DOCUMENT RESUME

ED 210 734 CS 503 688

AUTHOR Meyrowitz, Joshua
TITLE The Relationship of Interpersonal Distances to Television Shot Selection.
PUB DATE 74
NOTE 39p.

EDRS PRICE MF01/PC02 Plus postage.
DESCRIPTORS Communication Research; *Distance; Higher Education; *Nonverbal Communication; Personal Space; Proximity; *Television Research; *Television Viewing; *Visual Perception; *Visual Stimuli

ABSTRACT

Based on research suggesting spatial zones of proximity in human behavior (individuals have definable zones of intimate, personal, social, and public space), it was hypothesized that "framed shots" of people on television screens would suggest specific distances to the viewer. The hypotheses were that subjects would estimate a greater interpersonal distance for each succeeding shot ranging from close-up to long shot, and that subjects would perceive a given shot in relation to a similar interpersonal distance. After a brief explanation of the nature of subjective shots, 45 subjects were asked to estimate the distances between viewer and eight subjective shots of people framed in a television screen. The shots varied between extreme close-ups and long shots. Seven order-relationships were possible for each subject, allowing 315 pairs of distance comparisons with which to test the hypotheses. The analysis of data indicated that (1) regardless of the order in which shots were seen, the subjects estimated greater distances ranging from close-up to long shot; (2) mean distances for shots differed significantly; and (3) the variance within each shot was high but increased proportionately to the mean. These findings strongly indicated that the manner in which a person is pictured within a frame creates a phenomenon related to perception of physical distance. (RL)

THE RELATIONSHIP OF INTERPERSONAL DISTANCES TO TELEVISION SHOT SELECTION

Joshua Meyrowitz

This study was submitted in partial fulfillment of the requirements for the degree of Master of Arts in Communication: Theory and Media, in the Graduate Division of Queens College, The City University of New York, May 30, 1974. Sponsoring committee: Joseph Dominick, Charles Turner, and Sara Barnhart.

The author is especially indebted to Joseph Dominick for his advice and comments and for his assistance with the statistical design and analysis.

Recent studies of television technique have attempted to outline a set of rules for predicting audience perception of, and response to certain media variables. This research into a media "grammar" has focused on reaction to such variables as speed of presentation (Schlater, 1970), camera angle (Tiemens, 1970; Mandell and Shaw, 1973), the value of varying shots (Williams, 1965), and shot selection (Wurtzel and Dominick, 1972). Implicit in this research has been the assumption that a culturally universal grammar of telecommunication exists and that it is discoverable through empirical studies of audience reaction. While this research has been designed to fill a scientific void in the justifications for production techniques, its own narrow orientation has prevented it from exploiting all possible sources of relevant research and theory.

Typically, the desirability of empirical research has been stated in relation to a need for systematic investigations of current practice, those "production guidelines which have developed through trial and error, intuition, and tradition" (Wurtzel and Dominick, 1972). The resulting studies have been limited to testing production guidelines, and the rationale for hypotheses has been drawn primarily from traditional practice, common sense, or intuition. In terms of theory these studies have not gone much farther than the average production handbook. Williams (1965), for example, studied the advisability of changing shots for variety sake alone (a common practice). He developed his hypothesis by saying: "On a strictly theoretical level it would seem logical to hypothesize that the introduction of variety through the selection of different shots would have a beneficial effect upon interest" (emphasis mine). Similarly, in a study testing the principle that low camera angle

causes perceived dominance, Tiemens (1970) stated: "Although the author has been able to find no scientifically gathered evidence to support the principle, there has been little doubt that the principle has some validity."

Even where some theory has been introduced (as in Wurtzel and Dominick, 1972) it has been brought in to support or reject a convention, and the emphasis remains on the relationship between research findings and conventional industry practice. The results, therefore, have been defined more in terms of practice than in terms of theory. Wurtzel and Dominick (1972), for example, stated: "We have demonstrated some empirical support for one of the conventions endorsed by television directors and actors;" and Williams (1965) drew conclusions "diametrically opposed to standard practices as they exist in commercial, educational, and instructional television." While such studies may serve a positive function, they are limited to the extent that they examine professional techniques without emphasizing the construction of underlying theories of production variables.

One reason for the paucity of concrete theory in these studies may be the tendency in television research to exclude from analysis findings from potentially relevant interpersonal behavior research. Barrow and Westley (1958), in choosing pertinent studies to include in their early summary of the literature, made the following decision: "Studies involving person-to-person or face-to-face communication were ruled out of our population. Only studies involving communications to a group were included.... Studies involving non-electronic communications...were excluded from our population..." Perhaps following Barrow and Westley's lead, the experimental hypotheses and designs related to television assume, for the most part, that responses

to media stimuli are determined by the manipulation of media variables alone, and that television has a grammar of its own, isolated from other conventions of behavior and culture.

If a strong relationship could be discovered between media variables and variables inherent in interpersonal interaction, then a wider theoretical base for the investigation of media "grammar" would be established since theories from interpersonal research could be applied to the media. With such a goal in mind, this study examines the possible connection between one interpersonal variable - speaking distance - and television shot selection. A body of interpersonal behavior research (described below) has suggested the existence of a systematic use of, and response to, space and distance in live interactions. This research could be applied to an analysis of television shots if a connection between shots and distance could be discovered.

There are several perceptual phenomena related to television which might be described in terms of distance. One is the visual "relationship" between the viewer and the image. This relationship exists at every moment that a person watches television. In any one shot the viewer is shown a specific amount of a scene, person, or object. The subject may be shot in "close-up," "medium shot," or "long shot." This framing variable creates a mediated distance between the viewer and the content of the image. Shots of a football game, for example, can "place" the viewer outside of the huddle or in the last row of the stands. The distance is "mediated" and not "real" because the image is flat, conveys a limited amount of sensory information, and thus abstracts for the viewer only a fraction of the contingencies of actual physical presence. Response is further

affected by such situational variables as the nature of the televised event (documentary vs. fiction, for example), viewer distance from the screen, screen size, viewing angle, and other aspects of the immediate environment (lighting, noise, architecture, number of other people, etc.). Nevertheless, viewing the television shot might suggest an approximate distance from the televised subject. At any point the viewer's perception of the image might be compared to something seen live at distance X.

