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LISTENERS' PERCEPTION OF SPEAKER'S PERSONALITY TRAITS  
AS A FUNCTION OF SPEAKER'S EYE CONTACT BEHAVIOR

By

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B.A., University of Montana, 1966

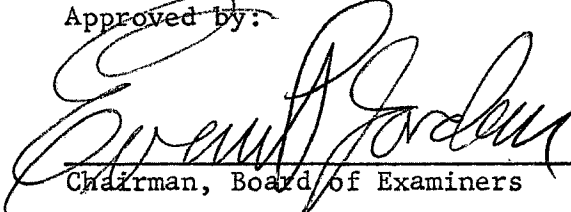
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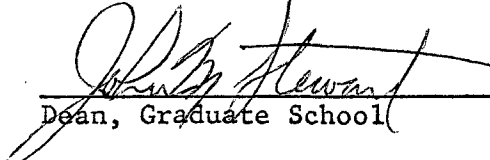
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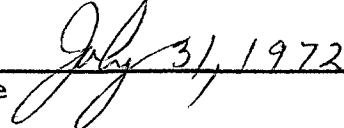
UNIVERSITY OF MONTANA

1972

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## Chapter 1

### INTRODUCTION

Currently, there is considerable interest in the area of human visual, non-verbal communication. Experimental psychologists, linguists, anthropologists and communicologists in general have recently acquired new interest in this particular aspect of human behavior. Early studies in this area were generally of a descriptive nature, but lately effort is being made from many quarters to quantify what has previously been described.

This present study is concerned with only one aspect of the large repertoire of possible visually communicative behaviors; that being, the significance of the level of eye contact used by a speaker during a conversation. More specifically, it is concerned with changes in a listener's perception of a speaker as a function of different levels of eye contact used by the speaker.

Speakers, using different levels of eye contact, were rated on a variety of "personality" scales by listeners. The experiment and analysis of the listeners ratings were designed to reveal changes in the listener's perception of the speakers due to the level of eye contact used by the speakers. It was anticipated that a basis to predict a listener's evaluative behavior could be made on the basis of knowing the amount of eye contact used by a speaker.

### REVIEW OF THE LITERATURE

Intensive analysis of the function and properties of visual communication, especially the study of eye contact behavior, has been

of concern only in the last few years. Early subjective description of visual, non-verbal communication was provided by Charles Darwin (1904) in his avant-garde treatment, Expressions of the Emotions in Man and Animals. But it was not until considerably later that experimental studies of visual, non-verbal communication were attempted.

These current studies of eye contact behavior between speaker and listener seem to belong in and contribute quantifying information to the broad area of kinesics (that field of semiotics particularly concerned with body motion and communication). Birdwhistell (1961) has done considerable basic work in establishing kinesics as an independent area of study. He made the following statement:

"....body motion can be studied as a patterned system which must be learned by every individual if he is to participate fully as a member of his society. Complex and ordered, its internalization is integral to both enculturation and socialization. Learned largely out of awareness, its patterning is probably every bit as cohesive as is that of language...."

If, as Birdwhistell states, body language is patterned and cohesive then these patterns can be described, quantified and predicted as legitimately as other less subtle behavior.

Much eye contact behavior is of such a nature that it must be performed during interpersonal communication creating a mood of visual interaction between a group of people. As Exline (1963) explained, many recent studies have been of an exploratory nature, "...to test the feasibility of collecting reliable data about visual interaction, and in part to test hypothesis, hopefully heuristic, about visual interaction in relation to selected personality and situational variables." Similarly, reasoning by Sartre, Simmel and others



(Exline, 1963) generally suggested that simultaneous or mutual visual interaction signifies the momentary establishment of a personal, very intimate, relationship. Again, those aspects of personality or social context which encourage the development and maintenance of such intimacy should be reflected in predictable patterns of visual interaction between and among the parties concerned.

If we are to experimentally explore the nature of eye contact behavior, perhaps the first question requiring answer is whether or not eye contacts are recognizable events, and whether the direction of a gaze may be reliably determined by observers. Gibson and Pick (1963) ran a series of perceptual studies in an attempt to shed some light on the first part of this question. They measured the smallest deviation of a looker's line of regard, from the bridge of the observer's nose which could be discriminated by that observer. They wished to compare the acuity of this discrimination with other types of visual acuity. Their results suggest that we have good discrimination for the line of gaze of another person, at least with respect to whether or not we are being looked at. "The ability to read the eyes seems to be as good as the ability to read fine print on an acuity chart, according to our first determination..." (Gibson and Pick, 1963, pg. 394).

Another group of studies were primarily interested in identifying those variables which influence eye contact behavior as they occur during conversations, especially in dyadic (i.e., two participants) situations. Exline (1963) was able to identify various patterns of visual interaction and found considerable evidence to

support the view that men and women differ markedly in their visual behavior. For example, during a conversation women look at one another more than do men, and once contact has been made, hold the other's gaze longer than do men. On this, Exline speculated that the two sexes generally give different weight to the importance of visual phenomena in their social fields. Likewise, Argyle and Dean (1965) also found females to show more eye contact than males, as they had expected. However, these differences, although consistent, were small and not statistically significant. The same was found to be true of the length of glances; consistent sex differences but statistically not significant.

The distance between speaker and listener is another variable Argyle and Dean (1965) experimentally tested. Their hypothesis was that distance would affect the amount of eye contact and that this relationship was part of an "equilibrium of intimacy" established between the two parties at that particular time and place, and for a given purpose. Further, they deduced that if one of the components of intimacy were changed, one or more of the other variables would shift in the reverse direction in order to maintain the equilibrium. Their experimental results indicated that eye contact would decrease with spatial proximity and that the length of the glance increased as the distance between the parties increased. Further, if the subjects were allowed to adjust their distances, if desired, they did so as levels of eye contact changed, thus suggesting their effort to maintain equilibrium.

In 1967, Adam Kendon (1967) reported the results of his work

on the natural history of gaze direction as it occurred within the context of an ongoing conversation between two persons. He was interested in the function of gaze direction both as an act of monitoring the behavior of another as an expressive sign and regulatory signal of the other's behavioral intent. Prior to Kendon's report, very few authors had reported on the interaction between visual and verbal communication. Goffman (1964) pointed out that where an individual is looking is an important indicator of his social accessibility. This is because, whether or not a person is willing to have his eye caught, whether or not, that is, he is willing to look back into the eyes of someone who is already looking into his, is one of the principal signals by which people indicate to each other their willingness to begin an encounter. Goffman further described how, during a speaking encounter, people position themselves in an eye to eye "ecological huddle" which tends to be carefully maintained, maximizing the opportunity to monitor one another. It seems that it is through the mutually held gaze that two people commonly establish their openness to one another's communications. Direction of gaze thus serves in part as a signal by which the interactants regulate their basic orientation to one another.

Nielsen (1964) has also considered the role of gaze direction in social interactions. He concluded that the direction of a gaze has a number of different functions depending upon the signals a speaker sends to his listener by changing his gaze direction.

Kendon's (1967) analysis of dyadic conversations presented data which showed that direction of gaze changes in a regular fashion

in association with concurrent behavior (i.e., in association with speaking). He interpreted an individual's perceptual activity, concerned with gaze direction-change, as functioning in two main ways: 1). monitoring functions, in which a speaker can control the extent of his monitoring and, 2). regulatory and expressive functions, in which a speaker seeks to control the behavior of his listener.

