seem to be. There is a slight indication that people who sat in front of the film were more likely to say that they could tell a difference but there was no relation between the seating position and the likelihood of getting it correct.

It seems that viewers want to prefer film; whether they in fact do is another issue. The dance material that was shown in the performance was thought by some viewers to be content appropriate for video and by others for film. Given that viewers were exposed to only one content type (dance), the results need to be viewed with these limitations in mind. Of the eighty percent who said they preferred film (though many incorrectly), perhaps with traditional narrative content they do. Until we can present an array of content types in parallel and test with it, we will have to make do with the existing data. In Part B of this Chapter it will be seen how the results varied from an informal experimental condition (Study I) to one that was more formal.

In summation, we found that 73% of the viewers chose the video screen as their preferred screen, though 3/4" of them thought it was film. But we cannot be sure that this is due to the strength of the impact of "film style" overriding the aesthetic preferences for film. There are two possible conditions that my have adversely affected the results. First is suspected problems with the film-to-tape transfer, which may have degraded the quality of the film-based version. This did not have the same effect in Study II however, and a more likely factor to consider is the second condition. During the afternoon before the first performance, the left projection system began to malfunction. We had to trade this projector for another. Previous to this problem we had two identical projection systems. The new one had a different lens of a slightly higher quality than the system on the right. Our performance was set up so that the video was projected on the left screen and the film on the right. It cannot be determined but merely suggested that the quality of the projected image may have been sharper on the left screen (our audience response certainly indicates this).

Table 3-Screen Preference by Right.Wrong

STUDY II

"...you're dealing with persistence of vision. In a movie theatre, persistence of vision helps you. Here, trying to go back and forth between the two, what you're doing is you're confusing yourself a little bit. You're seeing one way persistence is dealt with, another way that it's dealt with and you're trying to go back and forth and compare them."

- James Greibsch, Director of Photography

Study II was run from March 31 through April 29, 1988. This study was designed to look at 1) whether viewers can distinguish film-originated programming from video-originated programming when viewed on home television receivers and 2) to determine if aesthetic preferences exist and how important they are to the viewers.

Subjects were first shown a series of film and video clips and asked to write down whether they thought each was originally produced in film or video. They were then shown parallel footage of a dance and asked to say which screen displayed the film and which one video. After the two-minute dance clip, subjects were interviewed and their responses recorded on audio tape. Not all subjects were asked all questions. More technical questions were reserved for the "expert" sample. Following the interview, the subjects were thanked and the random subjects were given a $5 gift certificate.

METHODOLOGY

The Subjects

Study II required two samples, mass audience and expert. The mass audience sample was chosen from a random number selection from the Cambridge telephone directory. The expert sample consisted of advanced engineering graduate students working in the area of video and signal processing, film/video graduate students and production and engineering professionals. Forty-three subjects were selected, 20 assigned to the "mass audience" and 23 to the expert sample. The age range was from 16 to 66.

Apparatus

Study II was set up in a 12'4" x 7'5" viewing room in the MIT Media Laboratory. Two identical 19" Mitsubishi monitors were placed side by side and two chairs were placed 4'8" from the screen face. An amplifier, a pre-amp and stereo speakers were used to achieve high quality audio.

Procedure

Subjects are welcomed and asked to have a seat. In the instance of one subject, the chair is placed at center, 4'8" from the front face plane of the monitors. With two viewers, the chairs are placed practically touching. In rare cases with three subjects at a time, the third chair is seated center behind the other two chairs. Subjects are asked to fill in their name and phone number at the top of the questionnaire. The random respondents are asked to put their age and occupation next to their name.

The experimenter tells them that first they will see a series of thirteen thirty second program clips which were originally shot in either film or video and they are to place a "V" or an "F" in the blank corresponding to the clip number they have viewed. They are told that they should keep up with the questionnaire as the clips move fairly quickly and that they will can fill out the remainder of page one after they have viewed the program clips. These are then viewed on one monitor. While subjects complete page one after viewing the short clips, the experimenter/operator changes the tapes and makes ready the parallel clips. When they have completed page one, they are asked what cues they used to select their answers. Then they are shown the 2 minute parallel program on both monitors and asked to determine which is film and which is video. After this they fill out page two and then the experimenter asks a series of questions.

