A TECHNIQUE FOR CREATING NEW VISUAL PHENOMENA

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abstract

This paper outlines a technique for creating new visual phenomena by proposing a systematic method of using existing media in novel manners. The technique involves the random and purposeful manipulation of *person-media* variables, defined as the various factors describing communication between persons and media. By focusing on using rather than building media tools, the proposed technique creates a philosophy for creating new visual phenomena which can be utilized with traditional, contemporary or forthcoming media tools. This paper describes *person-media* variables in detail, compares existing media utilizing these variables, proposes criteria for judging visual phenomena, creates new visual phenomena using novel combinations of person-media variables and describes an installation which utilized the proposed technique.

Thesis Supervisor: Otto Piene
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preface

The aesthetic theorist, in short, desires to understand the artist, not in order to
interface with the latter, but in order to satisfy an intellectual interest of his own.
(Bosanquet; 1956, p. ix)

Writings on the field of visual art, best known as art history, art theory, and
aesthetics, usually deal with historical, social, cultural and philosophical aspects of the
subject. Reflecting the poetic and intuitive nature of art is the lack of writings examining
art from scientific or objective perspectives, although some texts discuss the formal
elements of art, such as, "Learn How to Paint" books. The present paper, however,
uses a perspective being closer to psychophysics or experimental aesthetics than art
history or art theory. Experimental aesthetics is the area of psychophysics which
attempts systematic investigations determining relationships between aesthetic
experiences and phenomena as described by physics. Thus, the field compares
subjective interpretations of art against the supposedly objective classifications of
physics.This area is multidisciplinary, as fields of psychology, physiology, physics,
aesthetics, art theory and art history are encompassed within its framework.

An unfortunate circumstance of the multidisciplinary perspective in experimental
aesthetics is a lack of acceptance by associated fields. Most artists consider the area
too scientific, while many scientists find the field to be overly concerned with artistic
issues and lacking in objectivity. An empirical approach at investigating relationships
between aesthetic experiences and physical phenomena was initially adopted by
Gustav Fechner(1801-1887), stemming from the seventeenth century shift in
philosophy towards empiricism. Since that century, empiricism has become a major
component in all sciences, although its venture into visual art is minimal at best. A
scientific approach to art, however, is often not meant to understand artists, as stated in
the opening quote, but rather to fulfill intellectual pursuits of investigators.

The approach used in this paper results from my own education and experience in

fine arts, psychology and engineering by attempting a systematic analysis of the creation and viewing of visual phenomena. Although this perspective is firstly motivated by the goal of psychology which attempts to explain and understand human behavior and thought, the cognitive tools being utilized are closer to those of engineering.

Resulting from the analysis are specific factors pertaining to media usage along with formal and content considerations. While this approach may seem unduely formalistic for some readers, the justification is the formulation of *A Technique For Creating New Visual Phenomena.* The terms *visual phenomena* and *visual imagery* are used throughout the paper because results of the proposed technique may not produce "art," if one views this word as containing qualitative implications. I don't intend to lower "art" to the ranks of mere visual phenomena; but from a perceptual perspective, any object perceived by human sight, whether it be a Raphael or a garden hose, is a visual phenomenon.

> We may say roughly that an aesthetic attitude, in the wider sense of the term,
> is being adopted wherever an object is apprehended or judged without reference
> to its utility; or when it is merely being contemplated. In this sense, even a
> sausage can be approached from an aesthetic point of view. (Valentine; 1962, p. 5)

The perspective of this paper does not deny the intuitive and emotional motivation of creativity and artists, but rather provides a systematic tool capable of organizing creative ideas. Intuition and creative thought are still required for the technique being outlined; only a skeleton longing for the flesh of creative thought is being proposed.

contents

introduction

I suppose art historians and critics must write something about art, otherwise their professions would vanish while art lovers and students would be left to their own perceptions to interpret the art of bygone days. But what is the the art of bygone days: a conglomeration of artists, pieces, media, styles, conventions, movements, revolutions, religions, morals, attitudes, censorships, dealers and museums. What can one conclude from the numerous movements which westen art has witnessed over the past 500 years? The High Renaissance, Mannerism, Baroque, Romanticism, Neo-Classicism, Impressionism, Post-Impressionism, Symbolism, Expressionism, Fauvism, Cubism, Futurism, Constructivism, De Stijl, Surrealism, Dada, Abstract Expressionism, Happenings, Pop art, Op art, Minimalism, Environmental Art, Earth Works, Sky Art, Performances, Conceptualism, Super Realism and Neo-Expressionism are the various terms used to distinguish between past and present art movements. Are these movements so radically different from each other that the classifications are absolutely necessary.

How does one decide on differences between movements? How does one decide when *new* movements are created? The Baroque painters of the sixteenth century created figurative oil paintings like the Neo-Expressionist painters of today. How different is Neo-Expressionism from Baroque painting? Although the painting style differs between the two movements, both styles were executed in oil paints applied to rectangular shaped canvases using rags and brushes usually by lone male artists in studios. Certainly a difference exists in handling of paint since the Baroque painters carefully applied glazes to create finely modeled surfaces utilizing accurate perspective while Neo-Expressionist painters usually apply thick paint in quick, poorly controlled gestures. Yes, the styles differ; but does the difference warrant the creation of a movement?

The question of differences between movements is more dependent on one's

definition of differences than some generalized acceptance of new and different. New
`movements are often repackaging of older styles like the relabelling of laundry soap
as *new and improved* when only the package is new. Packaging of consumer goods,
however, is visual, but the repackaging of old painting styles often exists in the talk of
artists, dealers and critics more than paint. These three interpreters for the masses
often speak on new languages of meaning, motivation and interpretation within new
movements while avoiding the more visual aspects of art. H. H. Arnason(1986)
discusses Neo-Expressionism in *The History of Modern Art:*

> ...virtually all modern art, collectors and museums, the media and a good
>
> segment of critical opinion rejoiced that here, at last, were big, vigorously
>
> worked, color-filled, *meaningful* canvases. In an art world hungry as much
>
> for exitement as for imagery, this was an event, made all the more
>
> newsworthy by the fact that it had been spearheaded in Europe, when
>
> German and Italian artists were working with a self-confident strength and
>
> independence not seen since the original expressionists on the one hand
>
> or the Futurists and metaphysical artists on the other(p. 635).

If indeed the art world was "hungry," their hunger wasn't merely for "color-filled,
meaningful canvases," but rather for a medium which was tangible and more
important--salable. Arnason has overlooked the rise of materialism and the yuppie
during the late seventies and eighties; the peace loving flower children of the sixties
have grown up and want to buy, buy, buy. The Minimalist, Conceptualist and Earth
Works of the sixties and seventies had produced locked galleries, piles of fat, large
spirals of rock and water, and crucifixions on Volkwagons. One certainly couldn't collect
anything more than documentation on these important works; needed for the eighties
was something tangible, big, contemporary, and supposedly
avant-garde:Neo-Expressionism.

If a revolutionary movement had been created by Neo-Expressionism, it certainly
wasn't attributable to painting style, but rather to the refined network of artists, dealers,
collectors and art magazines responsible for creating a new movement which had
been accepted by practically everyone involved, including the public. The creation of
avant-garde art had become automized. In this consumerist world, contemporary art
must move from artist to dealer to collector against the flow of the money. How could
Neo-Expressionism be so readily accepted by these individuals, this network, unless
some master strategy had been organized. When Julian Schnabel hit stardom in the
early eightes, some dealers--those handling his work--labelled him a visionary while

much of the art world screamed charlatan. Regardless, if Schnabel was a visionary or a charlatan, his public relations group succeeded and he is already listed in the handbook of art, the TV guide of Soho, Arnason's *History of Modern Art.* If movements in the past were created by revolutions in visual imagery, such as Surrealism, this trend was now replaced with corporate strategies designed to control the contemporary art scene through promotion.

Although criticizing the contemporary art scene is not the major goal of this paper, the discussion will hopefully create an awareness of objective visual differences between art styles. When I speak of style, however, I not only refer to conventions in handling paint, but also in approaches for creating and presenting visual imagery, including general characteristics of media. I hope to create this awareness by proposing a system of analysis which examines styles and media in fairly objective manners. To demonstrate this approach, I return to the two movements of Baroque and Neo-Expressionistic painting. Adding to the difference mentioned previously, handling of paint, the two movements also occured in different countries and are separated by nearly 500 years of art history. Baroque was typically created by Italians, while Neo-Expressionism is practiced in the big leaques by Germans, Italians and Americans.

Focusing on similarities, one notes that artists in both movements are Caucasion males raised on Western culture and probably motivated by money and opportunity for recognition. Works in both movements were probably created in studios on large rectangular shaped canvases supported on easels. Similar tools, such as oil paints, palette knifes, brushes and turpentine were used by both groups of artists. The finished paintings are hung in galleries or museums and viewers either stand or sit while gazing at finished works. Although formal differences exist, since the Baroque artists relied more on perspective than the Neo-Expressionist painters who rely more on nontraditional hue combinations, the images of mythical figures are common in both styles. Thus the revolution of the eighties has more in common with art of the sixteenth century than differences.

Moreover, if one examines the art movements over the past 500 years along the conditions mentioned above, one finds more similarities than differences. Practically all painting movements of the past 500 years have involved rectangular shaped oil paintings involving figurative subject manner. Usually the differences between movements were only minor changes in style. Of course, this can be stated in 1988, but in the late 1800's when Impressionism was new, it definitely was revolutionary. With these movements now in the past, they are not considered revolutionary because the styles have been generally accepted.

I am not insinuating that all art movements over the past 500 years are less revolutionary than art historians believe, but rather the discussion and Zeitghist around these movements are often more responsible for a movement's uprising than any extreme formal or conceptual breakthrough. Generally, major movements over the past five centuries, possess more common elements than differences if one examines all factors involved in the production of art work. Practically all the previously mentioned movements consisted of oil paint on canvas or traditional sculpture media like bronze, wood or marble created by sole artists in presenting landscapes, portraiture, Christian, Roman or Greek mythology imagery. Abstract Expressionism, Minimalism and related movements, however, are exceptions with their total absence of recognizable imagery. Certain movements, however, have contained formal breakthroughs, such as Dada, Kinetic Art, Assemblage,Conceptualism, Process Art, Environmental Art, Performance Art, Sky Art, and Site Specific Art. These movements have succeeded in creating new visual imagery because they had broken away from conventional use of media and imagery. Dada was responsible for removing logic and purpose in the creation of art while Conceptualism viewed logic and concepts as being more valuable than actual visual imagery. Assemblage allowed nontraditional materials to be combined in unique manners while Kinetic Art finally brought perceivable motion into fine arts. Performance art presented an artist's body as art while Environmental and Site Specific Art encompassed large spaces and elements rather than limiting art to relatively small individual pieces. Related to Environmental Art is Sky Art which succeeded in breaking away from the typical environment for art, the ground, by utilizing the sky as a gallery space. Although these movements have created revolutions in creating and viewing visual art, the conceptual seeds planted haven't reached full bloom; the responsibility now lies with contemporary artists to carry the advancements further.

Today, the wide availability of new media, such as felt markers, photographic film, laser projection, neon light, video, video disc, holography, computer graphics, broadcast television, the telephone network, synthetic fibres and others allow contemporary artists a freedom from traditional art media such as oil paint, charcoal, ink, lead pencil, canvas, stone and bronze. However, most art schools and major galleries around the world still contain work created by contemporary artists using traditional media. In addition, many contemporary artists and art critics often derogate individuals utilizing new media even though some of these media have the capacity for producing imagery which is unobtainable in older media. David Antin(1986) speaks on the visual potential of the video image: "But the time standard of television is based firmly on the social and economic nature of the industry itself, and has nothing whatever to do with the absolute technical and phenomenological possibilities of visual

representation by cathode ray tube (p. 155)."

Although great technical differences exist between contemporary and traditional media, artists, critics and viewers often possess opinions being unrelated to technical issues of media and more concerned with the acceptance of a new medium as "art." Although video has been accepted as fine art by many institutions and is capable of phenomena unobtainable in traditional media , this medium is still considered "experimental" by many groups in the art world. Walter Benjamin(1986) questions whether we should rely on definitions of fine art media, created hundreds of years before the concepts of new electronic media were even realized. Jack Burnham(1986) provides some insight in explaining the reluctance of the art world at accepting new media as art:

> It is possible that the schism between art and sophisticated technology is far
>
> deeper than we suspect, that, in fact, these differences lie imbedded in the
>
> neural programs of artists' and scientists' minds(p. 233). With the rash of Tek-Art
>
> adventures during the 1960's, substantial numbers of artists and critics feared
>
> that electronics might soon overwhelm the prestige of the traditional art media
>
> as found in painting and sculpture(p. 238).

Even when a new medium is accepted as an art form, related discussion is quite different from that of work in traditional media. Rarely are painters questioned on brand and tube size of oil paint, brush size or paint application methods used in painting; questions and comments usually pertain to content of the work. However, when I present a computer animated video installation, I am usually questioned on the type of computer, memory capacity and software used in creation of the imagery; I am rarely questioned on content or intended meaning of the work.

The disparity in concern between traditional and contemporary media is possibly caused by the novelty of the new, usually electronic imagery. Often viewers and users of new media are so amazed by the technical characteristics of a medium, that image content and aesthetic concerns becomes secondary to the phenomenological experience. These technical concerns by viewers, however, may focus more on aesthetic experiences than tools once the novelty of a new medium has passed. Douglas Gomery indicates that three phases of evolution were involved in the acceptance of film as an art medium:" invention, innovation and diffusion." On a similar topic, David Cook speaks on the beginnings of sound film after 1929.