Kendon further reported that there appears to be quite large differences between individuals in the amount that they look at their dialog partner, or the average length of time spent looking and the rate at which gaze direction changes. The fact that Nielsen (1964) described an association between need affiliation and looking behavior suggested to Kendon that perhaps the individual differences he observed were stable. If this is so, a number of interesting possibilities are raised; for example, that some people are more dependent upon visual information in interactions than others, and that such people look more as a result. Also suggested is the possibility that individual differences in interaction styles are linked to individual differences in the way they sample the available perceptual information. A more intensive look into these monitoring and controlling functions will give a clearer picture of what is actually transpiring through eye contact behavior during a conversation.

### Monitoring Functions

In looking at his listener, the speaker can gather information

about the listener's appearance and behavior. He may check to assure that he indeed has the speaker's role, or to see if he is still being attended to, or if the listener has a question or desires to change roles. Data have shown that speakers look at their listeners at points in their discourse where some response is expected from the listener (for example, at the end of a long utterance). It is during these glances that the speaker may notice any apparent changes in the speaking relationship he has with the listener.

It is possible to identify a number of different monitoring functions in relation to eye contact behavior. In a related study, Crossman (1956) attempted to distinguish three main elements in his analysis of perceptual activity associated with repetitive manual tasks; he called these plan, current control and check. In the formulation of the plan, the speaker selects from a number of alternatives, a course of action. Then in following through his plan, the speaker exercises current control at which point he is concerned with error feedback, and it is through this that the action, once begun, is kept in line with its aim. Finally, the speaker applies a check at which time he looks to see if his action has achieved the aims set for it.

Kendon's (1967) description and explanation of his observations seem to fit nicely into the scheme of Crossman's three monitoring functions. In looking away from his listener at the outset of an utterance, Kendon suggested that the speaker is planning. The glances which take place during long utterances, he suspects are in the role of current control. And, the prolonged gaze with which

the utterance ends may be an example of checking.

### Regulatory and Expressive Functions

Kendon (1967) hypothesized that since changes in gaze direction associated with utterances were found to be regular, they may function, to the listener, as signals regarding the speaker's intentions and expectations, especially in regard to the use of available speaking time. Thus, when a speaker looks away just before a long utterance he displays his intention to speak. Likewise, in the sustained gaze, accompanying the ending of a long utterance, the speaker effectively indicates to his listener that he is coming to a close, and that he expects some response. The glances to his listener during an utterance can serve as checks on listener behavior, but also as signals to the listener that the speaker wants confirmation that what he is saying is being understood. The speaker can also regulate listener behavior, forstalling a response, by not looking at the listener or increasing his gaze insistence for a response.

Two other investigators, besides Kendon and Goffman, have noted the possible regulatory function of gaze direction. Nielsen (1964) distinguished "visual rhetoric", meaning that a speaker's looking away during his speaking is a way in which he indicates that he is still in the process of explaining himself and did not want to be interrupted. And, that the speaker's looking at his listener, at the end of a remark, indicated he was through speaking. Likewise, Weisbrod (1965) in a study of group discussion, found that the person whom the speaker last looked at before closing was more likely, than

other group members, to speak next. She concludes that looking can serve "to coordinate group action by controlling the succession of speeches."

One final phenomena which needs to be described and discussed is the mutual gaze. Mutual gaze occurs when both parties of a speaking dyad (or social interaction) look into each other's eyes. Kendon (1965) suggested that the level of emotionality in a conversation could be regulated by the amount of mutual gaze the participants permit each other. Argyle and Dean (1965) have argued that to look into the line of regard of another person who is looking at you, is to achieve a specific sub-goal of social interaction in which one's affiliative needs are gratified, and they imply that this gratification accounts for the fundamental significance of eye contact. In response to this, Exline (1963) has shown experimentally that, in competitive interaction, people low in measured affiliative need will seek more eye contact than people high in affiliative need. Affiliative need for Exline was established through a content analysis of responses subjects made to the items in Elizabeth French's Test of Insight (1955), and he concluded by proposing two basic hypotheses regarding the function of mutual gaze: 1). to engage in eye contact is to seek affiliation with another and, 2). to engage in eye contact is to challenge him.

In summary, recent studies have shown that eye contact behavior is patterned and cohesive and hence predictable and that visual interaction is related to personality and situational variables. It has been established that we know when we are being looked

at, that there are sex differences in the amount and duration of eye contacts, and that the distance between the speaker and listener affects eye contact behavior. It has been suggested that eye contact is part of an established "equilibrium of intimacy" between speaking parties and an indicator of one's social accessibility. And finally, that eye contact behavior during a conversation can function as both a monitoring device as well as a means of regulation and expression.

This present study is an attempt to quantify and describe, further, the relationship of eye contact behavior and personality of the person using it. Rather than attempting to describe the differences in personality between speakers with differences in their eye contact behavior in various situations, it was decided to try and measure changes in personality impressions of a speaker, as interpreted by listeners, as eye contact levels of the speaker changed. It was anticipated that listener's judgements about a speaker's personality would change with the various levels of eye contact used by a speaker, and that the same speaker would be judged to have different personality traits depending on the level of eye contact he used. No adequate basis of predicting the nature, or direction, of these changes in listener judgement was available, thus, no prediction was attempted.



## Chapter 2

### PROCEDURE

Thirty-six listeners independently viewed and heard three videotaped presentations of a single statement by three different speakers; one presentation by a speaker using a high amount of eye contact, one presentation by a different speaker using an intermediate amount of eye contact and a third presentation by a third speaker using a low amount of eye contact. After viewing each presentation the listeners rated the speaker on fourteen personality traits, by filling out a rating form. The results of these ratings were then analyzed in such a way that the influencing role of the speaker's level of eye contact in the listener's ratings might be isolated from other variables.

### EXPERIMENTAL TAPE

Three male speakers were chosen to participate in this study. They were selected on the basis of their similarity in appearance and voice and in having no speech or physical anomalies which would call attention to itself.

Each speaker rehearsed the presentation of a short statement (Appendix A) which was selected because of the apparent neutrality of the subject matter. The speakers practiced presenting this statement under three eye contact levels: a high eye contact level, in which the speaker was looking into the video camera lens during approximately 90% of the words spoken; an intermediate eye contact level, in which he maintained eye contact with the camera lens during

approximately 50% of the words spoken, and a low eye contact level of approximately 10% of the words spoken. The statement was written with underlines indicating the words and pauses in which the eye contact would take place. The eye contact was programmed to take place at points judged, by the speakers, to feel most natural.

The speakers rehearsed their presentations of all three eye contact levels until it was judged that the length of presentation time, the presentation of the eye contact and the intonation and stress in the text were all reasonably identical between speakers.

Video tapes were then made of each speaker presenting each level of eye contact as was rehearsed. The speakers were each dressed similarly and tapes were made to show only the head and tops of the shoulders of the speakers. Several takes were necessary before each presentation compared favorably to each other and hence, no editing was necessary before presenting them to the listeners.

#### EQUIPMENT AND EXPERIMENTAL SETTING

The video tapes were made using a General Electric television camera, Model TE-23 adapted with a close-up lens, and a Sony Videorecorder, Model EV-210. Tapes were viewed by the listeners on a Setchell Carlson television, Model 2100 SD with a 24 inch diagonal picture screen. A microphone suspended from the wall of the recording room picked up the audio and transmitted it directly to the videorecorder.