The experiments were run with one or two subjects at a time and twice there were three subjects. In terms of the arrangement of subjects, it was random. There were assigned experiment time slots and if they could be filled up with two participants then whoever the two were that could make it would be the two who ran through the study. The arrangements that occurred in pairs were:

Mass & Mass
Mass & Expert
Expert & Expert

Possible technical problem: It has been suggested by almost all of the filmmakers who participated in Study II that the quality of the film transfer could have been much better. We transferred on a Bosch telecine. Not having the means at present to try a different transfer system, we conducted the study with the material we had. Suggestions have been the Rank-Cintel (which is rumored to give a more "filmic" transfer), and the Image Transforms process. Regardless, in controlled conditions, most people were nevertheless able to distinguish between the parallel film and video looks, and claim to prefer the film.

Program Materials[13]

Study II-Part A used 30 second excerpts from thirteen programs selected to cover a range of content types including drama, sports, music, news and adventure. Study II-Part B used a two minute and twenty second dance program that was produced in parallel 35mm film and broadcast quality video.

1. Carly Simon "Anticipation", a daytime outdoor concert performance filmed on Martha's Vineyard as an HBO special. Carly and the band provide an animated performance on a special stage set up near the waterfront as the crowd cheers and seagulls fly by. The wind noises were such that the music had to be re-dubbed in a studio after the performance and edited in with the crowd noises. The editing and synchronization are excellent. But the film is quite grainy generating a very distinctly "film" look. It may have been shot in 35mm but it looks more like 16mm.

2. George Burns/Gracie Allen Show Live Burns and Allen in their prime. December 12, 1951, CBS TV. A Christmas show with hidden presents adding to Gracie's permanent confusion, George's monologue complete with cigars and live Carnation commercials. Much more spontaneous than their filmed programs which began the following year.

3. Pontiac Car Commercial This fast paced, high powered ad represents American advertising at its best. Using night shots, the city and special lighting, this commercial creates a distinct mood, one that makes you wish you had that car.

4. Odd Couple Oscar tries computer dating and Felix can't stop jibbing him about it. This short clip was recorded off air with terrible reception. It represents some of the worst artifacts that can appear, yet demonstrates what viewers will tolerate (for the sake of content) without much complaint.

5. Football Down-converted HDTV footage from the second quarter of the Jets-Bengals game, the Meadowlands, November 29, 1987. This footage was originally produced in parallel by 1125 Productions for an earlier Audience Research Facility study in HDTV and NTSC. NBC supplied the audio feed.

6. Cheers Having just eaten a vegetarian meal in a French restaurant, all but one in the group are still hungry and want something more substantial, like eclairs. Filmed before a live audience, Cheers was the first sit com to use multi-camera in film.

7. Black Stallion Adventure-drama story about a boy and a horse. Selected because of its superior filmic qualities, this film exudes some of the best that film is.

8. The Tale of the Frog Prince Robin Williams plays the frog prince with "Princess" Terri Garr, in a hilarious rendition of the classic fairytale. One in a series of video fairytales produced for television by Shelly Duvall.

9. Donald Duck & Walt Disney In a very old clip, Walt advises Donald that the key to success is "being yourself". Donald's "duckese" is subtitled for the foreign viewer.

10.Honeymooners Ralph's idea of vacation in the remote mountain wilderness is far different from Alice's dream of Atlantic City.

11.News Clip Report on the state of affairs in South Africa and street demonstrations about apartheid.

12.Miami Vice This segment consists of Don Johnson walking through the night streets accompanied with music. It is a very mood oriented piece with the dark night, many bright city lights and taxis swishing past as if it were you trying to cross the street.

13.1125 Commercial A series of images cut together to demonstrate the capabilities of HDTV under a variety of shooting conditions with sort of a music video format. There is a sunset scene complete with birds flying by, a queenly attired woman ascending a wide majestic staircase, a panoramic cityscape still, and a car driving along the road with tree leaves waving in the wind. All are assisted with a soundtrack by Tina Turner.