> Sound technicians from the broadcasting and telephone industries who had no

understanding of film-making suddenly appeared on the studio sets endowed
with tremendous authority to determine camera and microphone placement.
Arthur Knight writes of their brief but dictorial rule: "[The] experts, concerned
with nothing beyond the sound quality of the pictures they worked on,
continually simplified their problems by insisting that scenes be played in
corners, minimizing long-shots for the more readibly controllable close-up. In no
time at all the techniques, the artistry that directors had acquired through years
of silent films were cast aside and forgotten in the shadow of the
microphone."(Cook, p. 251)

The first audiences of sound film were so amazed by "talkies," that content and
aesthetics were secondary to a perceivable syncronization between image and sound.
After sixty years of sound films, audiences are not simply amazed by sound and image
correspondance, but focus more on aesthetic or entertainment value of film. Possibly
new media, such as video, computer graphics, holography, and laser projection are at
early stages of development in which users of these media are more technically than
aesthetically motivated while viewers are more attracted to the technology than
aesthetics of the experiences provided. Burnham(1986) states, "Today's science has
spawned a wealth of technical gadgetry, while on the other hand, modern visual artists
have been notoriously unsuccessful in utilizing much of it in the making of socially
acceptable art (p.232) ." If artists have been unsuccessful in using new media, as
suggested by Burnham, is fault with the artists using these media or the media
themselves. Possibly new media are not developed sufficiently to be art media.

With media of any sort, persons are typically involved either in using or
developing media. The goals of these developers and users, however, are radically
different. Engineers developing television broadcast equipment must be familiar with
technical characteristics of electronic components and electromagnetic waves if their
designs will operate reliably. However, users of television broadcast equipment, such
as producers, are less concerned with technical aspects of television equipment and
more involved in techniques for using the equipment. Exactly how familiar should a
television producer be with the technical details of video equipment used in television
programs? The goals of these two hypothetical individuals are quite different because
the engineer is concerned with building operational tools while the producer desires to
create programs utilizing the tools of the medium. I propose a classification which
differentiates between the concerns of these two individuals which hopefully
encompasses all individuals using media. Those groups and individuals concerned
with building and maintaining media tools are involved in *tool-building* while those

concerned with using media tools in creating or viewing visual imagery are concerned with *tool-using.*

This classification is not completely dichotomous, because some individuals spend time tool-building and tool-using, such as a film makers who create stands for supporting lights. The goal of the classification, however, is not to distinguish beween individuals or groups, but rather between the activities of individuals using media. Professional artists or art students are involved in tool-using because they use media tools such as paints, brushes, saws and drills while engineers in engineering environments are involved in tool-building because their goals are creating and building media tools such as video cameras, computer graphics and laser equipment.

The difference in concern between users of traditional and new media as mentioned previously can be better understood through the tool-building and tool-using distinction. With traditional media, such as oil paint, attention is given to the artist, the *tool-user*, and little consideration is given to *tool-builders*, the manufacturers of paint brushes and oil paints. With new media, such as computer animation, little concern is given to tool-using while more attention is given to the tool-builders: the manufacturers of computers, memory and animation programs. This phenomenon is especially apparent in technical environments, such as the Massachusetts Institute of Technology where great praise is given for tool-building, while tool-using is more than overlooked, it is practically derogated. At MIT, one should be embarrassed in creating computer animated imagery rather than writing computer animation programs. I suggest the reason for higher importance being placed on tool-building is the novelty and economic gain available through developing new tools. However, after the novelty of computer animation has passed, possibly tool-using or computer animated imagery rather than computer animation equipment will attract more attention.

This classification of tool-building and tool-using may seem insignificant and obvious to some, but I suggest a reason for artists being "notoriously unsuccessful" in using new media is their involvement with these media was usually tool-building when it should be tool-using. If an artist spends time creating tools for a medium, less is available for making aesthetic decisions; thus, a work may be an engineering success but an artistic failure. Unfortunately, since most artists are trained as artists and not engineers, their attempts at using underdeveloped media may become engineering as well as aesthetic failures. I recently came across the following text within an advertisement for oil paint:

> With the development of the metal tubes and water-retaining glycerin in the
> nineteenth century, artists, who had previously been forced to mix and temper

their colors by hand were now able to paint more freely and creatively out of doors in the open air. It certainly was no accident that this development coincided with the rise of impressionists who said, "The world exists as seen through our eyes."(ArtNews, March 1988; p.44)

If artists focus on using rather than developing new media, possibly a revolutionary movement, such as Impressionism, would occur today.

I now arrive at the major focus of this paper, being to propose a systematic technique of using traditional and new media in novel manners. I have briefly alluded to this approach during my brief analysis of art movements. This approach would change the engineering challenge currently present in building new media to a cognitive challenge of creating unique methods of using existing media. Before this can occur, however, artists must overcome a preoccupation with technical aspects of media and focus on manners for using media. Before this *Technique for Creating New Visual Phenomena* can be eleborated upon, a discussion of communication between persons and media will be given.

An entire area of specialization within the psychology field deals with this topic under such names as ergonomics, human factors, human interface design and man-machine interface design. Although extensive literature is available on the topic of ergonomics, only sufficient detail necessary for readers to understand the approach being suggested will be given.

Although the term ergonomics is the most common word for describing this field of study, the term man-machine interface design best alludes to concerns of the field. The field deals with the interface or communication between man and machines, being less concerned with the functionality of machines and more concerned with manners of instructing machines to perform tasks and methods for recieving information from machines. Thus, two general areas of concern exist in ergonomics: input techniques where persons inform machines of commands and output techniques in which machines provide information or experiences to persons. For example, investigations of input techniques for computer equipment might examine the arrangement of keys on keyboards, key size and colour, keyboard height and sequences of keystrokes required for invoking commands. Investigations of output techniques may examine the font style, size and colour used in displaying text on video monitors.

Returning to communication between persons and media, one can examine two general forms of communication with media:input and output. If one inputs into visual media, imagery is being created; this imagery is then output to viewers of media. Communication with media utilizing the terms outlined is presented in Figure 1.
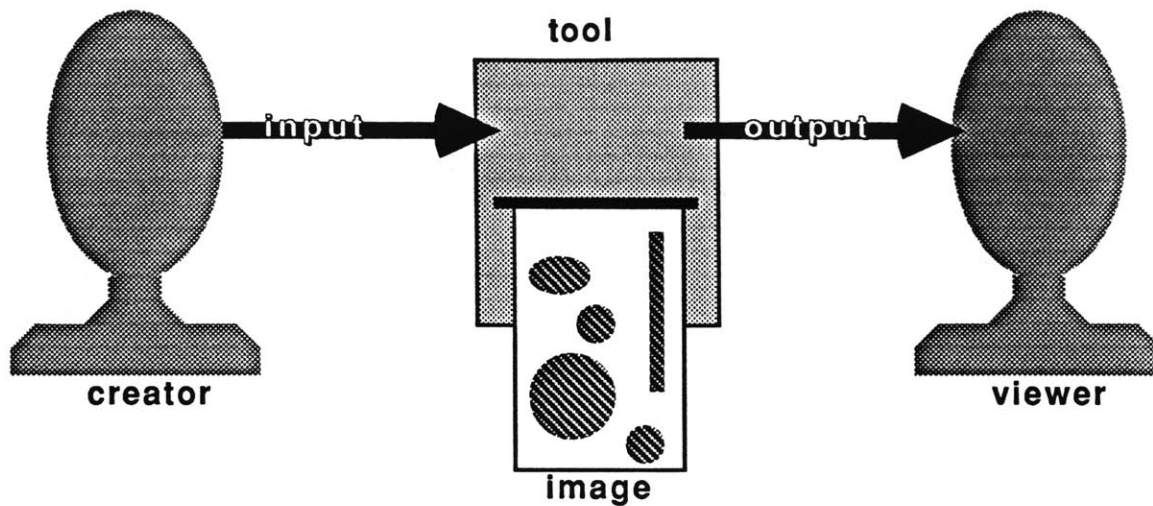
Figure 1. Person-Media Communication Model

As outlined in this diagram, the intentions of the creator are input into a tool capable of manipulating some material which retains imagery. When the creator views the image, the image is viewed through a tool as well. In this condition the creator becomes the viewer also, but in most situations other than the initial creation process, the viewer will not participate in the creation of imagery but will only view previously created imagery. I will refer to communication between persons and media utilizing the approch outlined as the Person-media communication model.

The medium of painting will be analyzed to further explain Person-media communication. Paintings are created by artists who communicate their intentions through hands and arms into the tools of the painting medium: brushes, rags, palette knifes and canvas. One can also examine manners for holding brushes, body postures and rooms in which paintings are created. When viewing a painting, an artist requires no additional tools other than light and the actual canvas. When persons other than the artist view the painting, only an environment, a light source and the painting itself are required; tools are not required by viewers. If one examines video, however, the Person-media communication is quite different. The creator or video artist must control video cameras, video recorders, edit controllers and monitors within various environments. Viewers of video may need to operate video players and monitors utilizing various switches and knobs. Thus, a factor common to all media, traditional or new, is that communication must exist between media tools and users of media.

A method for comparing Person-media communication between media is to

imagine the bodies of media users without the tools of the media being present and observing the locations and actions of bodies, eyes and limbs. This exercise demonstrates that one can communicate with media using certain body parts, such as hands, but different manners exist for body parts to communicate with media. A major goal in ergonomics is not only determining body parts for communicating with media tools, but in determining manners or conditions in which the communication is best achieved. The manner in which a media tool communicates with persons is germane to the overall experience of using media. Marshall McLuhan(1966) states:

> Physiologically, man in the normal use of technology(or his variously extended
> body) is perpetually modified by it and in turn finds ever new ways of modifying
> his technology. Man becomes, as it were, the sex organs of the machine world,
> as the bee of the plant world(p. 46).

McLuhan focuses on the communication between technology and the machine world and even refers to the reproductive nature where Man produces something new through this synergy. McLuhan's perspective differs from an engineering or scientific perspective which typically focuses on the functionality of machines while often overlooking the impact or communication methods between machines and persons. McLuhan views media as an "extension of the nervous system" and states that, "Technologies begin to form the function of art in making us aware of the psychic and social consequences of technology(p. 4)."

Having eleborated on Person-media communication, I propose a definition of person-media variables to be the physiological and psycholgical variables related to communication between persons and media. Although the conditions for person-media variables, such as an environment for using media, is changable, most users of old and new media continue using media in conventionl environments and manners. The various person-media variables will not be discussed here as the next section is entirely devoted to that purpose. Although thousands of years of art activity has been concerned with the content and formal elements of visual art , these person-media variables are also considered with input and output variables in this paper.

The reason for identifying numerous person-media variables is not strictly for analytical reasons, but rather to determine if all conditions of person-media variables are being utilized in existing media. By creating a systematic approach for examining media, new conditions of media usage can be explored; or in other words, *A Technique for Creating New Visual Phenomena* is being proposed. The approach of breaking

down a phenomenon into minute controllable elements is often used in artificial intelligence(AI) where computer systems are designed to emulate some human activity. However, AI approaches of this type are usually concerned with the conventional manner of accomplishing human tasks. The strength of AI would be heightened if computer scientists would focus on new manners of computation rather that emulating existing methods.

Having briefly discussed the first major goal of identifing person-media variables, the next goal and subsequent section of this paper will compare existing media along these variabless. Having done that, I can than determine if the conventions used in existing media are due to limitations of a medium or purposeful decisions of users. An example is the convention of rectangular shaped paintings. The wood, paint and canvas materials used in painting are fully capable of producing a variety of shapes, yet most painters, other than Frank Stella, continue using rectangular shaped canvases. Thus, this convention is not a limitation of the medium, but rather a decision or convention of artists. One may argue for the paracticality of building and transporting rectangular stretchers; however, the extra effort necessary for nonrectangular stretchers is not extremely demanding nor expensive. Creating three dimensional images on video monitors, however, is a limitation of the medium and not a convention selected by video artists. After comparing a few media along the proposed variables, the following section will suggest some criteria for comparing visual phenomena in general.

This will lead to the *New Visual Phenomena Section* which demonstrates the method of creating new visual phenomena by manipulating person-media variables to create unexplored conditions. Artists often make decisions when using media in conventional manners, while being completely unaware that decisions were actually made. Often, the avoidance of decisions is considered a "style." Thus, the painting styles of Picasso, Francis Bacon, and Jackson Pollack are easily recognizable because they always manipulate person-media variables in the same manner. Some call this a mature style or convention, but the adoption of style is the failure to acknowledge other combinations of variables.The adoption of a recognizable style, however, enables viewers to discuss work with a common visual language since most people do not discuss nor even wish to view novelty. I am not insinuating that these three individuals are not great artists, but rather to question the sustained creativity of their work throughout their lives. Although Francis Bacon is a favorite painter for myself, he is perhaps the most guilty among these three painters for not creating new style or

technique beyond his early paintings. Certainly Bacon has devoloped his style over time, but a Bacon from the fifties contains more similarities than differences with his recent work. I suppose the relationship between creativity and expressiveness in art is being questioned here. These two components are not necessarily related. Although the paintings of Bacon are very expressive, can they be considered creative works due to the extreme similarity throughout his entire oeuvre? Amabile(1983), a social psychologist, proposes that a product or performance will be rated creative if novel, approriate, useful and resulting from an heuristic rather than algorithmic process. Once an artist has developed a recognizable style, I propose that creative experimentation is set aside for development of a style. Expressiveness is still possible with the adoption of style, but the creation of new visual experiences is not obtainable when an artist continually manipulates person-media variables in similar fashions.

Thus, person-media variables are simply decisions when using media. The outcome for these decisions are conditions for person-media variables. In my approach, conditions will be manipulated purposely and by chance in a manner which I describe as a *Dada approach to artificial intelligence.* Having identified sixty-eight person-media variables with each variable potentially acquiring numerous conditions, thousands of new combinations are possible. Whether these combinations are practical or aesthetically effective is determined by proposals of phenomena criteria. The technique of systematically determining what shall be created is considered by McLuhan to be the "...great discovery of the 19th century...the technique of starting with the thing to be discovered and working back, step by step, as on an assembly line, to the point at which it is necessary to start in order to reach the desired object(p. 62)." A major axiom of my approach is that visual experiences should not be limited, that one should be allowed to perceive anything which can be created.

Utilizing the new conditions of person-media variables described in the New Visual Phenomena section, an installation will be described which was created using the conditions and technique being outlined in this paper.