Experimental listening took place in a large room which was adjacent to another smaller room with a one-way window between.

The small room (experimenter's room) was equipped with the video-recorder, a similar television and a set of switches used to control both the audio and visual picture transmitted to the listener's television set. Such experimenter control was necessary to allow the experimenter to blank the listener's television while the experimenter viewed the experimental tape and selected the next presentation. Because each listener viewed a different combination of speaker, eye contact level and order, the experimenter needed to locate the next treatment combination on the experimental tape without the listeners being able to view what was taking place. All the listeners viewed were those three presentations selected by the experimenter, just prior to their viewing (Appendix B).

In the large room (listener's room) the listener's furniture and television were located in front of the one-way window. A microphone located on the wall of the listening room transmitted what was being said in the listener's room during the experimental situation. At no time during the experiment were the listeners purposely made aware of the experimenter's presence or what was taking place in the adjoining room. The experimenter's assistant had two chairs; one next to the listener's table and one located behind the screen which she used during the actual presentation (Appendix C).

A speaker rating form (Appendix D) was prepared which listed 14 personality traits on which the speakers were to be judged by the listeners. The selection of these 14 traits was based partially on information from ethologic studies concerned

with animal communication and partially on subjective identification of possible human characteristics transmitted via eye contact behavior. The number of traits selected was felt to be an adequate sampling without being overly burdensome or redundant. The traits were listed on the rating form in their adjectival form since they were to be used to describe the speaker rather than to simply be identified with a speaker.

Included on the listener rating form, and to be filled in by the experimenter's assistant prior to viewing the tapes, were certain listener identification questions. These were used not only for identification purposes but also to delete from the data listeners with uncorrected hearing or vision problems or listeners who recognized one of the speakers. The rating forms were typed and then dittoed so as to assure relatively consistent reproduction.

A practice rating form was likewise devised and reproduced (Appendix E). Using the term "cheerfulness" listeners were given practice using an open rating procedure by rating three pictures on the degree of cheerfulness they represented. It was during this practice rating that the experimenter's assistant was free to answer questions about procedure.

#### LISTENER PROCEDURE

Listeners (volunteer students attending the University of Montana) were lead into the listener's room by the experimenter's assistant. They were seated in the soft chair in front of the television which was turned on but with no video or audio being

transmitted. At this time the listeners only knew that they had volunteered to participate in an experiment that would only take a few minutes of their time.

The assistant then took her chair at the table and filled in the listener identification questions on three rating forms, began reading the verbal directions (Appendix F) to the listener, and worked through the practice rating of the three pictures on the degree of cheerfulness with the listener. When the assistant was satisfied that the listener understood his task and the rating procedure, she concluded reading the directions and answering questions. She then left the listener to take her chair behind the screen so as not to be a distraction.

The experimenter, watching through the one-way window, presented the tape of the first speaker to the listener when it appeared that he was ready. When the first presentation was over, the experimenter switched off both the video and audio at which time the listener began rating that speaker. During this period the experimenter had sufficient time to locate the second presentation on the tape and get it ready for viewing. When the listener was again ready he was presented the second speaker, and then the third, following the same procedure as before. At the conclusion of the presentation and rating of the third speaker, the experimenter's assistant collected the rating forms, thanked the listener and asked him not to reveal the substance of the experiment to anyone else.

This same procedure was used for all thirty-six listeners and it was felt that a high degree of consistency was attained for all listeners.

## Chapter 3

### ANALYSIS OF THE DATA

The raw data were the number values assigned to the fourteen personality traits by the listeners in their ratings of the speakers. It was not suggested to the listeners that they adopt a particular rating system, for example, 1 to 10 or 10 to 100, or that he use a linear or ratio scaling system. Instead, they were allowed the latitude of arriving at any scheme which they felt was appropriate to meeting their needs. This type of open method of scaling has been suggested by S.S. Stevens (1966) to be less restrictive and more reflective of the rater's actual perception than the finite set methods more commonly used, such as the semantic differential (Osgood, 1952).

To make the data comparable between listeners, each listener's raw scores were converted to a decimal equivalent based on the total range of scale values used by that listener. For example, if listener A used a scale ranging from 1 to 5 and assigned a scale value of 2 to a given personality trait, the decimal equivalent of .40 was substituted for the raw score. It was on this adjusted data that the experimental analysis was conducted.

As an alternative to running formal analyses on all fourteen scales, or attributes rated by the listeners, it was decided that the analysis of a selected few scales would be an expedient way in which to isolate trends and from which to make general inferences and suggestions for future research. The selection of those scales to be analyzed was partially based on what was known from previous

investigations of information transmitted via gaze direction. An attempt was made to select three scales that would most probably sample responses to the changing experimental levels of eye contact.

Frequently mentioned in ethologic studies of animal communication is the high association between aggressive states and gaze behavior. The literature reviewed gave little reason to suspect human behavior to deviate from these findings; the Aggressive scale was selected for analysis. It was felt that Aggressive ratings would tend to be strongly influenced by eye contact and would thus be reflected in the data. The Kind scale was selected for analysis because it seemed to be opposite in character from the Aggressive scale and should also show strong influence from the eye contact levels, although, perhaps in the opposite direction. The third scale chosen was the Appealing scale which allowed for the sampling of the listeners' preferences as to the level of eye contact they found to be most appealing.

Two computer, factor analyses were also run on all fourteen scales, with the hope that a more quantitative basis for the scale selection could be made. One analysis was made with the data grouped by speaker and the second analysis was done with the data grouped by eye contact level. This program, identified as Factor Analysis Centroid Method, IBM 1620 Fortran II, performs a factor analysis accounting for the first seven factors or 88 per cent of the communality, whichever comes first. The results of this factor analysis were not clear as was the identification and labeling of the factors, since no factors emerged "pure" and no scale was given

a strong, consistent factor loading. The decision was thus made to do the analysis on the previously selected scales of Aggressive, Kind and Appealing and to include the results of the factor analysis as interesting and, perhaps, heuristic data (Appendix H).

The experimental design was judged to be too complex to be analyzed completely in one procedure, hence two separate stages of analysis of variance were computed. The first stage of the analysis enabled the experimenter to evaluate the main experimental effects, level of eye contact, speakers and order. Interactions could not be extracted in this initial stage. This procedure's test of significance was a conservative one due to some inflation of the error term through inclusion of interaction effects.

This first analysis of variance allowed for the identification of at least one main effect for each personality scale which was not significant. This potential main effect was then disregarded and the data were pooled without concern for that particular source of variance. It was then possible to run the second stage of the analysis of variance, a Lindquist Type II design (Lindquist, 1953, pg. 273). In this second stage, variability stemming from the two known remaining experimental sources of variance was isolated and removed from the error term (Appendix G).

#### RESULTS OF FIRST STAGE OF ANALYSIS OF VARIANCE

Aggressive Scale Table 1, summarizing the first stage of analysis of variance relative to the data for the Aggressive scale, reveals that differences in the level of eye contact and the order



of treatment combinations are associated with significant differences in listener's ratings of aggressiveness. The speaker effect was not found to be significant and was thus pooled with the rest of the data and not further analyzed.

Kind Scale Table 2, summarizing the results of the first stage of analysis of variance relative to the data for the Kind scale, reveals that only speaker differences are associated with significant differences in the listeners' ratings of kindness. Neither eye contact levels nor order, alone, had significant effects on the listeners. In other words, when judging the attribute of kindness, the listeners gave considerable importance to individual differences between speakers such as general facial features, voice quality or any one of several, uncontrolled individual speaker characteristics. As a result of this stage of the analysis, variance associated with eye contact levels was pooled with the rest of the data and not further analyzed.