A second type of distance - portrayed distance - is an extension of the viewer/image distance. Not only does the viewer experience the image at a mediated distance, but he also sees spatial relationships within the image. For example, in addition to seeing the huddle at a certain distance, the football watcher also sees distances among the players in the huddle. Portrayed distances apply to relationships among people and objects. For clarity, however, a televised sequence involving a simple two-character interaction will be used as an example in describing portrayed distance. At any point during such a televised interaction the distance between the two characters can be estimated.

Portrayed distance can be divided into two categories - portrayed objective distance, and portrayed subjective distance; that is, a division made on the basis of two types of shots - "objective " and "subjective." Lightman (1970) describes an "objective" film shot as one that "maintains the role of detached observer," where the camera assumes "whatever angle will best portray the action." The point of view presented by the objective shot is not that of any particular person within the action. Instead it selects an observation point for the viewer. One way to

represent an interaction between two people is to show them both at the same time by using an objective shot. It is then possible to describe the physical distance at which they appear to be standing from each other.

On the other hand, an interaction between two characters can also be portrayed by "subjective" shots. A subjective shot "assumes the point of view of one of the characters" (Lightman, 1970); it shows the viewer what one person within the action sees. A subjective shot of a two-character interaction would show only one person, and the shot would be taken from the angle and viewpoint of the second person. Subjective shots are commonly used in television and film. In a conversation between person A and person B, for example, first a subjective shot of person A might be shown, then a subjective shot of person B, and then back to a subjective shot of person A. Although only one person is shown in any one subjective shot, the size of the image with respect to the screen may suggest a physical distance betweeen the two characters.

Insert figure 1 about here

There are thus at least three potential television "distances": 1) mediated viewer/image distance, 2) portrayed objective distance, and 3) portrayed subjective distance (see figure 1). The viewer/image distance would be the most complex to study since its investigation depends upon an understanding of the other two distances and involves added situational variables. On the other hand, the second distance - portrayed objective distance - is an overly simple start for analysis of shots in terms of distance. After all, the concerned parties are both

visible at the same time, they interact within the same channel of communication, and their spatial relationship is usually clear.[1] The logical start for a preliminary study is therefore the third distance - portrayed subjective distance - which directly concerns the correspondence between media distance and interpersonal distance.

This study examined the ability of judges to estimate the distance between two people on the basis of a "shot" of one of them as seen by the other (i.e., a subjective shot). If such judgments can be made, and if the estimated distance for given shots is consistent across many judges, then one relationship is established between the manner in which a person is pictured within a frame and suggested physical distance.

Theoretical Background

Although there are some hints in television and film handbooks that distance is a factor in shot selection - such as the terminology "close-up" or "long shot" - shots are rarely discussed in terms of actual physical distance. Instead the framing variable is often analyzed in relation to size or abstract concepts of psychological adjustment. Film scholar Lewis Jacobs (1970), for example, notes that "The size of an object affects our feelings as well as our recognition and understanding of it. 'Big' and 'little' particularize and generalize. The close-up focuses attention on what is important through magnification of relevant details and exclusion of unwanted portions of a subject. The full shot encompasses all of the subject and facilitates recognition." Film theorist Andre Bazin (1967), in explaining the prevalence of the medium shot, notes that "...the director returns as often as he can to a shot of the character from the knees up, which is said to be best suited to catch the spontaneous attention of the viewer - the natural point of balance of his mental adjustment."

An evaluation of television shots in terms of distance would provide a more concrete base for analysis than size or "mental adjustment." The full significance of any discovered relationship between shot "framing" and distance, however, can only be fully appreciated within the context of the theory and research in the area of distance in interpersonal interaction.

The theoretical perspective for this investigation was derived both from research into the significance of space and distance in interpersonal communications and from selected findings and beliefs in other fields which suggest that distance is a factor in the perception of "framed" pictures. The theoretical background below is therefore divided into two sections - "Distance Communication " and "Framed Distance."

Distance Communication

It has been found that man constantly uses his body and objects to divide space in specific and patterned ways. He sets distances between himself and others on the basis of the nature of the interaction (Hall, 1959, 1966; Mehrabian, 1971; Scheflen, 1972). Thus, in interpersonal interactions, the distance between individuals and the organization of space in general (such as where and how furniture is arranged) has significance apart from verbal messages and even from meanings derived from bodily postures and gestures. The "meanings" derived from spatial configurations are not necessarily specific - they may not be translatable into words or concepts - but they affect an individual's approach to an interaction and the influence the "selection" of available messages. At distance x, for example, a speaker's verbal message may take precedence over his facial appearance. At distance y, the opposite may be true. Similarly, distance

may affect the degree of reaction to an individual in terms of his social role as opposed to his individual characteristics (Hall, 1966).

Edward T. Hall (1959, 1966) has done extensive work in the area of man's "silent languages." Hall has examined the use of space and the significance of varying social distances. He says, "It is in the nature of animals, including man, to exhibit behavior which we call territoriality. In so doing, they use the senses to distinguish between one space or distance and another. The specific distance chosen depends on the transaction; the relationship of the interacting individuals, how they feel, and what they are doing" (Hall, 1966).

In animals, spatial zones are so precise that they can be measured in centimeters (Hall, 1966). Responses to space, such as flight, can also be predicted with extreme accuracy. It has been more difficult to isolate spatial zones in man because the use of space is, for the most part, unconscious and because, in some quarters, the existence of territoriality in man was bitterly denied until the 1960's (Scheflen, 1972). Hall (1966) has nevertheless been able to outline four discrete spatial zones, each with a near and far phase: intimate, personal, social, and public.

On the basis of interviews and observations in the northeastern seaborad, Hall established the following dimensions for the near and far phases of each zone:

Intimate	close - zero to six inches far - six to eighteen inches
Personal	close - 1½ to 2½ feet far - 2½ to 4 feet
Social	close - 4 to 7 feet far - 7 to 12 feet
Public	close - 12 to 25 feet far - 25 feet or more

Hall claims that these zones are automatically established by both parties to an interaction on the basis of the nature of the interaction. The names of the zones suggest their appropriate use.[2]

Hall claims that the existence of the four spatial zones is universal. That is, a person from any culture will use all four kinds of zones and the use will vary with the type of interaction. What is not universal, however, is the specific distance, in feet and inches, that a culture assumes for each one of the zones.