Parallel Dance "Kraus and..", a dance company of four, performs a modern piece titled "Erase". This 2:20 program was originally shot with both a film camera and a video camera mounted side by side on a tripod with the cameras registered to be as close as possible. Both versions were edited with SMPTE time code so that the edits were matched. Therefore the film version and the video version are virtually identical. The material uses dissolves, supers and straight cuts.

Study II Technical Set-Up

Video Equipment:
NTSC Equipment:
Ampex VPR 2 1-inch (2)
Mitsubishi 19" CS-2014R Monitors (2)

Audio Equipment:
Yamaha M40/C40 Power Amplifier
ADS L880 High Fidelity Speakers
Sony TC-D5M Audio Cassette Recorder
ME-80 Microphone

The video playback equipment and time base correctors were located in a nearby machine room and out of sight of the subjects. For the Part A of Study 2, a master tape of the thirteen content clips was loaded onto S-VTR. For part two, the aforementioned tape was unwound and master tapes of the parallel content were mounted, with the video version on S-VTR and the film version on R-VTR. The two machines were slaved to each other so that they would run in sync. The operator and experimenter in this study were one and the same person. The operator/experimenter would load the first tape before

the subjects arrival, and then while subjects were busy filling out the questionnaire for Part A, would then load the tapes for part two of the study.

The monitors were color corrected and adjusted by a video engineer when necessary and verified at least once a day. The 19" monitors were of the same age, had identical phosphors and electronics so that the color and brightness match was as near as is possible with consumer grade monitors.

Table 4- Study II Viewing Room Setup

Experimental Variables and Conditions

OVERALL COMPARISONS

What happens to the comparison of film and video when the production conditions are identical?

In order to determine subjective perception of the "film look" and the "video look" it is necessary to have identical program material. Without identical content, viewers can not help but be biased towards content when choosing aesthetic preference. Even when providing this content, viewers still grab for a context to place it within before they can allow themselves to "see" the pure look. With the dance program viewers sought to fit it into a category of whether they thought that dance belonged to the film domain, or if it was something that they might see on PBS, perhaps a "live" videotaped performance. The best conditions for a study of this type are to provide a series of identical clips covering a range of content types.

Single Stimulus Test

How do viewers decide whether a program was originated in film or video? Are their decisions based on content, artifacts or other?

Viewers use a limited number of factors when deciding what medium a program is originated in. These are content, historical, and technical and if they can find none of these helpful, they at last resort to the "look". A very few viewers possess what seems to be an innate ability to judge solely by the look or feel of a program. These subjects were found in both the mass and expert samples.

Dual Stimulus Test

In a side by side comparison of identical programming originated in NTSC and 35mm, are viewers able to determine which is film and which is video?

In this controlled setting, most viewers were able to tell which was which.

In a side by side comparison of identical programming originated in NTSC and 35mm,which do viewers subjectively prefer? Why do they prefer?

Overall, 59% of the subjects prefer the film. There are significant differences between the mass preference and the expert preference.

Components of Evaluation

In an explicit side by side comparison of parallel film and video content, how do viewers evaluate specific components of picture quality including:

a) Sharpness
b) Color quality
c) Sense of depth
d) Picture brightness
e) Motion quality

CONDITIONAL EFFECTS

Does type of program content influence viewer's selection of medium origination?

(Comparison of results were tabulated from the thirteen programming clips minus the parallel shoot.)
Without a doubt, this plays a significant role in viewers' determination as to whether what they're watching was originally shot in film or video.

Do previous experience and training influence a viewer's ability to determine which program is film originated and which is video originated?

(Compare results for expert and mass sample.)
Yes, training and experience make a difference, sometimes in the wrong direction.

Does type of program content influence viewer's subjective aesthetic preference for film or video-originated programming?

Yes. Viewers generally prefer their sports to be video because they say, of the sharper harder image quality, but for movies and stories they like the qualities that film can give.

RESULTS AND DISCUSSION

The Interviews and the Questions

Part A-Viewing: Thirteen 30 second Program Clips
Question: How did you make your selections?