Person-media variables are defined as the physical and psychological factors related to communication between persons and media. The selected variables are derived from various readings and personal experiences in psychology, visual art and ergonomics. They are classified into four general groups encompassing both the creation and viewing of visual imagery. Input variables deal with creators' intentions being passed into media tools while output variables pertain to individuals viewing previously created imagery. Formal variables are similar to those used in visual art, being concerned with the basic compositional elements in imagery, while content variables focus on interpretations of images. A graphical depiction of the relationship between viewers, creators and the four general types of person-media variables is seen in Figure 2 below.
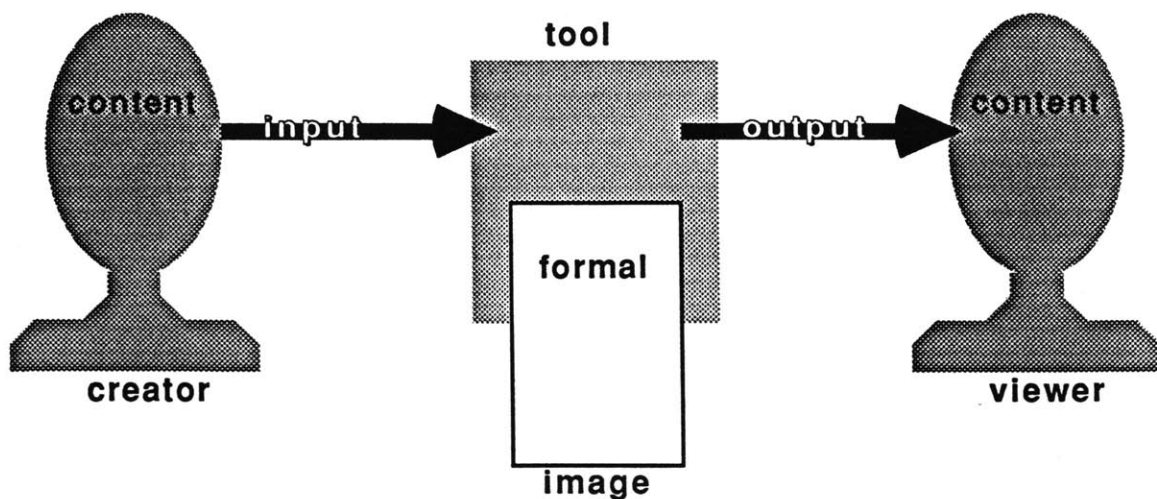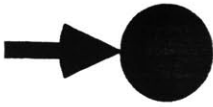

Figure 2. Person-Media Communication and Variables

An important distinction exists between viewers and creators within the Person-media communication model. Creators often control different tools when creating and experiencing visual imagery relative to viewers. For example, video artists control video cameras, microphones, recorders, monitors and editing equipment, while viewers may, at the most, control video players and monitors. This difference may seem obvious, but hopefully it conveys that control of variables involved in the input and output of visual imagery is determined by one being a viewer or creator. Being a viewer or creator within the proposed model is determined by which person-media variables one controls. Having control of input variables makes one a creator while control of output variables limits one to a viewer.

By examining different media using the Person-media communication model, differences between media become limitations in control of person-media variables rather than differences in technical characteristics. Although video information can be fed into a recorder using only a video camera or graphics computer, paint can be applied onto canvas utilizing hundreds of different objects including paint brushes, rags, hair brushes, tooth brushes, water pistols and broccoli stems. If video and painting are compared along versatility of input, painting has greater strength. Video, however, is more effective at creating kinetic imagery than painting; thus, video is more versatile at manipulating formal variables concerned with time. By viewing the versatility of manipulating input, output, formal or content variables between media, the general strengths and weakness of specific media can be determined. Differences between media within the Person-media communication model are further discussed in the Media Comparison section; the point stressed here is that some media allow control of person-media variables which are not controllable in other media; or in other words, conventions utilized in some media are technical limitations rather than conventions of choice.

The various person-media variables have been further subdivided within the input, output, formal and content groupings as diagrammed in Figure 3 on the next page. The remainder of this section describes the various person-media variables in detail. Each definition is associated with a number to aid in referencing.

INPUT VARIABLES

person
- creator
- required knowledge
- body position
- body parts utilized
- body movements
- motivation

spatial
- environment
- point of view
- phenomenon distance
- phenomenon size
- frame shape

temporal
- spatial constancy
- time of day
- creation time

tool
- tool requirements
- tool versatility

OUTPUT VARIABLES

person
- viewer
- required knowledge
- body position
- body parts utilized
- body movements
- motivation

spatial
- environment
- point of view
- phenomenon distance
- phenomenon size
- frame shape

temporal
- spatial constancy
- time of day
- experiential time

tool
- tool requirements
- tool versatility
- experience control
- distributiveness

FORMAL VARIABLES

spatial
- dimensionality
- overall scale
- frame shape
- frame location
- point of view
- element scale
- element dominance
- element variance
- element contrasts
- element location
- element orientation
- grounds utilized
- textures utilized

temporal
- spatial constancy
- image permanence
- phenomenon duration

light
- light type
- hue/value/intensity dominance
- hue/value/intensity variance
- hue/value/intensity contrasts

CONTENT VARIABLES

interpretation
- iconography
- required knowledge
- form

imagery
- environment
- objects
- descriptions
- actions
- style

Figure 3. Person-Media Variables List

A. INPUT VARIABLES

Input variables are defined as the physiological and psychological variables related to the persons creating visual phenomena, or stated simply: the conditions surrounding creators or artists. These variables are not concerned with the images being created, but with creators' identities, motivations and techniques for passing intentions into media tools. The input variables are subdivided into four categories: Person, Spatial, Temporal and Tool variables.

Person-Input

Person-input variables pertain to the identities of persons creating visual phenomena and manners of utilizing physical body parts during the creative act. Six Person-Input variables are proposed:Creator, Required Knowledge, Body Position, Body Parts Utilized, Body Movements and Motivation.

1. Creator. This variable identifies individuals responsible for creation of visual imagery. Images can be created by single individuals or result from collaborative effort. Besides considering the quantity of responsible individuals, this variable also focuses on demographics of these persons. Thus, creators can be human, nonhuman, female, male, Caucasion, Negroid, artists, nonartists, old, young, Jewish or Christian, for example.

2. Required Knowledge. Pertaining to the knowledge required in operating media tools, this variable is not concerned with formal knowledge related to visual composition, but only with basic tool operation. Examples are being familiar with video cameras, video decks and studio lights for creating videos, or understanding paint mixing and application techniques with brushes and palette knives for painting.

3. Body Position. Referring to both the subjective and objective condition of one's body during the creation of visual imagery, this variable signifies whether one is standing, sitting, crawling or walking during creative acts and whether these conditions are experienced as comfortable or uncomfortable.

4. Body Parts Utilized. Although all visual media utilize the eyes, some media utilize body parts not required by others. For example, sculpting can require the whole body, arms, torso and legs when lifting a heavy piece of stone; however, electronic media, such as video or computer graphics, may only require the hands while legs are

allowed to atrophy. This variable is only concerned with body parts being used, while the next variable pertains to the degree of body part movement.

5. Body Movements. In the field of computer design, attempts are made at reducing physiological effort for using that medium. Although computers which react to voice command and eye movement have accomplished a technical feat, they have succeeded in making the body practically inactive while using the computer medium. The stereotypical computer user is often considered a physically unhealthy "nurd." Possibly the unhealthy condition of a computer user's body is caused by the lack of physical exertion required when using computers. Also, most people agree that using a computer is not an enjoyable event. Wiggling one's fingers upon rows of buttons labelled with letters of the alphabet is simply not exciting. Although musical keyboard instruments, such as piano, require similar operation to computer keyboards, piano players usually find the physical act of playing piano to be quite enjoyable. One possible reason for pleasure when playing piano is the amount of physical involvement required. The keys are spread out, requiring players to shift their entire bodies to reach all octaves. The lack of pleasure when operating computer keyboards may result from a simple lack of physical involvement with the medium. Without physical involvement, pleasure derived from using media become strictly cognitive with a complete lack of physical stimulation. Besides concern for torso and limb movements, this variable also pertains to eye movements, which can be small, large or territorial.

6. Motivation. This variable focuses on reasons for creating visual phenomena. Potential motivational reasons may include self-expression, pursuit of profit, pursuit of recognition, escape from boredom or requirements for university classes.

Spatial-Input

While the Person-Input variables are concerned with creators, Spatial-Input variables focus on the physical environment around the act of creation. Five Spatial-Input variables are proposed: Environment, Point of View, Phenomenon distance, Phenomenon size and Frame Shape.

7. Environment. This variable pertains to the physical environment around the creation of visual imagery. A general distinction would be creating work within or outside of buildings, with each of these two groups being subdivided into specific environments. Work can be created outside in a park, at a busy intersection, on a boat

floating down a river, atop a mountain or in a tropical rain forest. Similar diversity can be seen when creating work within buildings, such as within a bathroom or shower stall, an elevator, church, political office or subway stop. An example of utilizing environment in novel conditions is the recent acceptance of grafitti artists who use subway trains and buildings within large urban areas as their galleries and studios. This variable is only concerned with environments around creative acts and not with environments utilized for displaying work.

8. Point of View. Although three point of view variables are listed within the person-media variables, this one is only concerned with the relative point of view between creators and visual imagery being created. As an example, a person may paint on a canvas which is parallel to one's body, the convention, or perpendicular if the canvas is mounted on a floor or ceiling. A break from convention involving point of view was originally practiced by some Abstract Expressionists, such as Jackson Pollack and Helen Frankenthaler who painted with large canvases upon the floor.

9. Phenomenon Distance. While the previous variable is concerned with the relative positioning, this variable focuses on the physical distance between image and creator. Most artists work within a few feet of their medium; however, one can create from greater distances like Matisse who drew on a ceiling with chalk attached to a pole.

10. Phenomenon Size. This variable is not concerned with the size of finished imagery, but rather the size of imagery during creation. Of course, these sizes are the same for some media, such as painting or sculpture, but for film and computer graphics which are presented to viewers on large screens, the creation is often accomplished on screens being less than one-half metre across.

11. Frame Shape. This variable pertains to the entire frame surrounding a work and not simply the frame separating imagery from its surroundings. Thus, the frame shape for a video shoot includes the frame created by the camera optics and the shape around the objects being shot. In film terms, off-screen space encompasses the frame shape variable being proposed here.

Temporal-Input

Temporal variables deal with factors related to time during the creation process. Three Temporal-Input variables are proposed: Spatial Constancy, Time of Day and

Creation Time.

12. Spatial Constancy. The spatial constancy variable is not a single variable, but rather a constancy indication of the various person-input and person-spatial variables. If a work is created totally in one environment, spatial constancy for the environment variable would be present; for a work created in numerous environments, spatial constancy is absent. Thus, all or some of the person-input and person-spatial variables can remain constant throughout creation of a work or change at specified rates.

13. Time of Day. In regards to location in time, numerous possibilities exist for creating work. The time can be a specific year, such as work created in 654 A.D., or a specific moment, such as 4:44:44 pm on April 4, 1944. Other times may be months, weeks, days or special events like Easter or Christmas.

14. Creation Time. At a general level, two types of Creation Time exist: singular or multiple. Singular Creation Times are creative acts which occur during one uninterrupted event, while multiple Creation Time refers to an act requiring numerous events. Within the singular and multiple conditions is the actual duration time. A work can be created in a single 50 hour event or 50 one hour events. Although creation time can be equivalent to experiential time, as seen with the broadcast of live television programs, time required for creating visual phenomena is usually greater than that experienced by viewers.

Tool-Input. Tool-input variables are concerned with the tools required for creating imagery in a particular medium. Two Tool-Input variables are identified: Tool Requirements and Tool Versatility.

15. Tool Requirements. This variable refers to the minimum tools required for creating visual imagery within a specific medium. In the paint medium, the absolutely minimum tools are paint and supports. Brushes are actually not necessary for painting, although they enable certain effects unobtainable with paint taken directly from tubes. With the video environment, one requires devices capable of producing or manipulating video signals, such as video cameras, graphics computers or video players.

16. Tool Versatility. Concerned with versatility of the tools used in particular

media, this variable recognizes the variety of functions capable with a specific tool. An example of an extremely versatile tool is the paint brush which can paint in oil, acrylic or water colours, can manipulate dry charcoal with the bristles, and glue, clay or plaster with the handle. Although a video camera could be used for mixing paint or forming clay, these acts may damage the device's intended funtion of converting visual imagery into electronic signals.

B. OUTPUT VARIABLES

Output variables are defined as the physiological and psychological conditions surrounding the experience of previously created visual phenomena. Although these variables are concerned with the conditions surrounding viewers, the concern is only with identities, motivation of viewers, and manners of presenting viewers with imagery. Concern is not with the content of viewed images.The output variables have been subdivided into four categories: Person, Spatial, Temporal and Tool variables.

Person-Output

Person-Output variables focus on the physical and psychological requirements including the identities of persons viewing visual imagery. Six Person-Output variables are proposed: Viewer, Required Knowledge, Body Position, Body Parts Utilized, Body Movements and Motivation.

17. Viewer. This variable pertains to the identities of viewers experiencing visual phenomena. These identities can be categorized according to age, gender, race or number. Some visual experiences are better experienced alone than in groups, as stated by Walter Benjamin(1986), "Painting simply is in no position to present an object for simultaneous experience, as it was possible for architecture at all times, for the epic poem in the past, and for the movie today(p. 41)."

18. Required Knowledge. The knowledge encompassed by this variable pertains to an understanding of the tools utilized for viewing imagery, such as comprehending the operation of video players. With some media, such as painting, no knowledge of tools is required; one simply walks into a gallery. This variable pertains only to knowledge required for using media tools and is not concerned with knowledge necessary for comprehending visual images.