Appealing Scale Table 3, summarizing the results of the first stage of analysis of variance relative to the data for the Appealing scale, reveals that only differences in presentation order are associated with significant differences in listeners' ratings of appealingness. Neither the effect of eye contact level nor speaker, alone, show a significant difference in listener ratings. Eye contact was, therefore, dropped from further analysis.

Using the results from the first stage of the analysis of variance, a second stage analysis of variance was run using Lindquist's Type II design (Lindquist, 1953, pg. 273). Lindquist's Type II model

is a two factor design based on grouped data and is structured to enable the separation of within and between subject sources of variance.

For this second stage of the analysis, data were grouped into two replications of the study according to levels of eye contact viewed in the first position by the listeners. From Appendix F, we see that in the first replication, one subgroup viewed the high eye contact condition first, a second subgroup viewed the intermediate eye contact condition first, and the third subgroup viewed the low eye contact condition first. The second replication was identically constituted.

Table 1

Summary of First Stage of Analysis  
of Variance Testing for Main Effects  
Relative to the Aggressive Scale

Effect	Source of Variance	df	ss	ms	F	sig
Eye Contact	Between	2	.4724	.2362	3.59	.05
	Within	105	6.9508	.0662		
	Total	107	7.4232	.0694		
Speaker	Between	2	.1503	.0752	1.08	NS
	Within	105	7.2729	.0693		
	Total	107	7.4232	.0694		
Order	Between	2	.4435	.2218	3.31	.05
	Within	105	6.9795	.0665		
	Total	107	7.4230	.0694		
Subjects	Between	35	2.8596	.0817	1.28	NS
	Within	72	4.5636	.0694		
	Total	107	7.4232	.0694		

Table 2

Summary of First Stage of Analysis  
of Variance Testing for Main Effects  
Relative to the Kind Scale

Effect	Source of Variance	df	ss	ms	F	sig
Eye Contact	Between	2	.0129	.0065	.131	NS
	Within	105	5.2152	.0497		
	Total	107	5.2281	.0488		
Speaker	Between	2	.3643	.1826	3.94	.05
	Within	105	4.8638	.0463		
	Total	107	5.2281	.0488		
Order	Between	2	.1092	.0546	1.12	NS
	Within	105	5.1189	.0487		
	Total	107	5.2281	.0488		
Subjects	Between	35	2.2390	.0639	1.55	NS
	Within	72	2.9891	.0412		
	Total	107	5.2281	.0488		

Table 3.

Summary of First Stage of Analysis  
of Variance Testing for Main Effects  
Relative to the Appealing Scale

Effect	Source of Variance	df	ss	ms	F	sig
Eye Contact	Between	2	.1435	.0718	.99	NS
	Within	105	7.5469	.0719		
	Total	107	7.6904	.0719		
Speaker	Between	2	.3355	.1678	2.33	NS
	Within	105	7.3549	.0719		
	Total	107	7.6904	.0719		
Order	Between	2	.8537	.4269	6.55	.01
	Within	105	6.8367	.0651		
	Total	107	7.6904	.0719		
Subjects	Between	35	3.3459	.0956	1.58	NS
	Within	72	4.3451	.0603		
	Total	107	7.6910	.0719		

## RESULTS OF SECOND STAGE OF ANALYSIS OF VARIANCE

Aggressive Scale Table 4, summarizing the results of the second stage of analysis of variance relative to the data for Aggressive, and with the effects of speakers pooled, reveals that there were no significant differences in listeners' ratings of aggressiveness associated with differences between replications. The between subjects portion of the interaction of eye contact and order was similarly not significant.

Significant differences in listeners' ratings of aggressiveness are associated with differences in the effects of eye contact levels, order of presentation and the within subjects interaction of eye contact and order. In other words, individual listeners responded differently to speaker presentations depending on the level of eye contact, the order of presentations and the interaction of these two variables.

From Table 5, which displays means and mean differences between scaled listener responses for the various experimental conditions, it is possible to identify some general trends. Intermediate levels of eye contact resulted in significantly higher aggressive ratings than did low eye contact levels, whereas high eye contact levels were not judged significantly different from intermediate or low levels. As previously indicated, order was a significant factor, however, Table 5 indicates that no particular order showed significantly higher effects. Importantly, though, high eye contact levels viewed first resulted in significantly lower Aggressive ratings than

Table 4

Summary of Second Stage of Analysis  
of Variance Relative to the Aggressive  
Scale with the Speaker Effect Pooled

Source of Variance	df	ss	ms	F	sig
Between - Subjects	35	2.8596	.0817		
Replications	1	.0159	.0159	.1002	NS
Eye Contact by Order	2	.1670	.0835	.9988	NS
Error Between	32	2.6767	.0836		
Within - Subjects	72	4.5636	.0634		
Eye Contact	2	.4724	.2362	6.9064	.01
Order	2	.4435	.2017	5.8977	.01
Eye Contact by Order	2	1.3847	.6923	20.2427	.01
Error Within	66	2.2630	.0342		
Total	107	7.4232	.0694		

Table 5

Eye Contact and Order Means and  
Mean Differences and Their  
Interaction; Aggressive Scale

Order	Eye Contact Level Means			Grand Means
	High	Intermediate	Low	
First	.280	.492	.358	.377
Second	.536	.602	.406	.516
Third	.468	.607	.458	.510
Grand Means	.427	.567	.405	

Order	Eye Contact Level Mean Differences		
	High-Inter.	High-Low	Inter.-Low
First	.212*	.078	.134
Second	.066	.130	.196*
Third	.144	.005	.149
Grand Mean Diff.	.140	.022	.162*



Table 5--Continued

Eye Contact Level	Order Mean Differences		
	First-Second	First-Third	Second-Third
High	.256*	.183*	.073
Inter.	.110	.115	.005
Low	.048	.100	.052
Grand Mean Diff.	.139	.133	.006

Critical Difference = .150 for  $t = 1.671$   
 @ .05 level of significance\*

when viewed either second or third. Conversely, intermediate and low levels were not rated significantly different regardless of order, although there was a trend towards highest ratings in the third order. Intermediate levels of eye contact were consistently rated higher in all viewing orders than were high and low eye contact levels occurring in the same order. These differences only reached usual significance when intermediate eye contact and high eye contact in the first order were compared and, when intermediate and low eye contact in the second order were compared.

Kind Scale Table 6, summarizing the results of the second stage of analysis of variance relative to the data for Kind, and with the effect of eye contact pooled, reveals that there were no significant differences in listeners' ratings of kindness, associated with differences between replications. There were, however, significant differences between listeners' ratings of kindness associated with the interaction effects of speaker and order.

Significant differences within listener ratings of their speakers were found to be associated with speaker differences (again, probably reflecting differences such as facial features and voice qualities, etc.), order of presentation and interaction of speaker and order.

The table of means and mean differences, Table 7, indicates that speaker number 3 was judged significantly higher in kindness than speaker number 1, but not significantly higher than speaker number 2. Nor was speaker number 2 judged significantly more kind than speaker number 1. Generally speaking, speaker number 3 was

judged highest in kindness except when speaker number 2 was viewed to the third order.