After viewing the thirteen program clips I asked subjects to tell me how they decided whether each clip was film or video. To get at the intuitive perception of "the look" I had to first uncover the layers of cultural context. This was not an easy task. Learning by trial and error from this study, there are conditions that can be set up in future studies that will help facilitate getting to the "heart of the look". These recommendations can be found in the Conclusion chapter. The three most common cues that subjects used to make their choices were:

1. **Content** "I know that a guy sitting in the studio reading news is video, I don't have to see the way it looks."
2. **Historical** "I know that mostly because of the date, kinescope." and,
3. **Technical** "I generally tell by the motion."

Other comments were, "Well, it has to be film," about the Walt Disney clip, "...you expect since they're called 'music videos' for them to be video," "For film the big cues were number one–motion, number two–color tended to be more saturated...number three–framing–if the picture looked crowded, I tended to think it was film," "Film is far jerkier than video, video is "fuzzier" especially for long shots.", "...the film is more like a photograph, picturesque whereas the videotape is more like you're right there.", "It has something to do with depth perception."

When in the experimental setting it is hard to get viewers to talk about the "look" and "feel" of an image without seeing these programs within some context, be it content,

historical, technical or other. They are coming in for a study and the attitude they adopt cannot replicate the one they wear in their living rooms or the theatre.

Though not totally unfamiliar with American programs, some foreign subjects found it more difficult to draw upon the format cliches of American production. The engineers generally used a combination of content and image artifacts to choose their answers. In some ways, I believe that the engineers were at a disadvantage because of their training. They had the most difficult time articulating "feelings" about the look of a program. On the whole, the production participants had a tendency to go for the "feel" of the program and without probing, expressed emotions about the way a program looked. On several occasions I tried to elicit emotional responses about the "video look" or the "film look." Further along I will discuss what some of the responses to these inquiries were.

Discussion about Part A of Study II

There were two program clips selected primarily for their superior "filmic" characteristics. These were the Carly Simon concert and The Black Stallion movie clip. It had eluded me that many viewers would interpret the Carly Simon piece as a music video. The results indicate that more than half of the "mass audience" did in fact think that the Carly clip was video, whereas in the Black Stallion clip ("theatre type" content) a full 85% of the "mass audience" correctly said film. It is difficult to say whether the "mass" group chose film because of the "look" or because of the content. I would guess that their answers were based on elements of both. Eighty-three percent of the experts correctly said film for the Carly clip and for the Black Stallion, 96% got it right. The drastic difference in the "mass" and "expert" samples for the Carly clip clearly indicates the "experts" advantage and suggests that they do know more of what to look for in a technical sense.

The Burns/Allen Show and the Honeymooners were used to add a historical dimension to the study and to see how many viewers knew what was happening in that period of media history. I was accused of inserting trick questions, but one in five of the experts did write down Kinescope. It should be noted that a few other experts did know that it was Kinescope but did not write it down.

The Donald Duck and Walt Disney clip was used partially for the historical element but also because the clip displayed Donald (animation) within the real (live) world of Walt and his office. I knew for the experts this should be a giveaway but I wanted to see how it worked and how much of the "mass audience" knew that old animation was film. Well, either they knew animation was film or Walt was film or this clip *really* had the "film look" (which it did), because 85% of the "mass audience" got this correct along with 96% of the experts.

Table 5- Correct Answers by Program and Type

Looking for a high quality video production, the series of Fairytale Theatre videos came to mind and The Tale of the Frog Prince was selected. This clip typifies video at its best.

The acting is good, the writing is good and the production displays quality in all areas. These tales, produced on the stage, have a very video feel, partially because as Americans, we are becoming accustomed to seeing stage type productions (plays, dance, and concerts) in video. It is shot television style in that there are close-ups and easy to see objects that are not going to be missed on the small home receiver. But there is an element about the "look" that is very video, that doesn't have to do with these conditionings. It is probable that viewers perceived the "video look" in this clip. The "mass audience" was 85% correct and the "experts" 87%.