19. Body Position. This variable is concerned with the positions of viewers' bodies

while experiencing visual imagery. Although visual imagery can be experienced with the body in a variety of positions, certain conventions are usually employed. One typically experiences paintings while standing or sitting while film and video are usually viewed while seated. As with the body position variable used in the creation of visual imagery, a subjective rating can also be provided for the position of viewers. Viewing images while standing would typically be considered less comfortable than being seated.

20. Body Parts Utilized. Often when experiencing visual imagery, the only body part utilized by viewers are the eyes with little involvement required by other body parts. This variable is concerned with any body parts being utilized when experiencing imagery.

21. Body Movements. Often when visual imagery is experienced, a minimum of body movement is required by viewers who often sit passively and view imagery with totally inactive bodies. Marshall McLuhan(1966) states, "As a cool medium TV has, some feel, introduced a kind of rigor mortis into the body politic(p. 309)." This variable is concerned with the degree of body movement required or allowed when viewing visual phenomena. Concern is also with the amount of eye movement as some media require larger eye movements than others, such as viewing film on large screens. Media requiring unique eye movements are capable of providing viewers with unique visual experiences as supported empirically by the Soviet psychologist Yarbus(1967) who states,"Eye movements reflect the human thought process; so the observers thought may be followed to some extent from records of eye movements(p. 190)."

22. Motivation. Like the creation of visual imagery, different motivations exist for viewing art. This variable pertains to possible reasons for seeking visual imagery, such as pursuit for specific information, desire for aesthetic experiences, social pressure or avoidance of boredom.

Spatial-Output

 This collection of variables are concerned with the physical environment surrounding the experience of visual imagery. Five Spatial-Output variables are proposed: Environment, Point of View, Phenomenon Distance, Phenomenon Size and Frame Constancy.

23. Environment. This variable focuses on the environments utilized when viewing

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visual phenomena. Often the normal environment for experiencing specific media is never changed, such as paintings being viewed in art galleries, museums, homes and offices. However, paintings could easily be hung in elevators, on street corners or in train stations.

24. Point of View. This point of view is concerned with the relative positioning between the viewer and the visual imagery being perceived. Relative to viewers' eyes, imagery may be left, right, below or above eye level.

25. Phenomenon Distance. The control of this variable is nicely demonstrated in movie theatres where viewers can freely select distances for viewing film imagery. Most media other than film, however, are usually experienced from standard distances; thus, the phenomenon distance between viewers and images are rarely changed.

26. Phenomenon Size. The current painting style of Neo-Expressionism examplifies a manipulation of the Phenomenon Size variable. While these paintings contain similar imagery and are executed in similar painting techniques to the earlier German Expressionist paintings, they differ in their greater scale.

27. Frame Shape. This variable pertains to the overall shape of the environment encompassing the visual experience, such as the interior shape of movie theatres or art galleries. When viewing phenomena in environments, the environments themselves become frames for the imagery.

Temporal-Output

Temporal-output variables encompass issues related to time in the experience of visual imagery. Three Temporal-output variables are proposed: Spatial Constancy, Time of Day, and Experiential Time.

28. Spatial Constancy. The spatial constancy variable is not a single variable, but rather a constancy indication of the Person-output and Spatial-output variables. If work is experienced completely in one environment, spatial constancy for the environment variable is present. For a work experienced in numerous environments, spatial constancy is absent. Thus, all or some Person-output and Spatial-output variables can remain constant or change throughout the experience of a work.

29. Time of Day. This variable determines when visual phenomena are experienced. This can be determined with a certain hour of the day, such as having an experience at 5:30 am, or according to day, week, month, season, year or holiday.

30. Experiential Time. This variable pertains to the duration of experiencing visual imagery, and also time in preparing for the experience. For example, one may view a one and one-half hour film requiring one hour of travelling to the theatre; thus the experiential time would be two and one-half hours. At a broad level, two forms of experiential time exist: singular or multiple. Singular experiential times require a single event for viewers to endure a visual experience completely while multiple experiential times require numerous experiences, as seen with most television programs. Within the singular and multiple conditions are the actual experience durations. A work could be experienced in a single ten hour event or as five, two hour events. Events can also be experienced at the same time as creation, as seen in the live broadcast of some television programs; on this situation, McLuhan states, "In entertainment media, we speak of this fact as mass media because the source of the program and the process of experiencing it are independent in space, yet simultaneous in time(p.347)." Related to this variable is the multiple experience of particualar visual imagery. Although one can few the same painting for years without becoming bored, repeated viewings of the same animated imagery, such as film, video or animation, can quickly become boring.

Tool-Output

Tool-Output variables are concerned with specific tools required to view imagery created with a certain medium. Four Tool-Output variables are identified: Tool Requirements, Tool Versatility, Experience Control and Distributiveness.

31. Tool Requirements. This variable refers to the tools required by viewers in order to experience visual phenomena. Although some media do not require tools for viewing, such as painting, other media, such as video and film, absolutely require tools for transforming photographic or electrical information into usable visual imagery. With the former type of media, the material used for storing visual information and the actual visual image comprise the same substance; however, with the second, usually electronic media, images are stored in objects differing from the material which eventually produces imagery. Video tape contains no visual imagery, but rather complex electromagnetic waves which are decoded by video players and monitors to produce images. Although the technique of separating information describing visual

imagery from the visual imagery itself has led to the distributive nature of electronic media, the images themselves are viewable only with proper equipment. Today, one is able to view paintings produced in any country, some being thousands of years old; however, one cannot view currently produced video tapes from Europe without a video player capable of decoding the European video. While one can easily view paintings produced 500 years ago, the ability for future historians to view videos and computer graphic images produced in this decade will be unlikely because the proper equipment will be unavailable or not operating in five centuries.

32. Tool Versatility. This variable is concerned with the versatility of tools utilized in various media. The walls, lighting and rooms required for viewing paintings are extremely versatile, capable of uses other than viewing paintings; however, the monitors and play decks required for viewing video are limited in their purpose to showing video, although capable of showing different videos.

33. Experience Control. This variable is concerned with the potential control viewers have over visual experiences provided by media. In a broad sense, one can have passive or active media, known as interactive media. Active media require constant participation and decision-making by viewers while passive media only require viewers' attention. Gene Youngblood(1986) states on this issue:

> The purchaser purchases it(plot, story, drama)with his ticket and is understandably annoyed if the film asks him to manipulate himself, to engage in the creative process along with the artist. The viewer of commercial entertainment does not want to work, to be acted upon, to be manipulated. The true subject of commercial entertainment is this little game it plays with its audience. (p.226)

McLuhan also criticizes passive media and states, "Electromagnetic technology requires utter human docility and quiescence of meditation such as befits an organism that now wears its brain outside its skull and its nerves outside its hide(p. 57)."

34. Distributiveness. A major difference between recent media and the traditional art media of the past is the distributive quality of new electronic media. Video, film, photographic and computer imagery do not produce unique images; one mechanical reproduction is perceptually equivalent to the next. This situation is not seen in painting and sculpture, with the exception of casting. Walter Benjamin states, "...that

which withers in the age of mechanical reproduction is the aura of the work of art(p. 30)." This variable is concerned with the distributive potential of a particular medium.

C. FORMAL VARIABLES

True pleasures are those which arise from the colors we call beautiful and from

shapes...I mean straight lines and curves and the surface of solid forms...For

I mean that these are not beautiful relatively, like other things, but always and

absolutely. (Plato, Philebus)

While the Input and Output variables encompass methods for transferring visual information from creators to media to viewers, the Formal variables focus on the Formal visual elements of created images. As with the previous proposed variables, I am not claiming to have identified all considerations in the creation of visual imagery, but a sufficient amount to allow large numbers of variable combinations. The Formal variables are subdivided into three major categories: Spatial, Temporal and Light Variables. Some of the Formal variables are derived from the writings of Itten(1975), Albers(1971) and Wong(1977).

Spatial-Formal

The Spatial-Formal variables encompass compositional concerns dealing with space. Twelve Spatial-Formal Variables are identified: Dimensionality, Overall Scale, Frame Shape, Frame Location, Point of View, Element Scale, Element Dominance, Element Variance, Element Contrasts, Element Location, Element Orientation, Grounds Utilized and Textures Utilized.

35. Dimensionality. This variable refers to the dimensionality of imagery being presented. Objects can be two or three dimensional within the spatial domain; however, with the inclusion of movement, a dynamic two-dimensional image will be considered three-dimensional while a moving three-dimensional image, such as kinetic sculpture, will be considered four-dimensional.

36. Overall Scale. This variable refers to the overall size of the imagery being presented. While the Phenomenon Size variables under the Output and Input categories include the size of environments and associated media tools, the overall

scale variable refers only to the imagery being presented.

37. Frame Shape. This variable pertains only to the shape delineating a work from its environment, being unconcerned with the environmental shape around work, as covered by the Frame Shape variables under the Input and Output variable categories. Although painters such as Lucio Fontana and Frank Stella have explored nonrectangular paintings, most paintings are usually rectangularly shaped.

38. Frame Location. This variable refers to the location of the frame in space. Although most two-dimensional images are hung on walls, the use of the floor or ceilings are relatively unexplored possibilities in contemporary art.

39. Point of View. While the previous point of view variables were concerned with the relative orienation between imagery and viewer or creator, this Point of View variable pertains to the point of view within the imagery itself, such as a photograph depicting a person from a high point of view.

40. Element Scale . The element scale variable refers to sizes of basic compositional elements relative to Overall Scale; for example, a single element may occupy 90% or 5% of the area within a work.

41. Element Dominance. This variable refers to compositional elements which dominate work according to quantity and area. Elements can be basic forms like squares, triangles or circles as suggested by Itten(1975); however, because the purpose of this categorization is to create new combinations, any component within a visual composition, such as a fence, line, apple or tricycle, can be a basic element.

42. Element Variance. This variable refers to the variety of elements contained within compositions. A work containing high Element Variance could contain dots, lines, spheres, apples, tricycles, toilets and mouths.

43. Element Constrasts. This contrast variable pertains to relationships between elements. Elements may contrast in type, direction, height, quantity, stability, size, hardness, texture, thickness, transparency or weight.

44. Element Location. This variable refers to relative locations of elements within

compositions, categorized at a general level to be symmetrical or asymmetrical.

> The balance we demand in a picture is no mere geometrical symmetry, or equality
> of mass of the object on either side, but that the more subtle influence of interest,
> and attention, and possibly suggested movement, are predominant in giving the
> beauty of symmetry to a picture. (Valentine; 1962, p.106)

45. Element Orientation. This variable pertains to orientation of elements allowing single elements, such as triangles, to be upright or inverted. Referring to complex elements, such as human form, the Neo-Expressionist painter George Baselitz has created a reputation by changing the normal orientation of the human form to an inverted orientation.

46. Grounds Utilized. Elements can be located in the foreground, medium ground or background of the image plane. Related to this variable is the amount of depth within a picture through use of traditional techniques like perspective, overlapping planes, size reductions, and value and intensity changes.

47. Textures Utilized. This variable refers to the individual or range of textures utilized throughout a composition. Thus, one may utilize inappropriate textures with specific objects, such as a prickly head, hairy automobile or grooved banana.

Temporal-Formal

Temporal-formal elements are concerned with compositional issues involving time.Three Temporal-Formal Variables are proposed: Spatial variable Constancy, Image Permanence and Phenomenon Duration.

48. Spatial Constancy. This Spatial Constancy variable describes the constancy of the Spatial-Formal variables over time. Thus, dimensionality, overall scale and frame shape, for example, can remain constant or change over the duration of a visual experience.

49. Image Permanence. This variable refers to the tangible nature of the visual imagery being presented. With painting and most sculpture, the images are permanent; however, film and video images are purely ephemeral, lasting only for the duration of projection. McLuhan states on this topic: "Photo isolates single moments in time, TV does not. Sculpture tends toward the timeless(p. 188)."

50. Phenomenon Duration This variable differs from the experiential time variable, encompassing only the duration of the intended visual experience, while being unconcerned with preparation time. However, as with experiential time, durations may be singular or multiple experiences. A visual experience can be numerous short duration experiences, a singular lengthy experience or various combinations of experiences and durations.

Light-Formal

Light-Formal variables are concerned with issues related to the quality, type and hue of light in visual experiences. Ten Light-Formal variables have been identified: Light Type, Hue Dominance, Hue Variance, Hue Contrasts, Value Dominance, Value Variance, Value Contrasts, Intensity Dominance, Intensity Variance and Intensity Contrasts.

51. Light Type. This variable refers to type of light used with a specific medium. With traditional media, like painting or sculpture, light arrives from the sun or electric lighting, while surfaces reflect particular hues according to selected pigments. Reflected light is also used in film and video projectors; however, the colours themselves are projected and reflected off white surfaces rather than viewed directly. With the cathode ray tube used in video and computer graphics, a light source rather than reflected light is viewed, due to glowing phosphorus dots.

52. Hue Dominance. This variable pertains to the colour occupying the largest proportion of the imagery; thus, a work can be dominated by any one of the various hues obtainable within a specific medium.

53. Hue Variance. This variable pertains to the range of colours, other than the dominant hue, utilized in a composition. Rhythm created by colour combinations would be manipulations of this variable. Albers(1971) suggests colour combinations which create moods of lucidity, seriousness, mighty, melancholy, or serenity.

54. Hue Contrasts. This variable is concerned with relationships between adjacent hues within compositions. Itten(1975) suggests the following hue contrasts: pure colours enhanced with black or white, light-dark, cold-warm, complementary, simultaneous contrast and saturation.

55. Value Dominance. Although a composition may contain a variety of values, this variable pertains to the value occupying the greatest area of a visual phenomenon.

56. Value Variance. This variable refers to the range of values above and below the dominant value. A small value range creates poorly defined elements while a wide range allows high definition. The potential value variance within a medium is typically known as dynamic range.

57. Value Contrasts. When a variety of values are used in a composition, any utilized value can be adjacent to another. This variable refers to which values are adjacent or contrasted with each other.

58. Intensity Dominance. This variable refers to the hue intensity dominating the visual imagery. As an example, red could occupy a minor area in a composition, but its intensity may be greatest within the work.