In summary, differences in listeners' ratings of Kind are significantly associated with differences between speakers, but only to minor degree with order of presentation.

Appealing Scale Table 8, summarizing the results of the second stage of analysis of variance relative to the data for Appealing, and with the effect of eye contact pooled, reveals no significant differences between listeners' ratings of appealingness associated with differences in replications or with the between subject portion of speaker by order interaction.

Table 6

Summary of Second Stage of Analysis  
of Variance Relative to the Kind  
Scale with the Eye Contact Effect  
Pooled

Source of Variance	df	ss	ms	F	sig
Between - Subjects	35	1.7429	.0498		
Replications	1	.1008	.1008	3.1599	NS
Speaker by Order	2	.6203	.3101	9.7210	.01
Error Between	32	1.0218	.0319		
Within - Subjects	72	3.3707	.0468		
Speaker	2	.3482	.1741	5.2598	.01
Order	2	.0948	.0474	1.5241	.05
Speaker by Order	2	.7419	.3709	11.2054	.01
Error Within	66	2.1858	.0331		
Total	107	5.1135	.0478		

Table 7

Speaker and Order Means and Mean Differences and Their Interaction;  
Kind Scale

Order	Speaker Means			Grand Means
	Speaker 1	Speaker 2	Speaker 3	
First	.433	.472	.620	.308
Second	.539	.522	.683	.581
Third	.471	.669	.565	.568
Grand Means	.481	.554	.623	

Order	Speaker Mean Differences		
	Spk. 1-Spk. 2	Spk. 1-Spk. 3	Spk. 2-Spk. 3
First	.039	.187*	.148*
Second	.017	.144*	.161*
Third	.198*	.094	.104
Grand Mean Diff.	.073	.142*	.069

Table 7--Continued

Speaker	Order Mean Differences		
	First-Second	First-Third	Second-Third
1	.106	.038	.068
2	.050	.197	.147
3	.063	.055	.118
Grand Mean Diff.	.273*	.260*	.013

Critical Difference = .124 for  $t = 1.671$   
 @ .05 level of significance\*

Table 8

Summary of Second Stage of Analysis  
of Variance Relative to the Appealing  
Scale with the Eye Contact Effect  
Pooled

Source of Variance	df	ss	ms	F	sig
Between - Subjects	35	3.3459	.0956		
Replications	1	.0229	.0229	.2297	NS
Speaker by Order	2	.1323	.0662	.6640	NS
Error Between	32	3.1907	.0997		
Within - Subjects	72	4.3451	.0603		
Speaker	2	.3355	.1678	4.5229	.05
Order	2	.8537	.4269	11.5067	.01
Speaker by Order	2	.7091	.3546	9.5580	.01
Error Within	66	2.4468	.0371		
Total	107	7.6904	.0371		

Table 9, summarizing means and mean differences indicates that speakers show no overall significant differences in how listeners rated them on appealingness. Presentations occurring in the first order, regardless of speaker, were significantly lower than presentations in the second or third orders. There was no significant difference between ratings of presentations in the second and third orders. It would appear that a previous experimental viewing results in higher appealingness ratings in subsequent viewings. Interestingly, speaker number 2, when viewed in the third order was rated more Appealing than when speakers number 1 or 3 were also viewed in the third order. Speakers number 1 and 2 were rated significantly lower in appealingness when they were viewed first, than when they were viewed second or third.



Table 9

Speaker and Order Means and Mean Differences and Their Interaction; Appealing Scale

Order	Speaker Means			Grand Means
	Speaker 1	Speaker 2	Speaker 3	
First	.360	.472	.620	.308
Second	.610	.649	.537	.598
Third	.528	.703	.514	.582
Grand Means	.500	.606	.478	

Order	Speaker Mean Differences		
	Spk. 1-Spk. 2	Spk. 1-Spk. 3	Spk. 2-Spk. 3
First	.104	.023	.081
Second	.039	.073	.112
Third	.175*	.014	.189*
Grand Mean Diff.	.106	.022	.128

Table 9--Continued

Speaker	Order Mean Differences		
	First-Second	First-Third	Second-Third
1	.250*	.168*	.082
2	.185*	.239*	.054
3	.154	.131	.023
Grand Mean Diff.	.196*	.180*	.016

Critical Difference = .163 for  $t = 1.671$   
 @ .05 level of significance\*

## Chapter 4

## DISCUSSION

This study was designed to explore the relationships between a speaker's eye contact behavior and the personality images (or traits) of the speaker projected to the listeners. It was anticipated, that different speaker-eye contact levels would be associated with different personality traits and that particular images would be associated with higher levels of eye contact while others would be associated with lower eye contact levels. Although not all possible variables could be eliminated or strictly controlled, it was anticipated that the speaker's eye contact behavior would emerge as the strongest single factor affecting listeners' ratings of selected personality traits.

From the analysis of the three selected scales, there is little evidence to support the original contention that listeners' judgments regarding the personality characteristics projected by a speaker, were strongly affected by changes in the speaker's eye contact levels. The evidence does suggest that listeners rated the speakers on a situational basis, and were differentially affected by all the main variables, depending on the personality trait being judged. The effects of speaker and order emerged much stronger than anticipated and were significant variables affecting listeners' ratings.

## EYE CONTACT EFFECT

The eye contact effect was found to be significantly associated only with differences in listeners' rating of aggressiveness. Relative to the Kind and Appealing scales, eye contact was not a significant variable and was that effect which was pooled and, therefore, was included in the error terms for the second stage of analysis of variance. On the basis of these results, one would conclude that the level of eye contact used by a speaker, may or may not be used as a personality cue by listeners, depending upon the characteristic the listeners were trying to evaluate.

It was expected that eye contact behavior would be strongly associated with aggressiveness. Ethologic studies of communication in higher vertebrates quite consistently include looking behavior in the descriptions of agonistic behavior and usually associate higher aggressive states with high levels of eye contact behavior. It seemed logical that listeners would react similarly in this study to the higher levels of eye contact and that these too would be associated with higher ratings of aggressiveness.

That these experimental listeners did not interpret the speakers' eye contact in ethologic terms might be attributable to some specifically human abilities and behavior. It would seem that these listeners, rather than react only to the eye contact, viewed the eye contact as only part of the total speaker and situational stimulus. In other words, no one level of eye contact was sufficient in itself to consistently reflect higher aggressive states regardless

of other factors, but that a variety of eye contact levels might reflect high aggressive states depending upon other cues (such as the speaking situation, speaker's appearance and presentation format, content of conversation, etc.) which the listener is also sampling and evaluating. A study of several cues possibly associated with high aggressive states might be more successful in establishing the role of eye contact, in relation to these other stimuli, in communicating aggressiveness.

It seems apparent that the significant variable of speaker and/or order presented enough information for the listeners to make their judgments of kindness and appealingness and that listeners did not use the level of eye contact as a strong cue. When considering these results in relation to the ambiguous role of eye contact for the Aggressive scale it is not difficult to see why more definite results were not obtained. It is probable that eye contact level is also a cue for reflecting kindness and appealingness, but that its role is even more reduced and relative than it seems to be in reflecting aggressiveness.

It might be hypothesized that characteristics of a speaker which convey images of kindness, or which are appealing, are a subtle combination of speaker characteristics and listener preferences. In other words, to a particular listener, a speaker (with his personal appearance characteristics) using a low level of eye contact, when compared to speakers viewed before him, might be projecting the strongest level of kindness or be most appealing. Such speaker cues could only be controlled by using the same speaker for

all three presentations which would successfully eliminate the effects of differences between the three speakers such as their facial features, hair styles, voice qualities, eye shapes, nose shapes, etc.