The Odd Couple and Cheers presented a perplexing situation for subjects. These two clips present a very interesting case as in both of them, the "mass audience" achieved 50% correct and the "expert" sample got less than 50%. With the Odd Couple segment, 39% of the "experts" got it right and with the Cheers segment it was up to 48%. This indicates that the "expert" sample probably uses preconceived notions about content and what they think a particular type of programming is shot in. They may have used this more than the "look" although the Odd Couple was taken off air and exhibits terrible artifacts, so much so that many of the "experts" complained that they couldn't see the medium through the garbage. Cheers confused almost everybody. Most likely due to the "live" and multi-camera style of the program, some viewers assumed that it was video, as in traditional studio television. The lighting is also more traditionally video style because of the multi-camera format. Cheers had the video feel without the sharpness of the "video look."

Miami Vice, with its night scenes has a distinct "film look" for viewers who have an idea of what film is supposed to look like. And for viewers who have the knowledge that film handles night scenes better than video it was probably easy to put that together with the "look" and come up with the correct film answer. The "mass audience guessed this one 60% correct while the experts got 78% right.

Viewers were by far more certain of the Football and News clips. On the football question the "mass" guessed 90% and the "experts" guessed 96% correctly. And with the news, they were even more convinced as "mass" were right 95% of the time with the "expert" sample up to 100%. Many of the subjects remarked on the "instant replay" feature of football and thought for that to work, video had to be used. With news, most everyone said that to gather the news in the morning and put it out in the evening, they thought it was necessary to have video.

The Pontiac commercial threw a lot of people, half of the mass audience thought it was video and 65% of the experts said it was film. It was film.

The other "commercial" is more of an ad for 1125 Productions, the high-definition production house in New York. It is a high-definition clip down-converted to NTSC and has a very high quality video look. The subjects had no way of being familiar with this content beforehand. One could presume that with the music video type of presentation, subjects would of course select video. (80% of the "mass" viewers got it correct and 83% of the "experts.") However, when comparing it with the results of the Carly Simon

segment (another "music video" type), it can be hypothesized that viewers are seeing beyond content, beyond the technical and it does appear that in fact, they are relating to a "film look" or a "video look".

It does appear that when asked to state whether a program is of film or video origin, viewers can't help but look at content and historical factors first. Viewers generally agree that there are several types of programming that have a blatant "film look" or "video look" such as movies (film) and news, soaps and game shows (video).

Previous training has a marked impact on the answers that were given and not always in the right direction, though 48% of the experts got ten or more correct compared to 15% of the mass audience sample. On the average, the experts got one and a half more correct answers than the mass audience. This does imply not surprisingly, that the trained eye does have a better sense of the "look" than the average viewer. It is clear that the experts have fixed ideas about particular content types and carry assumptions with them that get in the way of their ability to see only the look, as is likely what happened with the Odd Couple and Cheers. It is difficult to distinguish when viewers are using which factors of identification when, but through further research and refinement of this preliminary study, more can be learned about viewers' perceptions and preferences.

Table 6-Number of Correct Programs Per Subject

Part B –Viewing: Images in Parallel
In-depth interviews

Program clip: Parallel Dance

There is a distinct "film look" and a "video look". I had hypothesized that when presented identical program material in film and video, viewers may not be able to differentiate which was which but when asked which screen they preferred would certainly choose film.

Which screen is film and which screen is video?

After having viewed the parallel program clips, subjects wrote down which was which. A full 85% of the mass sample and 87% of the expert sample got it right. The question is how did they do it? The answer is that there is a distinct "film look" and a distinct "video look," and when given identical material to choose from, content becomes less of a factor and history doesn't come into play. Some subjects remarked that this type of content would be preferable on video.

Which screen do you prefer?

The results show that 74% of the mass audience prefers the film originated clip to 46% of the experts. This may be due to the experts being more aware of the technical factors. However, this may have acted as a deterrent in that they were involved in looking for artifacts and not the "feel" of the piece.

"I like the film a lot better and the reason I like film a lot better is because of that depth. With the tonal range that you have on film you tend to get a lot more of a sense of depth."

All of the subjects who preferred film were correct in their guess, whereas 35% of the subjects who preferred video, thought they were viewing film. This leads to the conclusion that viewers want to believe that they prefer film.