59. Intensity Variance. This variable refers to the variety of intensities above and below the dominant intensity within a work.

60. Intensity Contrasts. Pertaining to intensities of adjacent hues, minimal contrast can be created with similar intensities or maximum contrast with distant intensities.

D. CONTENT VARIABLES

Content variables are less objective than the previous variables, being concerned with the psychological interpretation of images by viewers and creators. McLuhan states, "... the content of the medium is like the juicy piece of meat carried by the burglar to distract the watchdog of the mind(p. 18)." The approach being utilized within this paper for determining content is a synthetic approach being achieved by categorizing content elements into observable elements or variables.

Interpretation-Content

Interpretation-Content variables deal with content at a global level, being concerned with the general type of imagery being presented and prerequisite knowledge for comprehending specific imagery. Three Interpretation-Content variables have been identified: Iconography, Required Knowledge and Form.

61. Iconography. Two general types of iconography are used in visual imagery: shared and personal. Shared iconography refer to symbols which are recognized through familiarity with history and religions while personal iconography are the idiosyncratic symbols popularized by individual artists.

62. Required Knowledge This Knowledge variable differs from the Input and Output knowledge variables, being concerned with knowledge necessary for comprehending content and not with knowledge for operating media. If viewing the film "The Bible," comprehension of content is greatly enhanced if familiar with Christianity and the Bible. In other words, Required Knowledge is familiarity with the Bible. Of course, a person unfamiliar with Christianity may still obtain an aesthetic experience from the film; however, the experience is due to formal elements or associations with the viewer's life. Being familiar with art is not sufficient for appreciation; one must have knowledge to recognize the boundaries of interpretation.

> Without some principles or criteria, value is reduced to opinion, interpretation
> sinks into a slough of solopism, and appreciation becomes something that is
> subjective and relative to the individual. If this happens, it is hard to see how the
> experience of art could be regarded as educational in any sense. (Codd; p.23)

63. Form. This variable refers to forms of visual phenomena being presented with the major types being text, imagery, information or aesthetics. Visual phenomena are not categorized as being one of these four types, but rather consisting of varying proportions of types. An observed difference between commercial advertising in Canada and the United states is the greater use of text rather than imagery in the United States. Canadian bill boards and magazine advertisements commonly contain large visual images accompanied with few words while most American advertisements are predominately textual. This variable is firstly concerned with the amount of potential visual space utilized for text or visual imagery, and secondly, whether a phenomenon provides an informative or aesthetic experience to viewers. Advertisements or road signs mainly provide information to viewers while paintings and sculptures within art galleries typically provide aesthetic experiences. These major types of form can be combined as seen in Robert Indiana's(1970), "Love" sculpture created from large aluminum letters comprising the word itself.

Imagery-Content

Imagery-Content variables encompass the recognizable objects being utilized in visual imagery. Five Imagery-Content variables have been identified: Environment, Objects, Descriptions, Actions and Style.

64. Environment. This Environment variable pertains to the environment and atmosphere being portrayed within the imagery. Although a person can be depicted in paint, the environment around the person within the painting could be a house, water, sky or football stadium, while the atmosphere within these environments can be cloudy, sunny, dusty, dark or wet.

65. Objects. Two general types of images can be portrayed within the Object variable: objective and non-objective. Objective objects are recognizable as real objects, while non-objective objects are not. Of course, the hard distinction between these two general types becomes unclear with Cubism or the work of Jean Arp.

66. Descriptions. A selected Object variable can be described by numerous adjectives referring to age, size or sex. For example, one could describe a selected object as being an old, 300 foot can-opener with an acne condition. Recall a major axiom in this paper is to view any visual imagery capable of being created. This goal is obtainable by combining the various person-media variables in unorthodox manners, as with the can-opener example

67. Actions. Two types of actions can occur with objects: transitive and intransitive. Transitive actions are those involving interactions between objects, such as nails attacking apples, while intransitive actions lack interactions, such as apples spinning.

68. Style. Style refers to combinations of content and formal elements utilized in imagery which place visual imagery into a certain style or genre. Stanley Cavell speaks on the potential of utilizing different styles.

> If genres form a system(which is part of the faith that for me keeps alive an interest in
> the concept), then in principle it would seem possible to be able to move by negation
> from one genre through adjacent genres, until all genres of film are derived" (Cavel, p. 200).

Styles popularized in America during this century include Western, Beatnik and Punk; these styles can be utilized with any objects, such as punk tomatoes attacking western

style bathtubs with cool ironing boards.

E. PERSON-MEDIA VARIABLES SUMMARY

The various person-media variables were not identified to merely accomplish an analytical task, but rather to provide relatively objective factors for judging media and art styles, and to allow unorthodox manipulation of these factors in creating new visual phenomena.The identified variables are not meant to be totally inclusive of all factors related to communication between persons and media, although attempts were made to reach this goal. More important than determining *every* factor, is the notion of creating manipulable factors related to person-media communication. Manipulation of the person-media variables will occur after the following section which compares some media utilizing the identified variables.

medium comparisons

The approach of distinguishing media according to their potential for manipulating person-media variables is demonstrated in this section by comparing painting against video and pencil drawing against computer graphics. The following pages contain tabular lists followed by a summary of the comparisons. Person-media variables are numbered to aid in referencing the definitions provided in the previous section.

A. OIL PAINTING VS VIDEO

Input Variables:	painting:	video:
Person-Input		
1. creator:	•usually single person	•single person or group
2. required knowledge:	•paint and application tools	•cameras, lighting, lenses, video signal, decks, edit controllers
3. body position:	•usually standing	•usually sitting except when shooting
4. body parts:	•hands, arms, legs	•hands, arms; whole body when shooting
5. body movements:	•large; arm follows pattern created	•small; button presses
6. motivation:	•expression, money, assignment, recognition	•expression, money, employment
Spatial-Input		
7. environment:	•studio	•studio and numerous shooting locations
8. point of view:	•direct	•wide variety
9. phenomenon distance:	•close	•close up to long shots
10. phenomenon size:	•small to large	•always small
11. frame shape:	•studio surroundings	•studio and location surroundings

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	painting:	video:
Temporal-Input		
12. spatial constancy:	•changes in body position, point of view and phenomenon distance	•changes in creator, body position, body movements, required knowledge, environment, point of view, phenomenon distance, and phenomenon size
13. time of day:	•day to late evening	•usually day
14. creation time:	•singular or multiple events; few to many hours	•usually multiple events of many hours
Tool-Input		
15. tool requirements:	•paints, support, solvents, brushes, rags	• cameras, lighting, lenses, video signal, decks, edit controllers
16. tool versatility:	•very versatile	•not versatile
Output Variables:		
Person-Output		
17. viewer:	•single or groups	•usually groups
18. required knowledge:	•none or little	•possibly the operation of video equipment
19. body position:	•usually standing	•usually seated
20. body parts utilized:	•only eyes	•eyes and possibly hands
21. body movements:	•small to medium eye movements	•small eye movements, small hand movements
22. motivation:	•art enthusiast, relaxation, aesthetic experience	•video enthusiast or pursuit of information, novel experience, entertainment
Spatial-Output		
23. environment:	•gallery, museum	•gallery, school, home
24. point of view:	•direct	•above or below eye level, to right or left
25 phenomenon distance:	•within 3 metres	•2 to 10 metres
26. phenomenon size:	• up to 15 metres across	•on monitor:0.5 metre, projected:2.5 metres
27. frame shape:	•usually rectangular	•always rectangular
Temporal-Output		
28. spatial constancy:	•environment and point of view may change	•environment and point of view may change

	painting:	video:
29. time of day:	•limited viewing hours	•unlimited viewing at home
30. experiential time:	•30 minutes to a few hours(includes travel time)	•30 minutes to a few hours

Tool-Output

31. tool requirements:	•lights	•monitors, play decks, cables, tape, electricity
32. tool versatility:	•lights can be used for many objects	•equipment will only work with video, but a variety of videos can be played
33. experience control:	•point of view, time of day, can focus on variety of displayed works	•point of view and possibly duration
34. distributiveness:	•none; reproductions can be made in the printing medium	•high, video information or tapes can be distributed

Formal Variables:

Spatial-Formal

35. dimensionality:	•2	•2 with sound and motion
36. overall scale:	•up to 15 metres	•on monitor:0.5 metre; projected:2.5 metres
37. frame shape:	•usually rectangular	•usually rectangular
38. frame location:	•usually on a wall	•usually 1 to 2 metres from floor on a stand
39. point of view:	•varies, but rarely extreme(Mantegna)	•varies, sometimes extreme
40. element scale:	•sometimes large	•limited by screen size
41. element dominance:	•various	•not fully explored
42. element variance:	•various	•not fully explored
43. element contrasts:	•various	•limited
44. element location:	•various	•various
45. element orientation:	•usually normal except	•usually normal
46. grounds utilized:	•all utilized	•usually foreground
47. textures utilized:	•many utilized	•few utilized

Temporal-Formal

48. spatial constancy:	•no changes, although paint deteriorates over time	•point of view, element scale, textures, element variance, element contrasts, element locations, and element orientation can change

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	painting:	video:
49. image permanence:	•lasting	•usually 1/60 second
50. phenomenon duration:	•usually a few minutes; controlled by viewer	•few minutes to hours

Light-Formal

51. light type:	•reflected	•reflected or source
52. hue dominance:	•varies	•not fully explored
53. hue variance:	•wide	•limited by screen
54. hue contrasts:	•various	•limited by screen
55. value dominance:	•varies	•usually high value
56. value variance:	•wide	•limited by screen
57. value contrasts:	•various	•limited by screen
58. intensity dominance:	•varies	•limited by screen
59. intensity variance:	•wide	•limited by screen
60. intensity contrasts:	•various	•usually high

Content Variables:

Interpretation-Content

61. iconography:	•personal or shared; religious, mythological idiosyncratic	•personal, public knowledge, idiosyncratic
62. required knowledge:	•religion, world history, art history	•possibly of artist or event
63. form:	•imagery, usually aesthetic	•imagery or text; aesthetics or information

Imagery-Content

64. environment:	•interior, exterior	•interior, exterior; limited
65. objects:	•objective and non-objective	•usually objective
66. descriptions:	•various	•limited
67. actions:	•various	•limited
68. style:	•various	•limited

B. PENCIL DRAWING VS COMPUTER GRAPHICS

The next comparison involves pencil drawing on paper against computer graphics. While reading these differences attempt to forget that pencils are narrow pieces of lead contained in wood and that computers are electronic componentry and simply notice how the person-media variables are utilized with each medium.

Input Variables:	pencil drawing:	computer graphics:
Person-Input		
1. creator:	•usually single person	•usually group of scientists or video artists
2. required knowledge:	•pencil leads, sharpening, paper	•computer, video, programming
3. body position:	•usually sitting	•usually sitting
4. body parts:	•hands, arms	•hands, arms
5. body movements:	•large; arm follows pattern created	•small; button presses and cursor movements
6. motivation:	•expression, money, assignment, recognition	•money, experiment
Spatial-Input		
7. environment:	•studio, office, public areas	•laboratory, school, video production house
8. point of view:	•above	•parallel to body
9. phenomenon distance:	•close	•close
10. phenomenon size:	•usually small	•small; imagery and data
11. frame shape:	•studio surroundings	•laboratory surroundings
Temporal-Input		
12. spatial constancy:	•body movements may change	•required knowledge may change throughout the process
13. time of day:	•day to late evening	•day to late evening
14. creation time:	•singular or multiple events; few to many hours	•singular or multiple events; few to many hours
Tool-Input:		
15. tool requirements:	•pencil, paper	•computer, programs, input devices, storage medium, monitor
16. tool versatility:	•versatile	•versatile

	pencil drawing:	computer graphics:
Output Variables:		
Person-Output		
17. viewer:	•single or groups	•single or groups; usually technical persons
18. required knowledge:	•none or little	•computer graphics
19. body position:	•usually standing	•usually seated
20. body parts utilized:	•only eyes	•eyes and possibly hands
21. body movements:	•small eye movements	•small eye movements; small hand movements
22. motivation:	•art enthusiast; seek information	•technical interest; new phenomena; seek information
Spatial-Output		
23. environment:	•home, gallery, museum, classroom	•laboratory, office, school
24. point of view:	•below to eye level	•usually straight on
25. phenomenon distance:	•within 1 metre	•within 1 metre
26. phenomenon size:	•1.5 metre maximum	•on monitor:0.5 metre; projection:2m
27. frame shape:	•usually rectangular	•always rectangular
Temporal-Output		
28. spatial constancy:	•point of view may change	•point of view may change
29. time of day:	•usually day	•day to evening
30. experiential time:	• few minutes to hours	• few minutes to hours
Tool-Output		
31. tool requirements:	•light	•computer, monitor, disk program
32. tool versatility:	•lights can be used for many objects	•computer can be used for other applications
33. experience control:	•point of view, time of day, phenomenon distance	•point of view, time of day, phenomenon distance
34. distributiveness:	•none; can be reproduced in print medium	•high, graphics information can be distributed
Spatial-Formal:		
35. dimensionality:	•2 dimensional	•2 dimensional
36. overall scale:	•up to 15 metres	• on monitor:0.5 metre, projected:2.5 metres
37. frame shape:	•usually rectangular	• usually rectangular
38. frame location:	•on wall at eye level	•usually 1m from floor
39. point of view:	•varies, but rarely extreme	•varies, sometimes extreme

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	pencil drawing:	computer graphics:
40. element scale:	•limited by paper size	•limited by screen size
41. element dominance:	•usually line	•usually geometrical forms
42. element variance:	•small, usually line	•limited
43. element contrasts:	•small due to limited variance	•limited by conventions
44. element location:	•various	•often symmetrical
45. element orientation:	•usually normal	•usually normal
46. grounds utilized:	•all utilized but usually foreground	•all utilized, however, rarely at one time
47. textures utilized:	•various	•usually shiny, metallic surfaces

Temporal-Formal

48. spatial constancy:	•no changes	•image permanence can vary
49. image permanence:	•lasting	•ephemeral, exists as data to be interpretted by computers
50. phenomenon duration:	•usually a few minutes; controlled by viewer	•usually a few minutes; controlled by program

Light-Formal

51. light type:	•reflected	•reflected with projection or source with a monitor
52. hue dominance:	•no hues	•varies
53. hue variance:	•none	•limited by screen
54. hue contrasts:	•none	•not fully explored
55. value dominance:	•usually dominated by white due to drawing on white paper	•usually high value
56. value variance:	•limited by pencil lead and paper	•limited by screen
57. value contrasts:	•limited by paper and pencil values	•not fully explored
58. intensity dominance:	•none	•usually high
59. intensity variance:	•none	•limited by screen
60. intensity contrasts:	•none	•not fully explored

CONTENT VARIABLES:
Interpretation-Content

61. iconography:	•personal or shared; idiosyncratic	•shared geometrical imagery
62. required knowledge:	•art history, world history, of artist	•usually none
63. form:	•imagery, usually aesthetic	•usually geometrical forms with text; often advertisements

	pencil drawing:	computer graphics:
Imagery-Content		
64. environment:	•interior, exterior	•interior, exterior; not fully explored
65. objects:	•objective and non-objective	•usually geometrical elements
66. descriptions:	•limited	•not fully explored
67. actions:	•various	•lnot fully explored
68. style:	•various	•high technology

C. Medium Comparisons Summary

The major difference between painting and video is video's ability to change person-media variables over time. In video, the imagery, colour, point of view and texture can change between moments; although paintings change over time, the slow deterioration of paint and canvas is not perceivable over short time spans. Walter Benjamin discusses a similar comparison involving film and painting:

> Let us compare the screen on which film unfolds with the canvas of a painting.
> The painting invites the spectator to contemplation; before it the spectator can
> abandon himself to his associations. Before the movie frame he cannot do so.
> No sooner has his eyes grasped a scene then it is already changed. It cannot be
> arrested(p. 44).