The classic example of non-universality is the interaction between two businessmen who meet in a long corridor. One of them is Latin American, the other one is American. Both want the interaction to be friendly, and they both naturally and unconsciously try to stand within the appropriate "personal zone." Yet the Latin American's "personal zone" is much smaller than that of the American. And when the Latin American sets the distance, the American becomes uncomfortable. For the American this is "intimate" space, and so he moves back. The Latin American is now at what to him is "social" distance and he feels remote, so he moves in again. This process continues as the two move all the way down the long corridor. At the end of the interaction, the Latin American has the vague feeling that the American is cold and unfriendly, and the American feels that the Latin American is pushy, or even homosexual.

Support for Hall's theories has come from many sources. McBride, King and James (1965) studied the effect of varying interpersonal distances on galvanic skin response (GSR), a measure of stress and emotion. They found a consistent inverse relationship between distance and GSR - the smaller the

distance the greater the response. Their findings suggest that distance has a definite emotional effect on individuals and is therefore an important factor in interpersonal interaction. Steinzor (1950) noted a relationship between different distances from a speaker and the varying ability to focus on his verbal message. This suggests that Hall's notion of different appropriate zones for different interactions is correct. Albert and Dabbs (1970) found further support for the ides of appropriate spatial zones and noted a variation in "selected" stimuli at different distances. The variation coincided with the type of communication predicted by Hall at these respective distances. Willis (1966) and Mehrabian (1968b) both found that distances varied consistently as a function of the speakers' relationship. Mehrabian (1968a) found a systematic relationship between the distance set in interactions and the liked/disliked, high status/low status, and male/female variables. Set distances are apparently so consistent that Willis (1966) even suggested that speaking distance be part of an operational definition of interpersonal relationships. That is, a specific distance between two people during an interaction might be used to define the nature of the interaction, and the nature of their relationship.

Support for Hall's belief that the dimensions of the zones vary culturally is also convincing. Watson and Graves (1966) found significant differences between the proxemic behavior of Arab and American students. In similar interactions the Arabs stood much closer. Collett (1971) showed that Englishmen who were trained to behave nonverbally like Arabs were reacted to more favorably by Arabs than Englishmen who behaved "naturally." Little (1968) found evidence that people from Mediterranean cultures stood closer than North Europeans.

Framed Distance

A television shot is essentially an image within a frame. Evidence from several fields, including anthropology, art, and psychology, suggest that the manner in which a person or object is pictured within a frame creates a phenomenon related to the perception of distance.

Edward Hall (1966) has researched the sensorial correlates of varying interpersonal distances. One sense he has described is vision. At any given interpersonal distance, says Hall, one sees a specific amount of the other person clearly. Hall's descriptions may be relevant to television. While a television shot distorts visual cues to some extent (no binocular vision, no peripheral vision, distorted colors, a specific depth of field over which the individual has no control, etc.), any given shot of a person frames the individual in a certain way. It may show only his head, or only his head and shoulders, or it may picture his whole body with varying amounts of space around it. If the particular shot is meant to represent what Person A sees (a subjective shot), then the way Person B is framed within the shot might suggest a distance between the two people.

That distance is an important aspect of the "framed" picture is stated by the artist, Maurice Grosser, in The Painter's Eye. Grosser suggests that the unique effect of a portrait on the viewer results from a phenomenon related to interpersonal distance. The closeness of artist and model yields a portrait which allows "the peculiar sort of communication, almost a conversation, that the person who looks at the picture is able to hold with the person painted there."

In his discussion of portraits, Grosser implies that the size of the figure is not the key variable determining the response to a picture. What is important is the distance that is suggested by the relative size of the figure within the frame. An anecdote about non-comprehension of the film medium suggests that distance is the key variable there as well. Gumpert

(1970) tells of a film prepared for a primitive tribe to instruct them in the elimination of a troublesome insect. Within the film were close-ups of the insect. The natives were not impressed by the film. They reacted by saying that if they had insects that big, then they would worry. Their response to the close-ups was in terms of size, not distance; they thought they were seeing a film about giant insects. Similarly Balázs (1953) records that "when Griffith first showed a big close-up in a Hollywood cinema and a huge 'severed' head smiled at the public...there was a panic in the cinema."

These stories reveal that one primary rule of the cinema is that the size of an object in relation to the screen does not generally indicate its absolute size, but conveys a distance between the object and the camera's eye. Thus, when the camera functions subjectively and shows the field of vision of a character, it also defines spatial relationships - the character's physical distance from the things he sees.

Psychologist William Dembers (1964) notes that the size of an image cast on the retina by a familiar object is a cue to its distance. "As an object of fixed size moves away from an individual," says Dembers, "there is a corresponding decrease in the size of the image that the object casts on the retina. The proximal size of a target is, therefore, one potential source of information about its distance." Another psychologist, William Ittelson (1960), provides one reason why retinal size of the image of another person serves as a cue to distance and not size. Ittelson mentions "the tenacity with which we hold on to our assumptions regarding the metric properties of persons as we think they really are as opposed to what we see." Thus in life when the retinal image of a person grows smaller we do not think

of the person as getting smaller; we think of him going farther away. Similarly, regardless of the size of the image of a person within the television frame, we ought to react to the picture in terms of distance, not size. If a given shot represents the vision of a character, then the screen becomes, in effect, that character's retina. The relative size of people or objects within the screen should therefore serve as a cue to the distance of people and objects from the character.

Hypothesis

The above theoretical background suggests that: 1) space and distance play a large and often unconscious role in interpersonal communications, and 2) that distance is likely to be a factor in the perception of television shots as well. These two concepts lead to the general hypothesis that there is a systematic relationship between the manner in which a person is pictured within a frame (painting, television screen, film screen, etc.) and varying interpersonal distance. Further, if the framed person represents what another person sees (as in a subjective shot), it is believed that a specific distance between the two people is suggested.

Specifically, if judges are shown a series of subjective shots:

a) all judges should estimate a greater interpersonal distance for each succeeding shot ranging from close-up to long shot.

b) all judges should perceive a given shot in relation to a similar interpersonal distance.

These are the specific hypotheses that were tested.