Which screen is sharper?

Fifty-five percent of the mass audience found the film image sharper compared with 35% of the expert sample. Sharpness is one of those terms that has different meanings for different people. Sharpness to an engineer is different from sharpness to a mass audience subject and sharpness to a filmmaker may be different from that of an engineer.

Table 7- Subject Sample x Right/Wrong

Table 8- Screen Preference x Right/Wrong

Table 9- Subject Sample x Sharpness

Table 10- Subject Sample x Preference

THE INTERVIEWS

After a discussion about the parallel content, we moved on to a series of more general questions having to do with adjectives describing the "film look" and the "video look", participants ideas about cultural similarities and differences between the two media, and projections for the future to name a few.

Which do you prefer looking at: films in the theatre or television?

Eighty-five percent of the respondents said they preferred films in the theatre to television. The most common answers to this were screen size and the fact that it's a

social event. One subject liked both for different reasons. Television is easier, it's more comfortable to stay at home. One respondent said that he didn't like the theatre because of the rude audience but other than that he preferred the theatre image. Several subjects said that in general the quality and content of what was offered at the theatre was better than that available on television. There were a few comments that spoke of adverse feelings towards commercials on T.V.

When asked how they would feel if video were to replace film in the theatre, the reaction was a mixed bag.

"I think it will. Film is an obsolete technology. In the end it's going to be an economic issue.", "Nooooo!! I hope not! I mean I hope not but I'm sure I've been very wrong before. I would really hope not."

What are the differences between film and video?

A generalization can be made that the public perceives video as a tool for information and film as a means for entertainment. Given, these are generalities but they are repeated often enough to make mention. A common belief is that everything on TV is video and to see film you go to the theatre, but this is rapidly changing as the populace becomes more educated about media.

According to Horace Newcomb of The University of Texas at Austin, television is the "central storytelling system" of modern society. He says,"I find more narrative, more interesting and compelling stories on television than in the theatre". Newcomb says that one of the most primary differences between film and video is "the profound serial nature of the medium" of television. It's ability to tell a story that never ends is very different from film.[14]

Shooting for film is usually very different from shooting for video. Film has a history of being shot single camera style, moving the camera around to get different angles and changing the lighting for each camera placement. Many hours can be spent with each separate set-up. Video on the other hand comes from a history of multi-camera style shooting in the studio and eliminates a lot of the time-intensive labors involved with changing camera positions. Also with the destination for each medium in mind, the types of images selected are different. Wide panoramic scenes get lost on a television screen and so on a small screen you tend to get larger images so that they can be seen.

The technical capabilities of each medium are different and have separate requirements. Traditionally video has required more light. There are two reasons for this, one being the camera's inability to capture a picture in low light and the other being that for multi-camera production, it is necessary to light everything so that odd shadows are avoided.

This contributes to the flat look often associated with video. However this is rapidly changing due to new video technology.

Editing for television is associated with the multi-camera switching effect. Cutting from one actor's face to the other and back and forth. One mass audience viewer had this to say: "...in a film you're not noticing all the time the different, what do you call it, the different cuts, I think sometimes it's a little bit more fluent in film, I don't know ...it just seemed to be more a series of individual cuts than just one flowing picture sequence."

And from a filmmaker's opinion: "...the editing here is so bad on the video examples, they just have two cameras next to each other cutting from one to the other, well film people know that doesn't work."

The training required for each field has some similarities but generally just because one has expertise in one field does not mean that it transfers directly across to the other. The mechanics of a film camera are very different that the electronics of a video camera. Loading a video tape into a VCR is relatively straightforward. Loading a magazine with film in a changing bag takes skill, and if screwed up, can be costly.

"...with video everyone's a cameraman and everyone's an editor. But wait a second, what about quality? I feel with film, people who have gone into filmmaking and film editing and have really labored over how to make a cut and how to film, and how to make something right in the natural light or how to use lighting properly, it's just so much more time seems to be spent..."