Individual listener preferences and experiences were a set of uncontrolled variables and, because of their personal nature, difficult to define and control. However, the fact that order of presentation was a significant factor in judging both the Kind and Appealing scales does seem to indicate that listeners were not solely basing their judgment on fixed, personal preferences, but rather on flexible standards which were molded by what had been viewed previously. It is interesting that second and third order presentations were rated significantly higher than first order presentations. This would seem to indicate the influence of a listener learning procedure, which is discussed in detail in the discussion of order effect.

Although eye contact was a significant factor in the rating of the Aggressive scale, the interaction of eye contact with a significant order effect (Table 4) indicated again that level of eye contact is not an absolute but, rather, is relative to surrounding experiences. Thus low levels of eye contact are viewed as progressively more aggressive as listeners have experience with higher levels of eye contact. Table 5 reveals that different orders, plus the nature of the specific eye contact condition(s) which preceded, had a strong effect on the listeners' ratings. This might be interpreted to indicate that listeners' eye contact expectations change rapidly with experience. This current study was designed as though

eye contact levels are absolute and they probably are not. There was also the expectation that personality traits reflected by eye contact levels would also be more rigid. It might very well be that both the amount of eye contact a speaker uses and the interpretation of eye contact levels by a listener are "plastic", in that, daily experiences will influence speakers or listeners and the significance they attach to eye contact levels. Also, listener expectations of appropriate eye contact levels for a particular situation might cause him to be somewhat rigid in his interpretation of eye contact levels not within the expected range.

It might be further speculated that the use of television in this present study had a subtle effect on the listeners' judgments of certain traits. People may have come to regard what they view via television in a different format than other "real life" situations. For example, it is doubtful that viewers of a television news broadcaster would judge him to be in a high aggressive state even though he probably used high levels of eye contact. Thus, experimental listeners, when viewing a speaker with high eye contact levels via videotape television, might also have judged him to be lower in aggressiveness than they would have in a live situation. If this be true, a more "natural" live presentation would eliminate this mental set. However, the other problems of presentation control in a live situation might prove to be more of a problem.

#### SPEAKER EFFECT

The effect of speaker was statistically significant only in

the rating of the Kind scale. The speakers were originally chosen on the basis of similarity in appearance and it was hoped that the affect of individual speaker differences (visible and audible) would be minimal and insignificant. Although the speaker effect was not a generally significant variable, its stronger than expected influence indicates that judgments about the speaker's personality were often influenced by more subtle personal characteristics than the amount of eye contact used. This significance undoubtedly reflects listener preferences, as to personal appearance and/or voice quality or prosodic features. What these cues might be can only be conjecture, but must be drawn from those speaker differences that make up the individual; such small differences as facial shape, facial expressions, hair shades, voice qualities, etc. These speaker preferences are reflected in the significantly higher ratings of kindness for speaker number 3 (Table 7) over speaker number 1 and 2 when viewed in the first and second order.

Speaker effect showed a strong tendency to interact with the effect of order (as did eye contact). Thus, preceding experiences with speaker presentations interacted with the possible multiple cues available in the appearance and voice of a given speaker. For example, a speaker with a "kind" expression may look less kind after a listener had just viewed a speaker with an even more benevolent expression, regardless of the eye contact levels involved.

#### ORDER EFFECT

The order in which individual listeners viewed the three speaker-eye contact combinations proved to be a consistently signif-



icant variable across the three scales. Likewise, all interactions between order and the other main effect (eye contact or speaker) were also significant.

The strongest order effect apparently occurred in presentations viewed in the first order. The consistent, and often significant, lower rating of first order presentations would seem to be the prime example of how the listeners were affected by the order of the speaker-eye contact combination they viewed, and seems to offer the best possibility for explanation.

It is speculated that a listener learning process took place during the viewing of the three presentations. What apparently took place was that the first order presentations, given to experimentally naive listeners, were consequently rated on a somewhat different judgmental basis, and more conservatively, than were second and third order presentations. First order presentations, then, set the tone for subsequent viewing. In other words, in rating their first speaker, listeners were forced to make their scale judgments solely on the basis of their past personal experiences, since no other experimental comparison had yet been presented. And, since they did not know what to expect in the other presentations to follow, they rated the first speaker rather conservatively so as not to place themselves in a predicament by initially limiting the range of their judgmental scale. After the first presentation, the listeners were no longer naive, and the ratings of the second and third order presentations could then be based importantly on the first presentation. Because of the conservative rating given the first speaker, listeners

could now allow themselves a more liberal rating of the following speakers.

Presentations in the second and third orders showed an occasionally significant interaction with eye contact or speaker but these appear to be isolated events without a recognizable pattern. It appears that after the first presentation listeners could be more receptive to other variables and the effect of order was reduced. In future studies, the experimental design could eliminate order as a variable by presenting listeners only one speaker-eye contact combination to evaluate. Such a study would measure the effects of past listener experiences uncontaminated by immediately preceding experimental experiences with eye contact.

#### SUMMARY AND CONCLUSIONS

Contrary to expectations, the eye contact level used by the speakers was only significant in the listeners' ratings of the Aggressive scale. When rating the speakers on the Kind and Appealing scales, listeners were strongly influenced by the speakers themselves as well as the order in which the speaker-eye contact combinations were presented. Order was also a significant variable in the rating of aggressiveness. Where eye contact level was of significance, the expected relation between high levels of eye contact and high aggressive ratings did not develop. As Tables 6, 8 and 10 reveal, there are many significant interactions between the effects of eye contact or speaker with the order effect indicating the listeners' use of order in their judgment regarding the other variables.

The level of eye contact a speaker uses may be used by a listener in his judgments of certain speaker personality characteristics. The importance of the eye contact in influencing judgments about a speaker, however, seems to depend on other personal speaker characteristics, past listener experiences and the personality trait the listener is attempting to evaluate. Thus, we can say that the role of the speakers' eye contact is flexible, in that, these other variables can influence the limits of the level of eye contact needed to reflect certain personality traits. Reflecting on what seems to take place in real-life situations, experimental findings are consistent with the complexity of human interaction behavior.

Other studies concerned with the communicative role of eye contact behavior should probably drastically reduce, and keep to a minimum, the variables they incorporate. The eye contact, as a variable, should be made to be less flexible so that its effect will stand out and be more easily isolated without being masked by interacting variables.

More normative studies are needed so that a reasonable basis for establishing normal limits of eye contact can be made in a variety of situations. When normal limits of eye contact can be established, then experimental investigations into changing, or deviating, eye contact behavior can be more accurately carried out.

Follow up studies to this present investigation might concern themselves with those personal speaker attributes that are variables in projecting personality states. Or, the interaction between eye contact and personal attributes and its stimulus value in projecting

personality characteristics. One might simply explore the personality traits that are susceptible to being modified through eye contact behavior, and attempt to name and identify common character groups.