Methodology

Forty-five students from introductory communication courses at Queens College served as judges in the experiment. Each judge was given an envelope with eight 5" x 8" index cards. On each card a 3" x 4" television screen was drawn and a person or portion of a person was pictured within the screen. The eight "shots," A-H, corresponded to Millerson's (1961) classifications:

A. Face shot (very close-up) - the face occupying the full screen area.

B. Big close-up (full head) - the head occupying 5/6 of the vertical height of the screen.

C. Close-up (head and shoulders) - the head occupying 2/3 of the screen.

D. Medium close-up (bust shot) - the head occupying 1/2 of the screen.

E. Mid-shot (waist shot) - the head occupying 1/3 of the screen.

F. 3/4 shot (medium shot) - the head occupying 1/6 of the screen.

G. Full-length shot - the head occupying 1/8 of the screen.

H. Long shot - the body fills 1/3 to 3/4 of the screen height (in shot used the body fills approximately 2/3 of the screen height).

Every judge was presented with a different order of the eight shots. In addition to the shots, every judge had eight pairs of silhouette figures, eight legal-size pieces of paper and a box of paper clips. The silhouette figures were three inches tall and the judges were told that they represented six-foot tall individuals. A line running the length of each

legal-size piece of paper had small marks every half-inch to indicate one foot of "real" distance. Figures could be placed anywhere from one-eighth inch to 13 inches apart (nose-to-nose). This scaled distance corresponded to a range of three inches to 26 feet (see figure 2).

Insert figure 2 about here

After a brief explanation of the nature of subjective shots, judges were asked to estimate the distance two people were standing from each other on the basis of subjective shots of one person. Each judge looked at one shot at a time and then clipped the figures at what he felt was an appropriate interpersonal distance. Judges were not allowed to go back to an earlier shot to review their estimates.

Results

The experimental design yielded data for 45 judges across eight treatments. Hypothesis (a) was tested first. It was hypothesized that the distance should increase as the shots ranged from close-up (A) to long shot (H). For each judge seven possible order-relationships are considered: A-B, B-C, C-D, D-E, E-F, F-G, G-H. If the hypothesis is correct, the distance chosen for the second shot in each pair should have been greater than the distance chosen for the first. Of the total of 315 such pairs (seven for each of 45 judges) only 31 did not yield the hypothesized relationship (9.8%). Hypothesis (a) was supported by 91.2% of the pairs.[3] In addition to this intuitive analysis it is possible to express the same results statistically. The judges' raw scores were converted into ranks (1-8) and Kendall's coefficient of concordance W (Siegel, 1956) was used. It was found that W was equal to .98 and that the data was signficant beyond the .0005 level.

Next, an analysis of variance was performed. Means and variances were calculated. The variance for each shot was high, and not surprisingly, the variance increased across treatments proportionately to the increase in the means (as seen in Table 3). Since this occurred, it was necessary to perform a logarithmic transformation of the data (Schuessler, 1971) before using parametric statistics. A logarithmic transformation tends to equalize the variance while maintaining the original ratios among the means). The analysis of variance for correlated measures (Winer, 1971) was performed on the transformed data and indicated highly significant results between treatments (Table 1).

Insert Table 1 about here

To test whether or not adjacent means differed significantly, Scheffe tests (McNemar, 1962) were performed (Table 2). All of the means differed significantly at least at the .05 level, indicating that hypothesis (b) was supported by the data. Consequently a table was constructed (Table 3) comparing the mean distance for each shot to the corresponding spatial zone (according to Hall, 1966).

Insert Table 2 and 3 about here

All of Hall's zones ranging from "far intimate" to "close public" were matched with shots: Shot A (face shot), for example, corresponded to "far intimate space;" shot C (head and shoulders) corresponded to the beginning of "far personal space;" and shot D (bust shot) to the end of "far personal space;" and shot H (long shot) corresponded to "close public space."

Caution should be taken in strictly applying the shot/distance continuum, however, because of the degree of variance in estimated distance within each treatment (Table 3).

Two zones, "close intimate" and "far public" were not matched with shots. Millerson's classification of shots, however, also includes a "tighter shot" (extreme close-up) which was not used in the study, and his definition of a "long shot" allows for "looser" shots than the long shot judges were given. It is likely, therefore, that there are shots corresponding to "close intimate" and "far public" space as well.

In summary, both hypotheses were supported and a shot/distance continuum was constructed (Table 3).

Discussion and Suggested Research

The analysis of the data indicated: 1) that regardless of the order in which shots were seen, judges estimated greater distances ranging from close-up to long shot, 2) that the mean distances for shots differed significantly, and 3) that the variance within each shot was high but increased proportionately to the mean.

The findings therefore strongly suggest that the manner in which a person is pictured within a frame[4] creates a phenomenon related to perception of physical distance. The high variance might indicate that a given shot conveys a general rather than a specific distance, or it might indicate that the measuring device was not precise. The device used required judges to translate perception of real space into a very small scale (one half inch = one foot). Other measuring devices might be tried in future studies. In any case, the variance increased proportionately to the increase in the means, suggesting that the response across treatments was consistent.

Since this study was concerned with "portrayed subjective distance," the only direct applications are in terms of subjective shots. The high statistical significance of the results, however, has widespread implications in that it suggests many other desirable research projects. Investigations are needed to determine the extent to which distance is a factor in the viewer/image relationship and the degree to which reactions to actual physical space can be used as a general guide in planning, predicting, and analyzing audience response to all types of shots. Of greater significance is the possibility that television "grammar" is a derivative of the "grammar" of interpersonal behavior: The degree to which a media sequence either replicates or distorts given interpersonal cues may determine audience perception and response. Comprehension, for example, may depend upon the general adherence to "rules" derived from interpersonal behavior, while shades of meaning and special effects may be created by various deviations from these rules. Perhaps of greatest significance is the fact that interpersonal behavior varies cross-culturally, and that any strong connection between interpersonal and television variables would thereby thrust media production and criticism into a cross-cultural perspective. Further studies are needed, of course, before widespread assumptions can be made.

The expanded discussion below is divided into three sections: 1) implications regarding the use of subjective shots, 2) potential implications for the viewer/image relationship, and 3) possible media correlates of other interpersonal variables. Relevant cross-cultural implications are presented throughout. The second and third sections are primarily outlines of possible research topics which are related to the theoretical background and findings of this study.