The "Film Look" and the "Video Look"

Just what is the "film look" or the "video look"? This question invites subjective answers. The look- there is something about the pure unadulterated video look that has to do with depth or lack of it,... there is oftentimes a negative associated with the "video look", and usually it contributes to a distracting effect, but it doesn't have to be. As in the aforementioned Tale of the Frog Prince, it can work quite successfully and be regarded as an aesthetically successful work of art. Video often evokes a negative connotation but that stereotype is changing.

Descriptions of the "Film Look" and the "Video Look":

Film: grainy, distant, lush, soft, liquid, moody, rich, saturated, deep, jerky, textured, subtle, dynamic, emotionally involving, quality, natural looking, natural lighting, natural

colors, lifelike, sensuous, realistic, hot, too bright, too sharp, atmospheric, warm, edgy, high contrast, clear

Video: present, like you're right there, washed out, sharp, smooth motion, live, bright lights, artificial, flexible, convenient, harsh, contrasty, cardboard cut outs, lifelike, dull, colorful, unrealistic, glary, pops out, electric, hard-edged, precise, stark

Do you have a preference for watching film or video generated content on TV or does it matter?

"Well, in fact I think I probably, if you asked me, showed me a bunch of shows and said which of these do you like, I would like the film stuff, but I don't know if that's because it's film or because good stuff tends to be on film."

"I guess I don't really think about it all that much because I don't have a real high quality television at home so everything is kind of, I have rabbit ears and just slap them around."

In general, which medium do you prefer?

"Oh boy, I am a film person up the kazoo." (Richard Hollander)

"For me,...it depends on the kind of program"

Do you have any emotional response to film or video?

"That one was just more of a film feeling than anything else, I mean you just don't expect to see something like that on video.", "I've never been emotionally involved with a TV set, it's just difficult.", "I went to a movie last night, I couldn't stop crying."

Do you perceive differences between the cultures of film and video ? If so, what are they?

To an outsider the industries of film and video may appear to be interchangeable. By this I mean that if you tell someone that you are in the business of television and someone else works in the film industry, they figure that one is very similar, even the same as the other. There are many similarities but in fact the culture that belies each is quite different. The history, training and production methods are different and in most cases they have different goals for their end product. This is changing but there are still hard core filmmakers and videographers unique to each industry. This question was asked to try

and gain perspective on the different points of view from the mass audience, engineers, filmmakers and videographers that were interviewed.

"Video has traditionally been controlled by radio people. ...in a video production, you know where the director is? In the control room. He talks to camera people through headphones, he thinks he's controlling things, camera people are considered to be idiots, ...the editing here is so bad on the video examples, they just have two cameras next to each other cutting from one to the other, well film people know that doesn't work. So the image is denigrated, they don't work for the actors, they just go in and talk to them, so that the whole, it really has nothing to do with it being video, it has to do with the traditions of the industry. The camera man in the tv studio doesn't even have a name."

"...film is becoming infected by video. The power of the director is being totally whittled away. Everyday ..they have these conversations, where they discuss the days shots, and one thinks that so and so is terrific, it's insane, it's a committee process. As a cameraman, I don't like a whole flock of people looking over my shoulder through the camera. It tends to, what is so common in video work, play it safe, never take a chance, never do anything. Add a little bit more here, a little more there, play it safe, play it safe, play it safe. And it doesn't work for imaginative anything."

"...looking at rushes is a very complicated business. In video you don't even have any rushes, you make all your decisions right as you're shooting them. It certainly cuts out most of what we thought of as editing."

What if video were conducted with the same craft as film?

"I think you wouldn't be able to tell the difference."

Is video cheaper than film?

"If you're going to do it properly it's not."

What are your predictions regarding HDTV? Will it replace film?

"Definitely!", "My god, look at it! It's such a minor improvement, I can't tell you!", "...everything that's wrong with video is characteristic of the whole process."

When asked if film will eventually be replaced by video ...

"No, never, never, never, because it's just, it's beautiful.", "I don't think so and I think it's the same argument...people predicted that newspapers would disappear (because of television)...and they certainly haven't."

What is the future for film?