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## APPENDIX A

### Text of the Statement Presented to the Listeners by the Three Speakers

It appears that television, like the automobile and airplane, are here to stay. Television has become an extremely important means of communication. Almost every family in the United States owns a television and its use is continually expanding. For example, famous speeches used to be heard by only a few thousand people who were at the right place at the right time; however, today these same speeches might be televised and consequently heard by many millions of people. Television has really changed the leisure-time activities of Americans, allowing them to be entertained in the comfort of their homes. Also, television has the ability to change the American education system and now educational television is a rapidly expanding program. Fifty years ago the average citizen rarely got to see and and hear the people and events that were making the news. Today these are easily available simply by turning a dial. Television has come to affect almost every American's life in some way. Sometimes the effect is good and other times questionable. Nevertheless, television will only continue to be used in ever increasing and varied ways and will continue to affect the lives of its viewers.

APPENDIX B

Table 10

Presentation Orders of Speaker-Eye  
Contact Combinations for the Thirty-  
Six Listeners

<u>Possible Orders of Eye Contact</u>	<u>Speakers</u>
high - intermediate - low	I
high - low - intermediate	II
intermediate - low - high	III
intermediate - high - low	
low - high - intermediate	
low - intermediate - high	

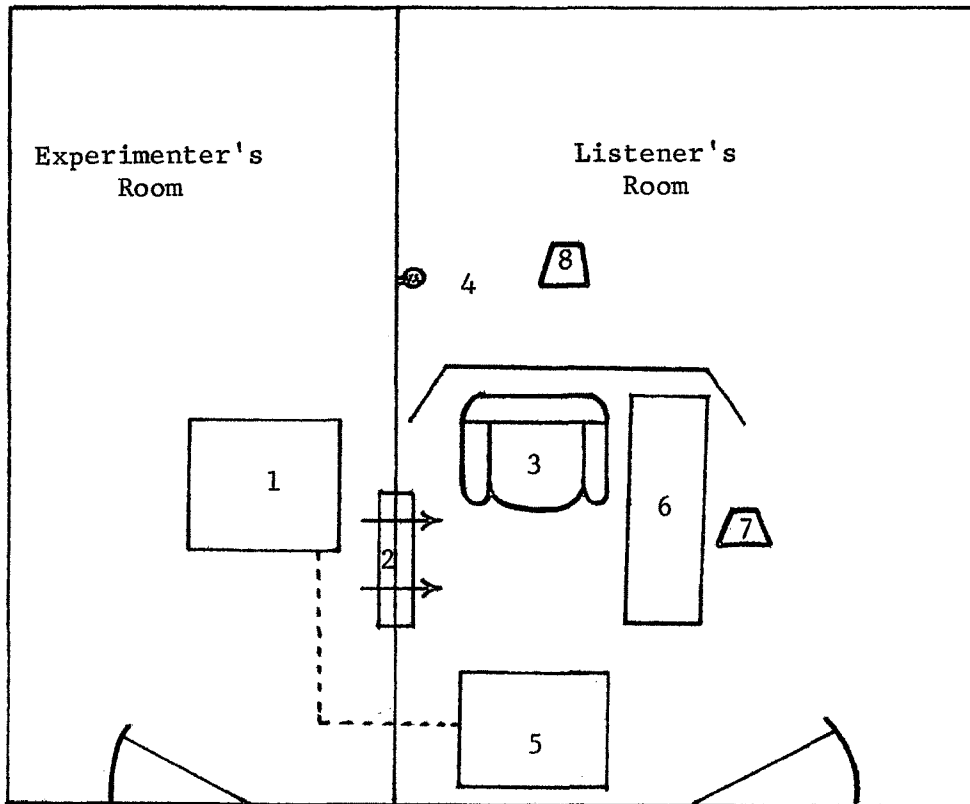
<u>First</u>	<u>Second</u>	<u>Third</u>		<u>First</u>	<u>Second</u>	<u>Third</u>
<u>high</u>	<u>intermediate</u>	<u>low</u>		<u>intermediate</u>	<u>high</u>	<u>low</u>
1. I	II	III		19. I	II	III
2. I	III	II		20. I	III	II
3. II	III	I		21. II	III	I
4. II	I	III		22. II	I	III
5. III	I	II		23. III	I	II
6. III	II	I		24. III	II	I
<u>high</u>	<u>low</u>	<u>intermediate</u>		<u>low</u>	<u>high</u>	<u>intermediate</u>
7. I	II	III		25. I	II	III
8. I	III	II		26. I	III	II
9. II	III	I		27. II	III	I
10. II	I	III		28. II	I	III
11. III	I	II		29. III	I	II
12. III	II	I		30. III	II	I
<u>intermediate</u>	<u>low</u>	<u>high</u>		<u>low</u>	<u>intermediate</u>	<u>high</u>
13. I	II	III		31. I	II	III
14. I	III	II		32. I	III	II
15. II	III	I		33. II	III	I
16. II	I	III		34. II	I	III
17. III	I	II		35. III	I	II
18. III	II	I		36. III	II	I



APPENDIX C

Illustration 1

Arrangement of Experimental  
Environment and Equipment



Key

1. Experimenter's videotape and television with controls to listener's television (on/off).
2. One way window.
3. Listener's chair.
4. Microphone for monitoring listener's room.
5. Listener's television.
6. Table.
- 7, 8. Experimenter's assistant's chairs.

APPENDIX D

Form 1

Speaker Rating Form

Speaker Rating Form

Speaker: \_\_\_\_\_ Listener No.: \_\_\_\_\_  
Sex: Male Female  
Class: Fr. Soph. Jr. Sr. Other  
Hearing: \_\_\_\_\_  
Vision: \_\_\_\_\_  
Did you recognize the speaker?  
Yes No

RATE THE SPEAKER YOU HAVE JUST LISTENED TO IN THE FOLLOWING WAY. PLACE SOME APPROPRIATE NUMBER VALUE OF YOUR CHOICE, NEXT TO EACH TERM, WHICH REFLECTS THE DEGREE TO WHICH YOU FELT THE SPEAKER POSSESSED THAT QUALITY.

openminded _____	honest _____
trained _____	skilled _____
aggressive _____	energetic _____
friendly _____	sociable _____
kind _____	certain _____
orderly _____	concerned _____
handsome _____	appealing _____

APPENDIX E

Form 2

Practice Rating Form

Practice Rating Form

Rate the picture you have just seen in the following way. Place some appropriate number value of your choice, next to the term CHEERFULNESS, which reflects the degree to which you felt the picture possessed that quality.

Picture 1	Cheerful	_____
Picture 2	Cheerful	_____
Picture 3	Cheerful	_____

## APPENDIX F

### Verbal Directions Given to Each Listener by the Experimenter's Assistant

You are about to view three persons who have been recorded on video tape. Each person will present a short statement about the future of television. You are to watch each speaker and after he is finished you will be given time to complete a rating form for that speaker. Your task is to rate the person (not the speech itself) by placing some appropriate number value, of your choice, next to each of fourteen terms. Choose some number value which reflects the degree to which you feel the speaker possesses the quality named; large numbers representing small amounts of the quality. There are no right or wrong responses; you are expressing only your opinion. You may refer back to a completed rating form for help in rating another speaker.

For practice, here is a practice rating form. Would you look at this picture and rate it on the quality of CHEERFULNESS. Simply decide on some number value (any number value) which you feel expresses the degree of cheerfulness of the picture. Good!

Now look at this second picture and rate it on its CHEERFULNESS in the same manner as the first. You may refer back to your completed rating form if you wish. Good! Now look at this third picture and rate it in the same manner. Good! Do you have any questions about the manner in which you are to rate the speakers you are about to see?