Paintings are usually produced by lone individuals while videos are often produced by groups; although, during the Renaissance group efforts were often utilized in painting.This change, however, is occasionaly seen in video when some video artists work alone or in pairs.

> The immediate appeal of video was the ease and flexibility of its operation.
> It did not require crews and specialists to operate; one could work with it by
> oneself in the studio/loft and out-of-doors.(Hanhardt;p. 16)

Drastic differences , however, exist in operation of these media tools because painting is more physically demanding than video. When creating large paintings, one may handle large pieces of canvas and wood, and exert significant physical effort when cutting, sawing and applying paint. Although physical effort is required when shooting a video, little is required during editing where the majority of a video's creation time is

spent. Related to this difference is the creation of video in numerous environments, including studios and various locations, while paintings are usually produced in a single environment, such as a painter's studio.

On the formal differences, video is highly limited in potential hues and dynamic range of imagery. Paint can provide more hues of greater intensity, a wider variety of textures and depict more values than video. On content, various forms have been explored with painting, including objective, nonobjective, realism, surrealism, text and imagery; this variety is currently not utilized with video. The possibility for extreme surrealism in video is currently unexplored.

For both painting and video, however, new possibilities exist for utilizing these media in novel environments. I have not seen videos nor paintings in elevators, street corners, at lakes, on highways or in the sky; although, I have seen advertisements, sculptures and smoke in the sky. Video could be projected from helicopters onto clouds and reflect imagery downwards onto viewers.

Comparing pencil drawing against computer graphics, the major difference is the greater equipment requirements for the computer medium. While inexpensive drawing equipment can be acquired for less than one dollar, the least expensive computer graphic tools begin at $1000. This disparity in cost has kept computer graphics out of reach to most visual artists, with the medium being more common in computer science departments than art studios. Computers, programs, keyboards, monitors, storage devices and storage media are the least amount of equipment needed for producing computer graphics.

Using computer graphics requires more knowledge than pencil drawing. This knowledge is not formal compositional knowledge, but rather knowledge of equipment, programming and image representation through data. The only operational knowledge needed for pencil drawing is pencil holding techniques, pencil sharpening and paper selection.

Regarding physical effort in the two media, drawing is more physically demanding than computer graphics. With drawing, one's entire body including torso and spine can lean into a line movement. Although body movements when drawing are small relative to painting or sculpting, they are far greater than requirements for computer graphics which typically consist of finger wiggling and small hand waving.

An unfortunate repercussion of most computer graphic users being scientists and not fine artists is computer graphic imagery being typically geometrical and expressionless. Scientists are usually more interested in representing visual imagery as mathematical equations than creating emotionally expressive graphics.

Although formal diversity is present in drawings, this range is currently underutilized in computer graphics. While both media have not explored content combinations completely, computer graphics is greatly limited by conventions of computer graphic imagery being typically metallic geometrical forms within environments of deep perspective.

These comparisons were not provided to rate a medium better than another, but to demonstrate the objective manner in which person-media variables are capable of distinguishing between media. A traditional perspective towards art media, one utilizing criteria from the past, may overlook the potential of new media. Adopting a perspective which focuses on use rather than technical characteristics of media may disclose potential for new media which is unobtainable with traditional fine arts tools.

phenomena criteria

Although the Person-media communication model distinguishes media according to person-media variables rather than technical characteristics of media, this classification doesn't allow qualitative ratings of the variable combinations being used with specific media. To achieve this end, a selection of criteria are proposed. The criteria are subdivided into the following groups: Knowledge, Convenience, Ergonomics, Efficiency, Aesthetics and Novelty. Although, selecting criteria conditions is ultimately dependent on one's attitudes and conventions, a general "best" condition for the various criteria is provided. These criteria are intended to rate visual phenomena according to the combinations of person-media variables being utilized with a particular medium.

A. KNOWLEDGE

Knowledge criteria pertain to the knowledge needed for using media, with the general assumption that less is better. The disadvantage of adopting this rule, however, is being limited to simple media tools and concepts. The three suggested Knowledge criteria are Input Knowledge, Output Knowledge and Content Knowledge. Although these criteria are also person-media variables, as criteria they determine whether required knowledge is supportive or detrimental to visual experiences.

Input Knowledge. This criterion pertains to knowledge required for using the tools of specific media, with the assumption that less is better. Although more knowledge is required for operating a video camera than a hammer, the versatility of a video camera is greater than a hammer's.

Output Knowledge. This criterion refers to knowledge required for operating tools when viewing media. More knowledge is required for operating a video player than walking into a film theatre; however, the film can be more visually powerful even though less knowledge is required of viewers.

Content Knowledge. This criterion pertains to knowledge required for understanding the content of a visual experience. Like the other knowledge criteria, lesser knowledge is usually better; however, by accepting this assumption, art having any associations to history or religion would be excluded from comprehension. "So it is with works of art: they can be understood ultimately in relation to a context, to a set of conventions, and to a cultural tradition(Codd; p. 28)."

B. CONVENIENCE

Convenience criteria refer to any practical considerations involving tools or environments involved in creating or viewing visual phenomena.

Tool Requirements. Although tools are usually required in the creation or experience of visual imagery, this criterion stipulates that fewer tools are better. With this general assumption, viewing traditional sculpture is superior to film because no special equipment is required when viewing the former, while projectors and screens are required for film.

Availability. Related to tool requirements, this criterion refers to availablity of appropriate tools. For example, video players are always required for viewing videos; however, since many formats of video tape are available, a video is considered inferior if using a foreign or uncommon format.

Environmental Requirements. This criterion encompasses creating or viewing visual phenomena with the two basic environmental requirements being specific structures or certain environmental characteristics. The requirement of a film theatre for viewing film demonstrates the first condition while needing specific lighting, ventilation or cleanliness illustrates the second. For both conditions, however, phenomena are considered superior if fewer environmental conditions are required. For example, the editing of video tape requires semi-dark, well ventilated rooms, while pencil drawing can be accomplished practically anywhere.

Tool Size. This criterion postulates the superiority of small media tools. Thus, video cameras are inferior to paint brushes.

Transportability. This criterion pertains to transportability of media and visual phenomena, assuming that media are superior if easily transportable. For example,

large sculptures constructed from lightweight materials like nylon and hot gas are superior to metal pieces.

Cost. The cost criterion is, unfortunately, salient to most artists. Cost is perhaps the greatest limitation for creating and experiencing visual imagery, second only to limits of imagination. With popular media, cost criterion often becomes the symbol of aesthetic justification, claiming that more expensive is better. David Antin(1986) provides an interesting comment with the insinuation that political maneuvering allowed only receiving equipment to be affordable by common citizens:

> Camera and transmission systems were designed and priced out of the reach of
> anything but corporate ownership. Government regulations set picture quality
> standards. The receivers alone were priced within the range of individual ownership.
> (p. 149)

C. ERGONOMICS

Ergonomic criteria pertain to physiological and psychological interface issues between persons and media tools.

Effort. This criterion refers to physical and mental effort required for viewing or creating phenomena with the assumption that less is better. Working on stone with manual tools, for example, is more physically demanding than using power tools.

Feedback Rate. This criterion pertains to elapsed time between the beginning of executing visual decisions and viewing completed results, with the assumption that faster is better. For example, more time is required to produce a three metre red circle in oil paint than with a graphics computer connected to a video projector.

Creator-Phenomena Contact. This subjective criterion refers to the amount of direct contact or control creators have over imagery being created. When using paint, one actually feels the medium as paint sticks to skin and fumes are inhaled; however, with an electronic medium, like video, one is unable to "touch" the glowing phosphorus pixels of a video monitor while communication is accomplished through numerous devices such as cameras, controllers, video players and recorders. More contact, I suggest, is better.

Viewer-Phenomena Contact. Simlilar to the previous criterion, this item refers to subjective contact between viewers and visual phenomena.

Safety. This criterion pertains to unsafe conditions being present for viewers or creators with the absence of these conditions considered superior.

Interference. For creating visual imagery, tools are usually required; during this process, however, creators accomplish two different tasks: creating visual imagery and operating tools. Presently, I am creating a visual phenomenon known as a thesis. Although writing the paper is my major task, I must operate a computer to reach this goal. Ergonomists would differentiate between these two tasks--writing a paper and operating a computer--as the *primary task* and *secondary task* respectively. Primary tasks are ultimate goals being sought, like writing theses, while secondary tasks involve the operation of machines needed in reaching goals. The interference created when using a tool is the ratio of primary task cognitive requirements compared to secondary task cognitive requirements. For example, media requiring great mental effort for tool operation, leave little mental energy for selection and creation of visual imagery. Thus, a medium is superior if interference is low such that little attention is required for tool operation. The distinction between tools requiring small or large amounts of secondary task attention is illustrated by comparing a pencil with a word processor. Little thought is required for operating pencils relative to word processors.

D. EFFICIENCY

These effeciency criteria are combinations of subjective and objective measures, weighing the subjective quality of visual experiences against the practical expenses of phenomena. These variables focus on differences between quality and quantity and are concerned with issues like the recent sale of Van Gogh's "Les Iris" for $53,900,000.00. The criteria are presented as hypothetical equations reflecting efficiency ratios which are hopefully understandable without additional explanation.

$$\text{Cost} = \frac{\text{quality of experience}}{\text{cost of creation}}$$

$$\text{Fee} = \frac{\text{quality of experience}}{\text{cost of experience}}$$

Production= $\dfrac{\text{quality of experience}}{\text{creation duration}}$

Experience= $\dfrac{\text{quality of experience}}{\text{experiential duration}}$

Information= $\dfrac{\text{information acquired}}{\text{experiential duration}}$

E. AESTHETICS

Not intending to encompass a topic which has occupied western thinkers for thousands of years, I propose six aesthetic criteria.

Ontological Authenticity. Used to compare the effectiveness of different film sequences, this criterion can be effectively utilized with any visual phenomena. The term refers to "realness" perceived in film imagery. Viewers rarely react to paintings as if presented images were real; however, successful films often contain sequences which create intense emotions in viewers as if images were real. This criterion assumes that visual imagery is superior if high in ontological authenticity caused by convincing viewers that presented imagery is real.

Aesthetic Rating. This criterion pertains to the three general philosopical approaches to aesthetics, being:

1. art is a penetration into a reality unaccessable through ordinary life
2. art is an instrument of pleasure
3. art is an intensified expression of experience
(derived from Bosanquet, 1956)

Although a general rule cannot easily be selected for this criterion, I have a personal bias towards art as an "intensified expression of experience."

Emotional Impact. This criterion refers to the range and intensity of emotions created by visual experiences with the assumption that a medium is superior if having potential to elicit diverse emotions of high intensity.

Level of Interpretation. This criterion refers to the range of interpretation present in visual phenomena with the assumption that greater ambiguity is better than less.

Utilizing this assumption, the difference between illustration and fine arts is the lack of ambiguity when interpreting the former.

Variable Relationships. These criteria are proposed to allow rating of the person-media variables being utilized within specific media. This criterion is specifically concerned with the effectiveness at which selected combinations of person-media variables "work together." Although, any combination of potential variables can be utilized, some may "work" better than others.

F. NOVELTY

Novelty criteria pertain to the uniqueness of the visual phenomena being presented. These criteria are categorized according to the Input, Output, Formal and Content person-media variables. While a visual image can be unique in one of these four criteria, combinations are also possible.

Input Novelty. This criterion refers to novel use of one or more of the input person-media variables. For example, creating visual imagery utilizing one's elbows while crawling through a desert could be unique

Output Novelty. This criterion refers to novel use of one or more of the output person-media variables. For example, experiencing video imagery while falling from an airplane in the evening could be unique.

Formal Novelty. This criterion refers to novel use of one or more of the formal person-media variables. For example, experiencing a 40,000 km work utilizing smooth and rough textures over 80 years could be unique.

Content Novelty. This criterion refers to novel use of one or more of the content person-media variables. For example, viewing an apple being attacked by nails after escaping from the inverted head of an artist could be novel.