"I think there's always a place for film, I really do. At least short sighted. I'd say within the next 10-15 years I don't see theatres going out of business. Because I think there's a lot of good things associated with the theatre. Just look at how popcorn, people go to the theatre and they get popcorn. I mean that's the last thing you need to do when you go to a theatre, but it's ingrained and it's part of your culture that you go to the theatre to have a good time."

"I don't think there will be any. Film's horribly expensive and clumsy, and I don't see any point in it."

"...there's going to be a point at which video and the characteristics of video go the step beyond film."

13 Some of the content descriptions were excerpted from, "The Mass Audience Looks at HDTV: An Experimental Study of Subjective Responses to NTSC and HDTV Technologies", by R.W. Neuman, S. O'Donnell, S.M. Schneider & L. McKnight, ATRP-T-68, A Report on the Results of Study A, MIT Media Lab, (March, 1988)

14 M.I.T. Communications Forum, "Industry/Technology/Art, II, New Readings of American Television:"Artful Finales: Network Series in the Age of Cable", March 13, 1988

CHAPTER FOUR: CONCLUSION

"... film is best considered simply as one stage in the ongoing history of communications."

-James Monaco

What we were looking for:

- Can viewers distinguish film-originated from video-originated programming?
- Do they have aesthetic preferences for one medium or the other?
- When shot film-style, does video take on any characteristics of the "film look"?

What we thought we would find:

There are certain types of programs which have a very blatant "film look" or "video look", and in these instances we thought that viewers would be able to tell which medium they were viewing. We had hypothesized that viewers who saw parallel film and video-based programming would prefer film even if they did not know which was which.

What we found:

In Study I, participants attending a multi-media performance watched parallel film-originated and video-originated programming on two large screen video projection systems. When asked which screen showed the film and which screen showed video, 50% were right and 50% were wrong. Viewers overall, wanted to believe that they preferred film, even when what they thought was film was actually video.

Study II consisted of 2 viewing sections and a depth interview. While viewing a series of thirty-second program clips, mass audience and expert samples were asked to write down if each was originally produced in film or video. Most often they used content to determine their answers. Very few seemed to use the look or feel of the piece and, given the programming, it was hard to isolate oneself from these other factors. Then they saw the same parallel program that was shown to the viewers in Study I, this time on two identical TV monitors. Most were able to say which was film and which was video. Subjects wanted to prefer film and chose it more often.

When asked to articulate the difference between the "film look" and the "video look", most subjects found it hard to describe. On the whole, viewers do see a difference but mass audience and experts alike have a difficult time pinpointing what that difference is.

Asked if they preferred movie theatres or television, the majority of viewers chose the theatre for screen size, environment, the higher picture quality, newer material and the fact that it is a social event.

Future Research:

There are many variables yet to be covered in this area of research. Format is relevant to content. With varying content one can either "get away with" using one format or the other; or use it for a specific purpose or effect.

Although the parallel programming approach was fairly successful, viewers' perceptions were colored by preconceived biases of which medium they thought belonged to a particular content type, i.e. news is shot in video. Given the high content influence over viewers' perceptions and preferences, it is important to conduct further research in this

area. A series of studies should be conducted using multiple parallel shot programs and spanning a range of content types, (let's start with ten) and we should shoot them in 35mm, NTSC and HDTV. Possibly we should aim for 65mm film also. With film we will shoot at 24, 30 and 60 fps. This has the potential to yield significant insights into audience perceptions, as well as on the varying aesthetic impact of different production formats and technologies.

In future studies, it would make sense to use clips from non-specific programming. It's very difficult to get to the bottom of the "look" with the historical and other factors coming into play. Another method is to show the viewers parallel footage without cueing them that one is film and one is video.

The Future:

Why not wait for a state of the art solution for a new TV standard? All things considered, it appears that content has more to do with what someone will watch, than which medium it is produced in. When rushing into a quick decision we may make an unwise choice, rather than exercising patience and waiting for an option that will settle with us much better for the long haul. NTSC as we know it has been with us for 35 years and the next standard will probably stay around for awhile. We should wait for state of the art, instead of replicating inefficient technologies, as in the case of 1125-line HDTV. Viewers will not mind the wait; they do mind buying new technology and having it become obsolete.