Now look at the rating forms you will be using in rating the three speakers. Read over the directions carefully, and familiarize yourself with the fourteen qualities you will be judging. Are you familiar with all of these qualities? Good! Do you have any further questions before we begin? If at any time during the experiment you have a question, please ask it but wait until after the speaker has finished and the monitor is blank. If there are no further questions would you please watch the monitor and get ready for the first speaker.

APPENDIX G

Table 11

Analysis of Lindquist's Type II  
Design (Lindquist, 1953, p. 278)

Source	df	Sums of Squares
Between - Subjects	$an-1$	$SS_S$
AB(b)	$a-1$	$SS_{AB(b)} = SS_G$
Error	$a(n-1)$	$SS_{error(b)} = SS_S - SS_R - SS_G$
Within - Subjects	$an(a-1)$	$SS_{WS} = SS_T - SS_S$
A	$a-1$	$SS_A$
B	$a-1$	$SS_B$
AB(w)	$(a-1)(a-2)$	$SS_{AB(w)} = SS_{AB} - SS_G$
Error(w)	$a(a-1)(n-1)$	$SS_{error(w)} = SS_{WS} - SS_A - SS_B - SS_{AB(w)}$
Total	$a^2n-1$	$SS_T$

APPENDIX H  
Table 12

Factor Analysis by Speakers  
Indicating Factor Loadings of  
the Fourteen Scales Rated

		Per Cent Communality	Openminded	Trained	Aggressive	Friendly	Kind	Orderly	Handsome	Honest	Skilled	Energetic	Sociable	Certain	Concerned	Appealing
Speaker 1	Factor 1	33.9	.385	.716	.438	.564	.454	.304	.501	.361	.820	.762	.729	.594	.550	.677
	Factor 2	13.9	.590	.095	.203	.481	.168	.635	.362	.435	.272	.338	.304	.362	.191	.332
	Factor 3	11.9	.378	.306	.412	.452	.489	.270	.137	.374	.089	.272	.216	.411	.492	.198
	Factor 4	8.5	.041	.339	.595	.166	.597	.161	.180	.250	.294	.121	.043	.132	.086	.299
	Factor 5	5.6	.032	.186	.078	.347	.143	.470	.209	.414	.129	.160	.211	.185	.144	.160
	Factor 6	5.9	.344	.151	.221	.138	.147	.312	.600	.022	.230	.222	.105	.078	.074	.083
	Factor 7	4.5	.301	.049	.353	.191	.073	.080	.092	.062	.089	.077	.184	.190	.487	.171
Speaker 2	Factor 1	48.4	.638	.814	.735	.782	.763	.625	.396	.640	.814	.844	.669	.539	.653	.690
	Factor 2	12.5	.464	.345	.297	.089	.073	.494	.326	.363	.330	.267	.356	.305	.466	.469
	Factor 3	9.3	.355	.129	.235	.497	.396	.283	.382	.243	.142	.003	.087	.451	.353	.233
	Factor 4	6.1	.033	.227	.213	.156	.229	.054	.639	.375	.125	.073	.133	.176	.011	.252
	Factor 5	3.6	.065	.146	.196	.185	.392	.300	.154	.269	.042	.089	.141	.151	.093	.093
	Factor 6	3.6	.280	.054	.328	.141	.043	.179	.205	.106	.201	.181	.226	.170	.082	.216
	Factor 7	3.2	.235	.042	.131	.045	.068	.083	.108	.283	.066	.217	.040	.312	.325	.082
Speaker 3	Factor 1	29.7	.101	.577	.568	.629	.509	.202	.240	.279	.656	.688	.760	.561	.604	.709
	Factor 2	13.7	.348	.435	.216	.375	.579	.051	.476	.631	.318	.158	.296	.270	.366	.197
	Factor 3	10.9	.049	.301	.515	.347	.116	.506	.532	.305	.250	.377	.373	.011	.230	.005
	Factor 4	7.5	.097	.026	.378	.212	.277	.545	.309	.184	.300	.390	.005	.041	.274	.188
	Factor 5	9.2	.424	.262	.145	.292	.259	.341	.226	.407	.285	.200	.145	.360	.237	.451
	Factor 6	6.9	.649	.270	.064	.087	.224	.144	.085	.240	.148	.059	.156	.450	.150	.231
	Factor 7	4.9	.154	.100	.179	.179	.266	.316	.304	.076	.048	.185	.065	.485	.017	.206

Table 13

Factor Analysis by Eye Contact Level  
 Indicating Factor Loadings of the  
 Fourteen Scales Rated

		Per Cent Communnality	Openminded	Trained	Aggressive	Friendly	Kind	Orderly	Handsome	Honest	Skilled	Energetic	Sociable	Certain	Concerned	Appealing
High Eye Contact	Factor 1	14.0	.493	.194	.481	.424	.359	.242	.542	.239	.261	.372	.264	.292	.413	.450
	Factor 2	11.2	.454	.114	.289	.156	.463	.265	.222	.037	.303	.473	.660	.292	.157	.215
	Factor 3	9.8	.138	.137	.524	.698	.479	.064	.079	.055	.217	.242	.099	.071	.419	.181
	Factor 4	12.4	.456	.536	.261	.101	.361	.414	.374	.287	.137	.329	.424	.395	.359	.225
	Factor 5	10.5	.180	.403	.114	.115	.229	.218	.327	.428	.510	.260	.212	.561	.344	.224
	Factor 6	8.2	.043	.204	.128	.168	.296	.457	.089	.472	.061	.325	.072	.119	.060	.638
	Factor 7	6.4	.197	.363	.168	.065	.233	.364	.282	.468	.291	.169	.262	.123	.054	.104
Inter. Eye Contact	Factor 1	10.4	.453	.316	.345	.369	.224	.341	.270	.273	.294	.319	.357	.125	.210	.456
	Factor 2	13.4	.432	.052	.212	.414	.376	.186	.191	.304	.549	.449	.079	.461	.430	.506
	Factor 3	14.3	.186	.390	.157	.174	.562	.301	.453	.062	.301	.525	.597	.380	.342	.403
	Factor 4	9.2	.419	.343	.409	.072	.276	.216	.477	.277	.086	.223	.180	.221	.335	.385
	Factor 5	9.0	.119	.531	.350	.100	.411	.473	.264	.332	.283	.104	.080	.203	.303	.156
	Factor 6	7.9	.392	.457	.223	.384	.146	.301	.205	.304	.150	.092	.101	.261	.410	.139
	Factor 7	8.1	.194	.124	.225	.474	.303	.291	.101	.400	.408	.063	.271	.447	.093	.063
Low Eye Contact	Factor 1	13.5	.320	.138	.479	.152	.353	.033	.573	.316	.308	.262	.482	.340	.543	.391
	Factor 2	15.1	.482	.216	.211	.567	.477	.549	.203	.365	.464	.120	.349	.224	.052	.601
	Factor 3	12.1	.298	.296	.569	.008	.458	.452	.352	.494	.358	.241	.079	.358	.108	.273
	Factor 4	9.6	.437	.456	.385	.267	.045	.145	.278	.479	.282	.148	.282	.367	.259	.100
	Factor 5	8.8	.438	.329	.156	.305	.180	.191	.448	.181	.222	.496	.113	.145	.414	.119
	Factor 6	7.7	.152	.365	.258	.462	.280	.001	.274	.234	.175	.350	.243	.067	.312	.347
	Factor 7	6.9	.100	.460	.140	.084	.110	.140	.037	.258	.079	.278	.306	.614	.142	.197