Subjective Shots

Inasmuch as the data indicates that a subjective shot suggests a distance between two people, the findings may be interpreted as having significance in the development of theory regarding production variables and audience response. Specifically, the "meaning" or effect of a subjective shot can be partially outlined. The study results suggest that it is possible to describe aspects of relationships with subjective shots alone, without the use of objective shots and even without dialogue. If two people are shown interacting in subjective close-ups, for example, the distance between them is roughly described, and to the extent that interpersonal distance defines relationships (Willis, 1966), the nature of their relationship is defined.

With regard to the establishment of rules for production, however, the implications of the findings are somewhat ambiguous. On the one hand, by indicating that viewers perceive distance in subjective shots, the findings suggest a set of rules for composition of "grammatical" visual forms, such as the selection of "appropriate" shots or "proper" matching of subjective shots to objective shots.[5] The connection between distances and shots also suggests "wrong" shots - or ones that create special effects. If two people are seen standing at "personal distance" in an objective shot and the subjective shots are long shots ("public distance"), then psychological isolation might be suggested. Conversely, if the subjective shots in a scene suggest a closer distance than the objective shots used, emotional intensity might be conveyed.[6] On the surface on might infer that these "rules" are quite relevant to commercial directors and to teachers of production techniques. On the other hand, the study's findings suggest

that a director, like anyone else, unconsciously perceives shots in terms of distance, and probably naturally produces "grammatical" media forms. In this sense the implications for commercial directors, even if they were attentive to research findings, would be nil; and even if the use of distance in real life situations serves as an accurate guide to the framing and use of shots, the role of the teacher of production technique may be to simply leave students alone and allow them to adapt their interpersonal intuition to the structuring of visual images.

There is perhaps only one significant production application of a classification of shots in terms of distance. In addition to explaining one aspect of a visual "grammar," a shot/distance connection also suggests that there is not <u>one</u> visual grammar, but many. For while the use of different spatial zones in interpersonal interaction is apparently universal, the specific distance set for a given zone varies cross-culturally. Therefore if a subjective shot conveys a distance, there is a different appropriate subjective shot for every cultural group that uses space differently. In addition, the contexts in which a given spatial zone is used are also culture specific. Perception of space may depend upon whether or not the person spoken to is a relative, man or a woman, or a member of an ethnic or cultural group (Hall, 1966). It is logical to assume, therefore, that the selection of both subjective and objective shots should vary, and that interpretations of given shots would be different for members of different cultures.[7]

The same misunderstandings that arise in interpersonal interaction between members of different cultures might also arise from watching

films or television programs produced in other countries. Although it is often believed that exported films favorably portray the native culture, they may, in fact, reinforce stereotypes and misconceptions. Because of different concepts of space, the Latin American businessman who sees a film of American businessman might still feel that Americans are cold and impersonal, and the American businessman might view filmed Latin American businessmen as pushy or homosexual. These misunderstandings might arise because media "grammar" is assumed to be a universal language. The results of this study suggest that some type of "translation" may be necessary. For full desired impact, propaganda or instructional television and film productions sent abroad may have to be shot in the visual language of the target culture. Teachers who have production students from different cultural backgrounds may have to take this into account in analysis of the students' work, and criticism of television and film, in general, may need to be put into cultural perspective.[8]

Further studies testing the perception of distance in subjective shots on the part of judges from other populations are advisable before generalizing the specific findings of this study to other situations. Additional research using shots of animate and inanimate objects should lead to a general formula for computing distance from actual object size and from size relative to the screen. If the connection between framing and cultural perception of space stands the test of further empirical research, then what is known about cultural use of distance might be applied to an analysis of visual images. Further, since interpersonal research to date indicates, for the most part, that there are systematic cultural differences in the use of space and distance, yet has only

charted a small fraction of the vast and complex cross-cultural matrix, productions from different cultural settings might be used to analyze varying perceptions of space.

Viewer/Image Relationship

The results of this study suggest that subjective shots can spatially define interpersonal interactions. If a viewer perceives a certain distance between two people it is likely that he will assume that the people respond to each other in accordance with that distance. After all, regardless of the nature of the televised sequence (news report, fiction, etc.) the two characters interact within the same level of reality. For distance to be relevant to subjective shots, therefore, the viewer does not have to personally react to the distance, he only has to believe that the characters react to it. In the viewer/image relationship, however, the issue is more complex. Using a methodology almost identical to the one used in this study, judges might be asked: If this shot represents what you see of another person in real life, how far away would you be from each other? Yet even if judges could match the shots to distances the significance of "distance communication" to the viewer/image relationship would not be determined. Judges might be able to make some connection between a shot and distance on the basis of certain visual cues, but this would not mean that there is any connection between viewer responses to television shots and responses to actual distance. Studies of the viewer/image "distance" must therefore focus on discovering reactions to shots and then on comparing these with reactions to actual physical distance. Future research might, for example, investigate the effect of different shots on viewers' galvanic skin response.

Whatever the reaction to shots, it is no doubt altered by situational variables (figure 1) and future studies might examine their effect. Also of significance is the constant non-physical nature of the viewer/image relationship. There can be no real threat or seduction even at "intimate" viewer/image distance. It is therefore unlikely that response to television distance could be as intense as response to actual physical space.

While the emotional effects of varying distance are probably muted in the viewer/image relationship another aspect of distance is far more likely to be of significance. Changes in interpersonal distance cause variation in selection of available stimuli, and general perception of other people. Therefore, if the viewer gets any impression whatsoever of person, scene, or event from a shot, it is possible that the type of information corresponds to the type of information derived at a certain distance. Distance factors might, for example, explain viewer perception of, and identification with characters.[9]

If the viewer/image relationship is based on distance, then subjective shots would have to be analyzed in terms of the "double distance" that they suggest. In a subjective shot the viewer not only sees spatial relationships within the action, but he is also "placed" a certain distance away from what a character sees. One question that might arise in a subjective close-up of a character is whether the viewer identifies with the character who is looking, or with the character who is seen.

A viewer/image relationship affected by distance cues would suggest cross-cultural variation in selection of all types of shots. In cultures where interactions take place at closer distances, the director might be more likely to "place" the viewer closer to scenes and characters.

A cross-cultural comparison of "framing" techniques might indicate whether or not this is true.