Criteria can be utilized which differ from those presented here, although one should determine if criteria are being selected according to convention, practicality, personal bias, self-justification or the potential for profit. One's biases can be determined by rating various selected criteria from least to most important and

examining those criteria topping the list. My personal bias in creating or experiencing visual phenomena tend towards novelty, high level of interpretation, emotional impact and availability of media tools.

new visual phenomena
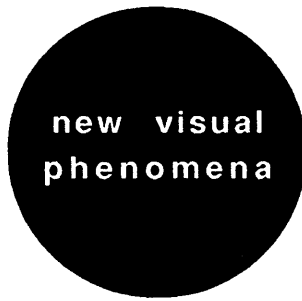
Ideally all vertices should be sharp and pointed, all edges should be sharp
and straight, all faces should be smooth and flat(Wong, p. 13).

The above quote taken from Wong's, "Principle's of Two-Dimensional Design,"
recommends avoiding the diverse potential of art in place of convention. How can
students learn the complexity and potential of visual imagery if advised to create only
"sharp" vertices and edges, and "smooth" faces? Wong's recommendation would be
improved if "can" replaced "should" because students would gain awareness of the
visual decisions being made rather than simply learning conventions for executing
decisions. By focusing on potential conditions rather than standard use of formal
elements, the philistine use of media can be overcome through gaining awareness of
decision making and potentiality.

From the perspective of the Person-media communication model, Wong ignores
the existance of person-media variables and their potential conditions; he suggests
limiting visual experiences through conventions. By acknowledging person-media
variables, one can realize the aesthetic decisions being made when creating work.
Thus, the importance of decisions or person-media variable manipulation can be
determined. This apperception frees one from continually using media in
conventional manners by enabling the unconventional manipulation of person-media
variables, leading ultimately to novelty. The potential of new and traditional media is
greatly limited by their continual use in the manners utilized at their inception.
Douglas Davis(1986) states,"There will be no video art until we approach this
medium as if it had not existed before (p. 273) ."

Although, some artists claim a desire for novelty, their breadth of novelty is often
limited by avant-garde conventions. Marshall McLuhan(1966) states that
"conventional wisdom" persists in societies because, "Their entire stake of security
and status is in a single form of acquired knowledge, so that innovation is for them not
novelty but annihilation(p. 69). While independent artists are least guilty of adhering

to convention, persons working in commercial or "pop" media are extremely guilty of avoiding the possibilities of media. Gene Youngblood provides an explanation for this phenomenon: "Driven by the profit motive, the commercial entertainer dares not risk alienating us by attempting new language even if he were capable of it. He seeks only to gratify preconditioned needs for formula stimulus (p.226)."

I propose at least two reasons for the potential of media being avoided by media users and viewers. One is a desire for familiarity rather than the unknown in one's general life, while the second is a lack of apperception. Media users are not aware of all decisions being made when using media. I don't intend preaching on advantages of unfamiliarity and novelty, but rather to indicate that most decisions in using media are encompassed by person-media variables. When using a medium, I now examine my selected conditions for the 68 person-media variables and determine if conditions were consciously selected or determined by convention. Finding a person-media variable being used conventionally, I ponder on a variety of unconventional possibilities. Although this technique may seem highly systematic and logical, contrary to the supposedly intuitive nature of creating art, this approach allows conventional or idiosyncratic use of media to be identified with potential for creating new visual phenomena. Jerome Bruner(1986), a psychologist, supports the iconoclastic nature of systematic analysis and states,"There is a heartlessness to logic: one goes where one's premises and conclusions and observations take one, give or take some of the blindness that even logicians are prone to(p. 13)."

Although using existing media in novel manners may not be considered as creating anything new, this perspective focuses more on the *tool-building* than *tool-using* aspects of media. McLuhan(1966) states, "The student of media soon comes to expect the new media of any period whatever to be classed as pseudo by those who have acquired the patterns of earlier media, whatever they may happen to be(p. 199)." Although McLuhan's comment refers to acceptance of new media as being novel, I suggest persons often overlook novel use of existing media as well.

Having provided readers with a description of the Person-media communication model and definitions for person-media variables, a detailed understanding of *A Technique for Creating New Visual Phenomena* is now possible. A diagram of the technique is provided in Figure 4. To use the technique, one first selects a medium; thus, traditional media, such as painting, pencil drawing or stone carving, or new media like computer graphics, holography, video or laser projection can be subjected to the process. After selecting a medium, person-media variables are manipulated and the new combinations are subjected to selected criteria. Variable manipulation and assessment by criteria are repeated until an acceptable combination of
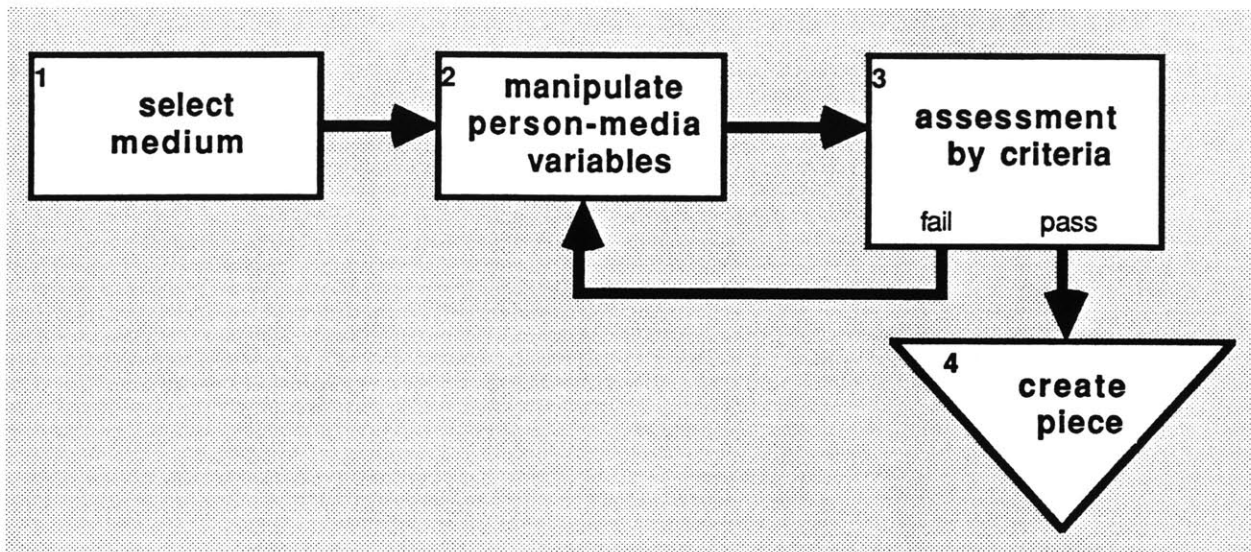
person-media variables are selected for creation.

Figure 4. A Technique for Creating New Visual Phenomena

A brief example of the technique is given utilizing video with the manipulation of five person-media variables. During the creation of.this hypothetical video, the *spatial-input environment* is varied by creating the work at a subway stop, grocery store, cafeteria washroom and restaurant cloakroom. In these environments *objects* consisting of a live duck and a can of dog food being opened by a battery operated can opener will be video taped. Both duck and can opener will be decorated in *styles* related to ancient Greece, possibly by using tunics and olive oil. The images will be shot with an inverted camera; thus, the duck and can opener will appear in inverted *orientations.* A video projector mounted on a small truck will project the finished work onto a road while driving down a busy urban street, *a spatial-output environment* change, where the *viewers* will be strangers to the artist. Whether one creates this phenomenon is dependent on selected criteria; because my criteria are availability of equipment and novelty, I would not hesitate to create this imagery which some may consider odd or adolescent.

Although the selected person-media variable conditions used in the example pertain to video, these conditions are usable with any medium because the variables relate to *use* and not technical characteristics of media. For example, a Greek style portrait of the duck, dog food can and can opener could be executed with oil paint in the suggested environments and displayed to strangers on a busy urban street. The

ability for person-media variables to be utilized with any media was prerequisite to their conception.

With the technique being outlined in this paper, the creation of unique visual imagery is restricted only by availability of media tools and selection of novel person-media variable conditions. The remainder of this section contains a listing of the person-media variables with various conditions. Clarifications of the person-media variables are available through the reference numbers and definitions beginning on page 21.

A. PERSON-MEDIA VARIABLE CONDITIONS

Input Variables:

Person-Input	potential conditions:
1. creator:	• self, stranger, mother, artist, group, dog, single, truck driver, child, rabbit
2. required knowledge:	• none, of selection, computers, video, automobiles
3. body position:	• kneeling, running, standing, crawling, swimming
4. body parts:	• tongue, nose, knee, ear
5. body movements:	• shiver, maximum, minimum, crawling, walking, crying
6. motivation:	• money, pain, pleasure, sex, master's degree

Spatial-Input

7. environment:	• washroom, subway, street, grocery store, laundromat, graveyard, desert, bus, car, lake, ocean, park, sky, moon
8. point of view:	•179 degrees from straight on, 270 degrees
9. phenomenon distance:	• 0, ∞, 20m
10. phenomenon size:	• 0, ∞, 10x30m
11. frame shape:	• organic, triangular, tricycle, person, negative, positive

Temporal-Input

12. spatial constancy:	• change in all variables
13. time of day:	• Easter, Christmas, birthday, 4:30 am
14. creation time:	• 1 minute, 76 years, 48 uninterrupted hours

Tool-Input

15. tool requirements: • none, low, high, can opener, apple and nails
16. tool versatility: • applying paint, manipulating video signals, modelling clay, creating lines, heating food

Output Variables:

Person-Output

potential conditions:

17. viewer: • self, stranger, group, single, pretzel seller, teacher
18. required knowledge: • none, computers, video, MIT
19. body position: • kneeling, standing, walking, running, uncomfortable, comfortable
20. body parts utilized: • tongue, elbow, knee, hand
21. body movements: • shake, hit, exercising
22. motivation: • sex, fear of pain, money, boredom avoidance, retaining friendship

Spatial-Output

23. environment: • pit, street, store, home, washroom, elevator, subway, washroom, grocery store, urban street, laundromat, graveyard, bus, car, lake, ocean, park, sky, desert, moon, wheat field, own body, basketball court, swimming pool, drug store, ocean liner, bridge, exercise room
24. point of view: •179 degrees from straight on, 270 degrees
25 phenomenon distance: • 0, ∞, 20m
26. phenomenon size: • 0, 1x1cm, 30x10 m, 40,000 km
27. frame shape: • organic, triangular, tricycle, person, triangular, diagonal, oval

Temporal-Output

28. spatial constancy: • all change
29. time of day: • 8pm, May 12, 1988, 450 BC, 4:12 AM, first minute after birth
30. experiential time: • 0.01 seconds, 76 years, 100 one minute events, one 100 minute event

Tool-Output

31. tool requirements:	• none, blender, toaster, knife, lamp shade
32. tool versatility:	• making orange juice, viewing stars,
33. experience control:	• duration, point of view, lighting, onset
34. distributiveness:	• within 5 feet, none, around the world

Formal Variables: **potential conditions:**

Spatial-Formal

35. dimensionality:	• 1D, 2D, 3D, 4D, 5D
36. overall scale:	• 1cmx25,000 km, 3X10m, 1X1m, .5x10m
37. frame shape:	• organic, triangular, tricycle, person, positive, negative
38. frame location:	• floor, ceiling, wall
39. point of view:	• low, high, knee level
40. element scale:	• 1x1 cm, 3x3m, 1x1000m
41. element dominance:	• organic, mechanical, triangles, lines
42. element variance:	• organic and mechanical
43. element contrasts:	• objective vs nonobjective, light vs heavy, vertical vs horizontal
44. element location:	• lower left corner, top middle, asymmetrical, symmetrical
45. element orientation:	• 180 degrees inverted, 90 degrees left, 83 degrees right
46. grounds utilized:	• background, fore ground, middle ground
47. textures utilized:	• clouds, metal, rusty, organic, rotting

Temporal-Formal

48. spatial constancy:	• all change
49. image permanence:	•76 years, 0.01 seconds, 10 minutes
50. phenomenon duration:	• 3 seconds, 8 minutes, 76 years

Light-Formal

51. light type:	• reflected, source
52. hue dominance:	• orange, green, no hue
53. hue variance:	• lucid, serious, powerful, melancholy, serene

54. hue contrasts: • complentary, none, orange and green
55. value dominance
     (0-15 range):   • 3, 6, 9, 12, 15
56. value variance: • 0 to 3, 3 to12, 13 to15
57. value contrasts: • transparency, chiaroscuro
58. intensity dominance
     (0-15 range):   • 3, 6, 9, 12, 15
59. intensity variance: • 0 to 3, 12-15, 7-10
60. intensity contrasts: • 0 and 1, 0 and 15, 7 and 8

Content Variables:

Interpretation-Content

61. iconography: • personal, Christian, USA, MIT, idiosyncratic
62. required knowledge: • none Christianity, MIT, psychology,
artist, power tools, Duchamp, Dada, Canada,
art history, CAVS, Francis Bacon, capitalism,
exploitation techniques, existentialism, Nietzsche,
cognitive dissonance theories
63. form: • text, information, definition, visual imagery,
advertisement

Imagery-Content

64. environment: • sky, industrial, dance hall, washroom, artist's
studio, organic, mechanical
65. objects: • apple, artist, mouth, underwear, nails, eyes, frog,
duck, sink, city, tea cup, letter "s"
66. descriptions: • old, young, covered with hands, burnt
67. actions: • walking, running, screaming, spinning, attacking,
giving birth
68. style: • western, pornographic, American, without style,

B. NEW VISUAL PHENOMENA SUMMARY

Although numerous hypothetical conditions can be created for each person-media variable, some media allow manipulation of these variables more readily than others.

For example, one can easily present an image with changing points of view with video, while this ability is impossible in painting. The static imagery presented in paintings is a limitation of the medium rather than a convention of painters. However, the use of rectangular supports in painting is a convention rather that limitation of that medium. To overcome limitations in one medium, such as the inability for paintings to provide kinetic imagery, new media must be created.

> The history of every art form shows critical epochs in which a certain art form aspires to effects which could be fully obtained only with a changed technical standard, that is to say, in a new art form(Benjamin, p. 43).