Other Interpersonal Variables

A connection between interpersonal distances and shot selection suggests that other variables inherent in interpersonal behavior may also have corresponding media variables. In addition to choosing a close-up, or medium shot, or long shot, a director also selects the area of his subject that is included in the screen. A close-up of a person, for example, may show his face, or his hands, or even his feet. This variable may be related to eye behavior. Shots may be designed to logically unfold a scene according to a visual pattern used in real life situations. When a director cuts back and forth between two characters in an interaction, the "grammar" of his technique may be derived from the eye behavior of the average observer at a similar live event. If eye behavior is the determining factor in shot selection, cultural differences must again be accounted for. Every culture has its own rules for eye behavior - who has a right to look, at what, and for how long (Hall, 1966). These cultural rules may affect production variables such as selection and length of shots, as well as viewer perception of the final product.

Rules of eye behavior would seem to have a direct connection with certain television variables because of the visual nature of the medium. What is not as clear is the possible connection between other senses and media. Interactions in real life afford participants with information from a complex matrix of sensory perception. Touch, smell, and taste combine with visual and aural stimuli to "flesh out" perception of events and people. Hall (1966), for example, notes that one cue of "intimate

distance" is the heat from the other person's body. If interpersonal behavior cues are relevant to perceptions of television and film, then television's portrayal of a distorted sensory environment has cross-cultural implications. The varying importance of given senses in interpersonal interaction is likely to affect response to given shots and sequences. Americans, for example, tend to de-emphasize odor as a source of information about others. The less others smell (in both senses) the better. In some cultures, however, one must be able to smell another's breath to know and understand him (Hall, 1966). Reaction to the "de-odorized" close-up would probably differ with such cultural variations.

Other behavior patterns which vary with culture and context include interaction angle - both lateral and vertical, length and pace of interactions, and postural shifts during interactions (Hall, 1966; Scheflen, 1972). It is possible that production variables such as camera angle, rate of cutting, and camera movement are related to these behaviors. If so, use and comprehension of given media forms would also vary with culture and context, and studies of production variables would have to go beyond tests of the variables, in themselves, and analyze the nature of the subject matter and likely behavior at similar live events.[10]

In summary, this study's findings apply directly to an analysis of subjective shots, suggest response-based research into the viewer/image relationship, and indicate a need for culture-controlled research examining the relevance of other behavior patterns to the creation and comprehension of television sequences.

References

Albert, S., & Dabbs, J. M., Jr. Physical distance and persuasion. Journal of Personality and Social Psychology, 1970, 15, 256-270.

Balazs, B., Theory of the Film: Character and Growth of a New Art. Trans. from the Hungarian by Edith Bone. New York: Roy Publishers, 1953.

Barrow, L. C. & Westley, B. Television effects: a summary of the literature and proposed general theory. Research Bulletin No. 9, Madison, Wisconsin, University of Wisconsin Television Laboratory, 1958.

Bazin, A. What is Cinema?, translated by Hugh Gray. Berkeley: University of California Press, 1967.

Collett, P. Training Englishmen in the non-verbal behavior of Arabs: An experiment of intercultural communication. International Journal of Psychology, 1971, 6, 209-215.

Dembers, W. N. The Psychology of Perception. New York: Holt, Rinehart and Winston, 1964.

Grosser, M. The Painter's Eye. New York: Rinehart & Company, 1951.

Gumpert, G. Film. Unpublished manuscript, Queens College, 1970.

Hall, E. T. The Silent Language. Greenwich, Conn.: Fawcett Publications, 1959.

Hall, E. T. The Hidden Dimension. Garden City, New York: Doubleday & Company, 1966.

Ittleson, W. H. Visual Space Perception. New York: Springer Publishing Co., New York, 1960.

Jacobs, L. The Movies as Medium. New York: Farrar, Strauss, and Giroux, 1970.

Lightman, H. A. The subjective camera. In L. Jacobs, The Movies as Medium. New York: Farrar, Strauss, and Giroux, 1970, 61-66.

Little, K. B. Cultural variations in social schemata. Journal of Personality and Social Psychology, 1968, 10, 1-7.

Mandell, L. M. and Shaw, D. L. Judging people in the news-unconsciously: effect of camera angle and bodily activity. Journal of Broadcasting, Summer, 1973, 17, 353-362.

McBride, G., King, G. & James, J. W. Social proximity effects on GSR in adult humans. Journal of Psychology, 61, (1965), 153-157.

McNemar, Q. Psychological Statistics. New York: Wiley & Sons, 1962.

Mehrabian, A. Inference of attitudes from the posture, orientation, and distance of a communicator. Journal of Consulting and Clinical Psychology, 1968, 32, 296-308. (a)

Mehrabian, A. Relationship of attitude to seated posture, orientation, and distance. Journal of Personality and Social Psychology, 1968, 10, 20-30. (b)

Mehrabian, A. Silent Messages. Belmont, California: Wadsworth Publishing Co., 1971.

Millerson, G. The Technique of Television Production. New York: Hastings House, 1961.

Schlater, R. Effect of speed of presentation on recall of T.V. messages. Journal of Broadcasting, Spring, 1970, 14, 207-214.

Scheflen, A. E. Body Language and the Social Order: Communication as Behavioral Control. Englewood Cliffs, N.J.: Prentice Hall, 1972.

Schuessler, K. Analyzing Social Data: a Statistical Orientation. Boston: Houghton Mifflin Co., 1971.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Co., 1956.

Steinzor, B. The spatial factor in face-to-face discussion groups. Journal of Abnormal and Social Psychology, 45 (October, 1950) 552.

Tiemens, R. Some relationships of camera angle to communicator credibility. Journal of Broadcasting, Fall, 1970, 14, 483-490.

Watson, O. & Graves, T. D. Quantitative research in proxemic behavior. American Anthropologist, 1965, 68, 971-985.

Willis, F. N. Initial speaking distance as a function of the speakers' relationship. Psychonomic Science, 1966, 5, 221-222.

Williams, R. On the value of varying television shots. Journal of Broadcasting, Winter, 1964-65, 9, 33-43.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill Book Co., 1971.

Wurtzel, A. H. & Dominick, J. R. Evaluation of television drama: interaction of acting styles and shot selection. Journal of Broadcasting, Winter, 1972, 16, 103-110.

* * * * * * * * * * * *

Joshua Meyrowitz
Communication, ThCo
University of New Hampshire
Durham, NH 03824
(603) 862-2291

7/81

Footnotes

1. Sometimes, however, the nature of the lens and the position of characters with respect to the camera can greatly distort normal perspective. The long lens often used to capture a baseball batter and pitcher, for example, makes them look much closer than they actually are. Similarly a "zoom-in" on a zoom lens creates a very artificial change in perspective (Millerson, 1961).

2. "Close intimate space," for instance, is a "love-hate" distance, the distance of lovemaking and wrestling. Even at "far intimate distance" "the presence of the other person is unmistakable and may at times be overwhelming because of the greatly stepped-up sensory inputs" (Hall, 1966). "Personal distance" designates "the distance consistently separating the members of non-contact species. It might be thought of as a small protective sphere or bubble that an organism maintains between itself and others" (Hall, 1966). In "close personal space" one can easily touch the other person. Hall says that while it is appropriate for a wife to stay within her husband's "close personal zone," it is not appropriate for another woman to do so. "Far personal distance" is equivalent to keeping someone at arms length. This zone marks "the limit of physical domination in the very real sense" (Hall, 1966). Hall states that the "far personal zone" is appropriate for "subjects of personal interest and involvement." Impersonal business takes place at "close social distance." Co-workers have a tendency to use this zone, and it is a common distance at casual social occasions. At "far social distance," says Hall, business deals of a more formal nature are conducted. He notes that "desks in the offices of important people are large enough to hold visitors at the far phase of social distance." Another interesting aspect of this distance is its insulating character. At "far social distance," people within the same open space can work independently without feeling compelled to interact. A receptionist needs this much space, says Hall, to continue to type while someone is waiting in the same outer office. "Close public distance" is used on more formal occasions. Hall notes that linguists have observed a more careful choice of words, phrases, and syntactical forms at this distance. "Far public distance" is the distance "automatically set around important public figures" (Hall, 1966). "Public distance" can, however, be used by anyone at public events. At this distance, there are changes in both verbal and non-verbal style. Everything, according to Hall, is "exaggerated or amplified."

3. In the 31 instances where the distances did not increase as hypothesized, the data was further analyzed to uncover any additional non-transitivity. If, for example, judge x chose the following distances for the first four shots: A-5, B-3, C-4, D-6, the initial test would only reveal one disorder in the A-B pair. Yet the fact that the distance chosen for C is smaller than that chosen for A is also significant in that it reveals a relationship that contradicts the hypothesis. After such an analysis it was found that in only 3 of the 31 cases did such an additional non-transitivity appear (9.7%). 91.3% of the initial disorders were isolated instances.

4. Since this study was concerned with the "framing variable" and not actual television shots, it is assumed that the general findings are relevant to all media which place an image within a frame (television, film, still photographs, painting, etc.) Unique characteristics of each medium, however, will no doubt alter the overall viewer response. Furthermore, the ratio for vertical height to horizontal length for any given image may also affect perception of distance.

5. Research supporting Hall's theories indicates that there is an appropriate distance for a given type of interaction, that certain feelings are associated with given distances, and that stimuli selected in an interaction vary with distance. If subjective shots correspond to specific distances, they can be matched to the nature of the interaction. Co-workers, for example, tend to interact at "close-social distance" (Hall, 1966), suggesting the use of a subjective shot similar to shot E. Similarly, if subjective shots are classified in terms of distance, they can be "correctly" matched to distances seen in objective shots within the same televised sequence.

6. The results of this study actually indicate that such shots are not strictly "subjective" because they don't accurately represent what a character sees at a given distance. Yet this type of shot is generally considered subjective in television and film literature since it is shot from the perspective of a character. Further, even though it may distort subjective visual perception, the overall affect of the shot is subjective.

7. It is possible to distinguish between distance-related media variables and distance-related interpersonal variables. Since use of distance varies culturally, the distance between people in objective shots ought to vary with the culture of the people. This, however, is an interpersonal variable. The framing of subjective shots is a media variable. This distinction might be important in analyzing productions where the characters are from a different cultural background than the director. The characters may interact in one cultural milieu while their relationship is portrayed in another. A content analysis of television and film would only tell half the story.

8. The locations of "cultural" boundaries are not always clear. As Hall (1966) and Scheflen (1972) indicate there are different proxemic patterns among subcultures. The issue of "production" for other "cultures," is therefore, rather complex. It might be interesting to investigate differing interpretations of network television programming across subcultures and regions of the United States. Another area which might be investigated is television and film's potential for teaching cultural patterns of distance behavior. Television, for example, might be acting as a "spatial socializer" for minority group children in New York City.

9. Because of distance factors, an actor in a television commercial, for instance, might be presented either as an individual who makes an intimate appeal (close-up) or as an authority figure whose approach is based on a social role (medium shot or long shot). The potential effect on perception of characters or on identification becomes clearer in a sequence involving more than one character. In a courtroom sequence, for example, the director might be able to juggle response to the judge and the defendant. With the judge shown at long shot the viewer's concern might be mainly with the judge's performance as a judge, while in close-ups the concern might be in terms of the judge's own feelings or his own response to his role. Alternating the types of shots might present a more complex perspective to the viewer. The same manipulation is possible for the defendant. With shots that convey different distances the director might be able to broadly recast the scenario: 1) judge vs. defendant (roles - both seen in medium or long shot), 2) judge (medium or long shot) vs. man (close-up), 3) man vs. man (both close-ups), and so on.

10. A simple case in point is low camera angle. If low camera angle corresponds to looking up at someone in real life, then its effect in a television sequence would logically vary from a situation where a televised individual is a public figure, who is often literally "looked up to," to a situation where the televised individual is a friend or anyonewho is normally seen at the same level. Neither Tiemens (1970) not Mandell and Shaw (1973) took such contextual variables into account. They simply studied whether low angle, in itself, causes perceived dominance.

Table 1

Analysis of Variance

Source	SS	df	MS	F
Between judges	12	44		
Within judges	59	315		
Treatments	53	7	7.57	398.4*
Residuals	6	308	.019	
Totals	71			

Note. - The analysis of variance for correlated measures was performed after a logarithmic transformation.