My major interest is not in determining the uncontrollable person-media variables for particular media, but rather in creating new conditions for variables which *can* be manipulated. The creation of new person-media variable conditions is the creation of new uses for existing media. One can determine the limitations of media and create new media tools which overcome the recognized limitations; however, that task is an engineering challenge best left to persons interested in *tool-building*. For those interested in creating new visual imagery, I suggest the conceptual task of creating new conditions of *tool-using* which can be systematically approached using the method being presented here. Although this method may appear algorithmic, imaginative thought is still the major component required in creating new conditions for using media. The *Technique for Creating New Visual Phenomena* is simply a tool or skeleton allowing the organization and delineation of creative media use.

installation

On April 3, 1988, Easter Sunday and my birthday, at 10:47 am, I opened my "Concise Oxford Dictionary" at random to page 1131 and pointed to the word *stithy*; this would be the title of the installation. I then spent the next three hours capturing the complete definition of the word *stithy* including pronunciation on my graphics computer in nine separate screens of lower case Helevetica font. This was definitely a new visual phenomon for the following reasons.

1. I had never created a piece on my twenty-ninth birthday *(time variable)*.

2. I had never created a piece on Easter Sunday, 1988 *(time variable)*.

3. I had never named a piece by randomly selecting a word from a dictionary *(tool requirements variable)*.

4. Although I couldn't be completely certain, I assumed no one had captured the definition of *stithy* on nine computer graphic screens in lower case Helvetica *(object variable)*.

I was certain that more could be accomplished with the definition and graphic images; however, on Easter Sunday, 1988, creating a visual phenomenon based on four items was all the excitement that I could handle. I waited till the next day to continue the work.

Upon awakening the next day, I decided to work on *stithy* everyday at 10:47 for a random number of days between one and ten. I used my pocket calculator which has a random number function to request a single random digit. The number provided was 5. For the next five days at 10:47 AM I worked on *stithy*. I decided to play more with chance and variable manipulation by selecting person-media variables utilizing their reference numbers. On each of the five days I selected one of the 68 person-media variables by chance and randomly selected one of the associated variable conditions listed in the previous chapter. I won't provide intricate detail on the outcome of this process; however, over the five days, a skeleton of the work had been substantially created.

Being in possession of drawing, painting, video and computer animation equipment, I decided that *stithy* would be executed in these four media according to the selected person-media variable conditions. Within the finished work, I would demonstrate how existing media can be used in novel manners by utilizing my proposed technique.

Because of the variety of media being utilized in the work, a diversity of knowledge was required since I needed familiarity with drawing, painting, video, computer animation and static and dynamic composition. A range of body positions and movements were also utilized throughout these media as painting required large hand and body movements relative to the drawing, animation and video work. Although painting within an artist's studio wasn't a novel environment, the use of computer animation in this room was unique.

For the installation utilized in displaying "stithy," I would attempt presenting imagery to viewers in unique manners according to manipulation of person-media variables. A diagram of the installation is provided on the next page. Two separate works would utilize this arrangement: a self contained installation and a short performance. During the installation, video imagery and sound is provided by a graphics computer connected to the video projector; during the live performance the sounds and images would come from video tape. Although both works were created on the graphics computer, the utilization of video tape for the live performance allowed using more images than containable in a single animated sequence within the computer. The projected imagery utilizes a system known as RGB room which uses a video projector, two mirrors and three screens. The mirrors are placed in the paths of the red and green beams video beams which reflect imagery onto side screens to create an image approximately 3x9 metres, three times the normal size. This arrangement would repeat the video image three times, one screen containing red imagery, one with green and a third with all hues. The projection system is the video portion of the multi-media installation which provides viewers with a unique experience due to the large size and repetition of video imagery.
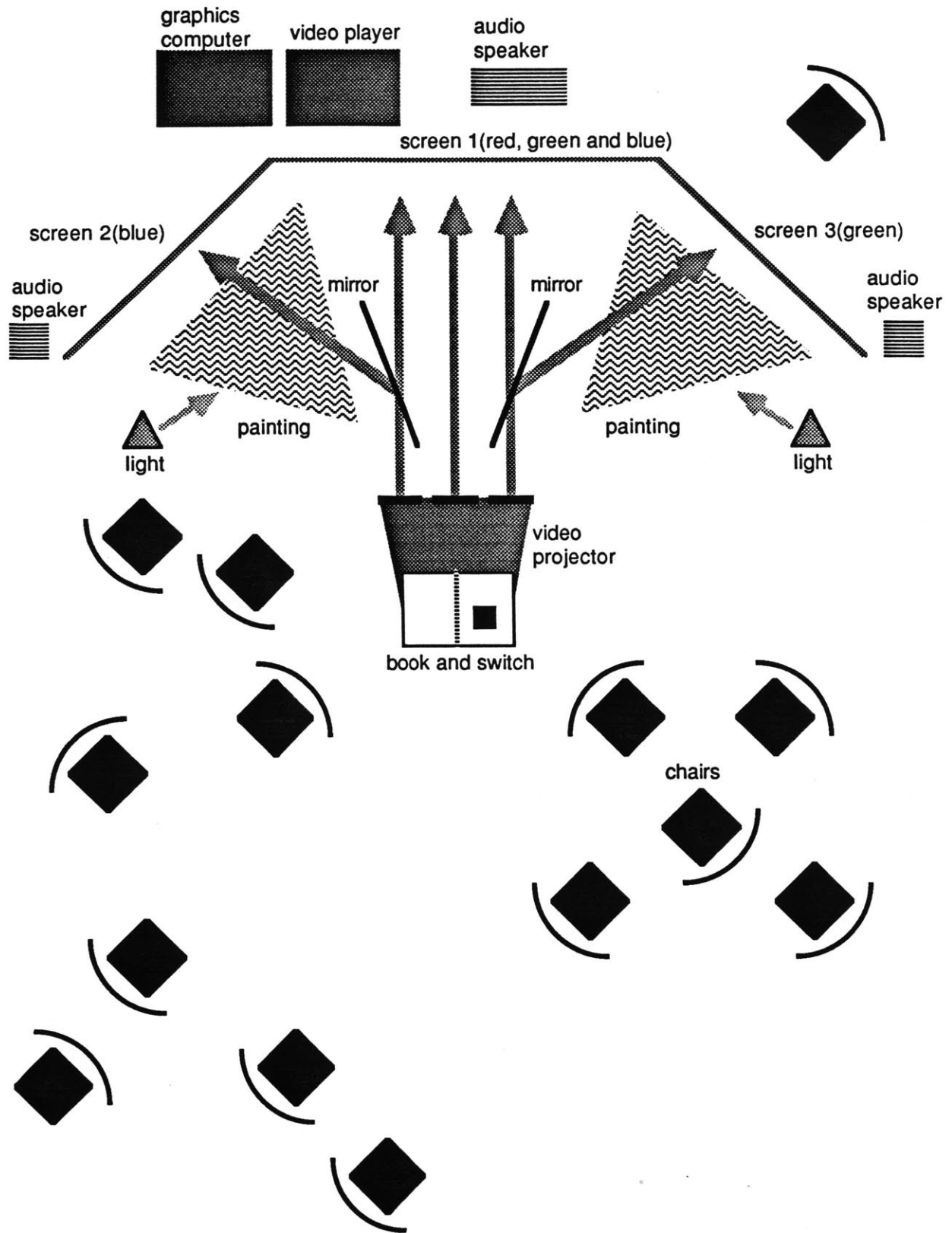
Figure 5. Stithy Installation

During both the installation and performance, the work is seen from various points of view due to the somewhat random arrangement of chairs in the space. Insufficient chairs are provided during the performance, forcing some viewers to stand. During this performance, viewers experience the work in a group, while during the installation, the piece could be viewed by lone viewers. Within the installation, viewers can operate a switch that turns off the video projector and activates lights which illuminate the paintings. The paintings are displayed on the floor because this location is rarely used for that medium. Presenting imagery vertically and horizontal to viewers' bodies would also affect their postures. The switch controlling the video projector and lights is imbedded in a drawing pad placed on top the video projector. Sketches used in creation of the work are contained within this sketch book, accessable to viewers with the switch in either position.

The diversity of experiences available to viewers of the installation include: static monochrome images within the drawing book, colour static images on the paintings, repeated dynamic colour images from video projection, viewer control during the installation, no viewer control during the performance, and various points of view.

For both the animated images and painting, I attempted to use formal and content variables in unique manners.Various frame shapes, grounds, textures, orientations, hues, values and intensities were used in both media. Having been critical on rectangular shaped paintings throughout this paper, I was motivated to use nonrectangular supports; triangular supports were utilized for both paintings. Because video projection is used in presenting the animated imagery, objects utilizing a black background would become the frame shape during projection. Thus, frame shape was manipulated in both media.

Objects within the imagery included nonobjective and objective images consisting of a tricycle, myself, strangers, a female friend, a mechanical machine, toilet, apple, teacup, hands and carpenter nails. Environments included organic landscpapes, the sky, an office, a washroom and an artists studio. Actions included riding, flipping over, disappearing, being attacked by nails, being attacked by a mechanical machine, screaming, being burnt, exploding and giving birth. These objects, environments and actions were combined to create an approximately 15 minute video for the performance. Although fewer of these images were used in the installation than the performance, a program residing in the computer modified the imagery throughout its duration.

conclusion

The technique described in this paper is not completely novel because artists and scientists have been manipulating communication between persons and media for numerous centuries. However, in the past and present most of these investigators have focused on a few of the various factors involved in communication between persons and media. Although individuals examine the formal, content, input and output experiences of visual imagary, specific individuals typically examine only one or possibly two of these areas. Engineers may focus on the input and output of visual imagery while artists usually manipulate the formal or content elements of work. Hopefully, the technique outlined in this paper has created a universal approach which will, firstly, be useful to anyone wishing to comprehend the numerous factors involved in experiencing visual phenomena and, secondly, provide a philosophy for creating new visual experiences.

The person-media variables described in this paper are not meant to be conclusive. Certainly I have overlooked some issues in the communication process between persons and media and possibly some identified variables have more similarites than differences with each other. However, the technique and philosophy being proposed does not strictly adhere to the identified person-media variables, but rather suggests manipulation of person-media communication in random and purposeful manners. By manipulating all or some of the factors involved in person-media communication, thousands of new visual experiences can be created by utilizing existing media in unconventional manners. Marcel Duchamp demonstrated this approach over seventy years ago when he began using everyday objects, such as chairs, bicycle wheels, urinals and shovels, in a manner which did not create new media, but rather created a new use for existing media.

Through systematic use of the Person-media communication model, the conventional use of a medium can be attributed to either limitations of that medium or conventions imposed by users of the medium. If limitations are imposed by style, I accuse the artists involved of purposely ignoring the versatility and potential of a

medium. When artists continually use a medium utilizing similar arrangements of formal and content elements, known as an artist's style, they are not making aesthetic decisions, but rather are executing previously determined decisions. Once artists such as de Kooning, Francis Bacon or Henry Moore had adopted their distinguishable styles, they simply repeated their aesthetic formulas rather than developing new visual imagery or experiences. This critical comment derives from the axiom that visual experiences should not be limited by convention of any sort, including the adoption of style. This goal is obtainable through an awareness of all factors involved in the creation and experience of visual phenomena and by recognizing when convention is caused by choice rather than technical limitations of a medium.

Some individuals believe that all possible styles and conventions have been exhausted in painting and traditional sculpture; however, new possibilities must exist for new media such as video, computer graphics and laser projection. These media have potential differing from painting and sculpture and if utilized in unique manners, novel aesthetic and perceptual experiences can be created.

The unique use of media is often derogated or labelled as worthless, silly or adolescent by traditional art historians. However, are these derogations resulting from aesthetic considerations, or variation from conventions. Most electronic media are capable of providing dynamic, active images not possible with traditional media, yet the major galleries of New York are filled with static paintings. Jack Burnam(1986) states:

"Traditionally the aesthetic aura or charisma of art has existed within a Pygmalion-like paradox: art *lives* although it remains consecrated in dead, inanimate materials. To challenge that paradoxical state may very well jeoprodize the mythic consistency of Western art(p.246)."

A possible explanation for the unpopularity of electronic media among current art collectors is the ephemeral nature of images created within these media. In an art world currently preoccupied with the material presence and commercial value of art, the avoidance of media reliant on electronic data is not surprising. Although current art collectors do not purchase data as art, this activity may change as the information age progresses into the future.

The reluctance of some artists to use recent technology in art work, may be attributable to these technologies not being developed sufficiently for artists. Spending time modifying rather than using media tools is an activity better suited to engineers than artists. By focusing on tool-using rather than tool-building, preoccupation with

technical characteristics of media can be redirected towards creating unconventional uses for media. Painting, drawing and printing all produce static two-dimensional images; why distinguish between them? I suggest that media not be classified by the technical characteristics, but rather by potential communication methods of the media. With this perspective, for example, I could decide to create a dynamic image of an inverted blue horse covered with champagne glasses dancing in a bread basket. I then proceed to the practicalities of executing my decision by deciding if film, video, computer animation or kinetic sculpture would be most appropriate. Regarding the image of an "inverted blue horse...," hopefully this and other previous content examples demonstrate that novel content is often interpreted as adolescent or simple. Should these labels, however, restrict one in exploring new visual experiences. An "inverted blue horse covered with champagne glasses dancing in a bread basket" is a visual image which I have not experienced. Whether I would actually enjoy this sight could only be determined if the image was constructed; until then, I can only imagine.

The example of an "inverted blue horse," nicely demonstrates the cognitive nature of the suggested approach for creating new visual imagery. One can easily imagine more images than can be created; however, even this limitation may be overcome as new media tools are developed. It would be a waste of creative evolution if future media were capable of producing dynamic three-dimensional imagery with a minimum of effort and the artists of these new media were to create images utilized in older media. Why create old images in new media which are capable of producing something new? If media are "extensions of the nervous system," possibly we should extend the nervous system and not simply replicate it.

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