*$p < .0001$

Table 2

Scheffé Tests

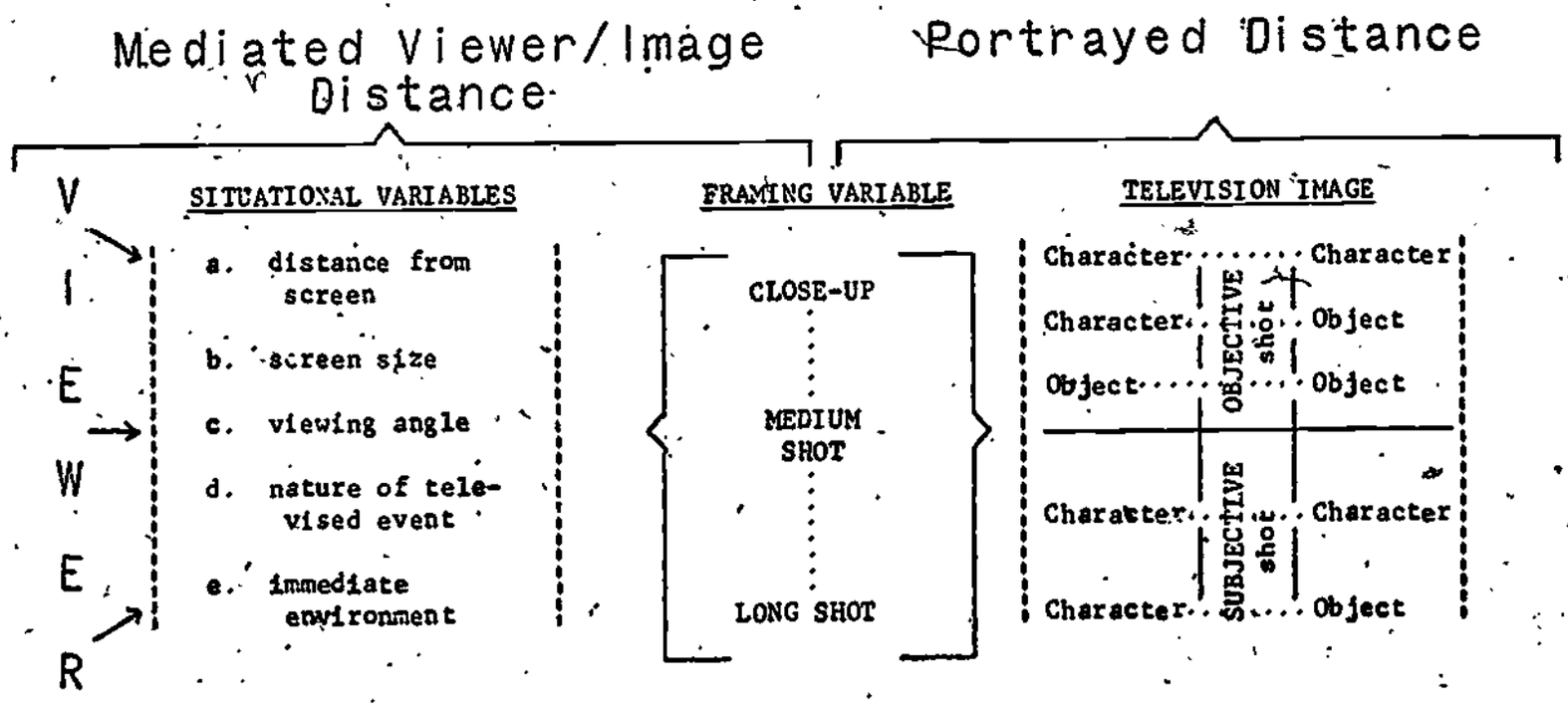
Treatments	Difference in means	Significance
A-B	.235	.001
B-C	.180	.001
C-D	.154	.001
D-E	.210	.001
E-F	.120	.05
F-G	.140	.01
G-H	.160	.001

Table 3

Shot/Distance Continuum

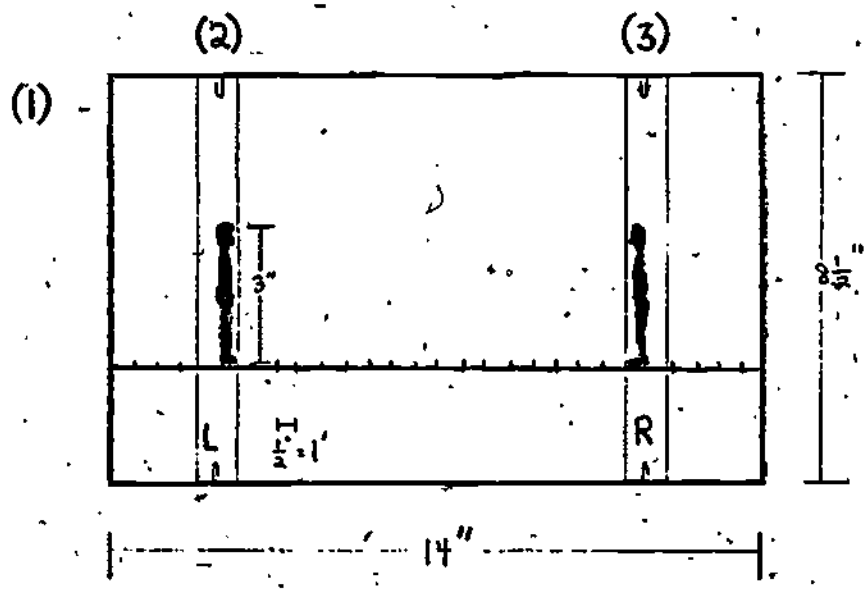
Shot	Mean Distance (inches)	Standard Deviation	Zone (Hall, 1966) Name	Dimensions (inches)
A	10.6	8.1	far intimate	6-18
B	20.1	12.2	close personal	18-30
C	30.8	17.9	far personal	30-48
D	43.0	23.5	far personal	30-48
E	65.0	27.9	close social	48-84
F	87.5	35.8	far social	84-144
G	118.6	45.7	far social	84-144
H	167.7	54.6	close public	144-300

Fig. 1 Para-Proxemic Model



Given certain "situational variables," a viewer sees a television image by way of a "framing variable." The "framing variable" may create a "mediated viewer/image distance" and may also portray distances within the action. Such "portrayed distances" can be either objective or subjective depending upon the use of objective or subjective shots. The relationship between two characters or between a character and an object can be portrayed either objectively or subjectively. Relationships between objects, however, can only be portrayed objectively since, by definition, the subjective shot represents animate perception.

Fig. 2 - Distance Measuring Device



1) white legal size paper with scaled line

2) moveable strip of paper with black silhouette (Left)

2) moveable strip of paper with black silhouette (Right)