

MALE AND FEMALE VISUAL BEHAVIOR AS A FUNCTION
OF DISTANCE AND DURATION OF AN INTERVIEWER'S
DIRECT GAZE: EQUILIBRIUM THEORY REVISITED

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

JOHN R. AIELLO

1972



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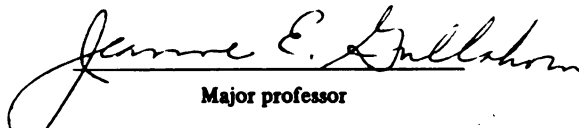
MALE AND FEMALE VISUAL BEHAVIOR AS A FUNCTION OF DISTANCE
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EQUILIBRIUM THEORY REVISITED

presented by

John R. Aiello

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology


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ABSTRACT

MALE AND FEMALE VISUAL BEHAVIOR AS A FUNCTION OF DISTANCE AND DURATION OF AN INTERVIEWER'S DIRECT GAZE: EQUILIBRIUM THEORY REVISITED

By

John R. Aiello

The checking, moderating, and affective-expressive functions of visual behavior during social interaction were examined in an investigation that tested an equilibrium theory of social interaction (Argyle and Dean, 1965). The specific distances chosen for study were representative of Hall's (1966) personal and social distance zones.

In the design of this study certain methodological flaws noted in previous investigations were corrected. While most investigations of visual behavior have employed an unnatural 100 percent visual attention by confederates, this study tested the effects on male and female subjects of a great amount (85 percent) vs. a small amount (15 percent) of visual attention from interviewers. Moreover, in examining the relationship between visual behavior and distance, previous researchers have inadvertently created differential distances between subjects and observers, who were recording subjects' visual behavior, by having subjects change positions during the recorded interaction. In this study all subjects sat at a constant distance from the observers and at one of three distances (2.5', 6.5', or 10.5') from the interviewers.

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interviewer's eyes more at the intermediate distance than at either the closest or farthest distances.

- (7) Subjects will spend a greater amount of time gazing into the region of the interviewer's eyes when they listen than when they speak.

All seven of the experimental hypotheses were confirmed. While females gazed into the region of the interviewer's eyes more than did males ($p < .01$), a significant interaction effect occurred between sex of subject and distance for the principal dependent variable, amount of looking ($p < .001$), as well as for three of the four minor dependent variables--subjects' average glance length ($p < .01$), subjects' return gaze proportion ($p < .05$), and subjects' looking while listening proportion ($p < .01$). Females looked more, maintained longer glances, returned the interviewer's gaze more, and looked longer while listening than did males at the close and intermediate distances; however, males engaged in higher levels of these behaviors than did females at the farthest distance.

While a linear increase in the values of all five of the dependent variables was found for males as a function of the distance between subject and interviewer, a curvilinear pattern was found for females for total amount of looking, average length of glances, return gaze proportion, and looking while speaking proportion; and the inverse of the aforementioned linear relationship occurred for females for the looking while listening proportion.

These results, supporting hypotheses (2) - (6), were interpreted as illustrating the differential upper boundaries that exist for the effect of distance on male and female visual behaviors and exemplifying different equilibrium levels for the sexes.

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With considerable training, observers attained high reliabilities in judging visual and verbal behaviors ($\bar{r} = .96$). The interviewers successfully maintained a friendly conversational atmosphere and yet were able to control their verbal behaviors.

The principal dependent variable of this study was the amount of gazing by subjects into the region of the interviewer's eyes. This variable was highly related to the following secondary (visual) dependent variables: average glance length (.69), looking while listening proportion (.76), looking while speaking proportion (.72), and the return gaze proportion (.75). The latter measure was introduced in this study to eliminate the more obtrusive eye contact measure.

The following hypotheses drawn from previous theory and research were tested in this study:

- (1) Females will gaze into the region of an interviewer's eyes more than will males.
- (2) At the closest distance (2.5') females will gaze in the region of the interviewer's eyes more than will males.
- (3) At the intermediate distance (6.5') females will gaze into the region of the interviewer's eyes more than will males.
- (4) At the farthest distance (10.5') males will gaze into the region of the interviewer's eyes more than will females.
- (5) As the distance between male subjects and the interviewer increases, a linear trend of looking will result, such that males will gaze into the region of the interviewer's eyes more at the farthest distance than at the intermediate distance and more at the intermediate distance than at the closest distance.
- (6) As distance between female subjects and the interviewer increases, a curvilinear trend of looking will result, such that females will gaze into the region of the

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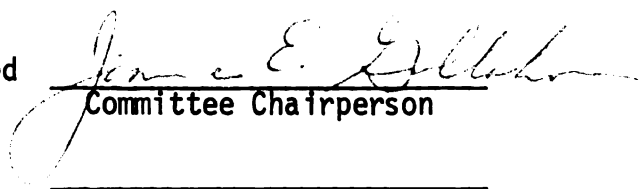
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Also as predicted, subjects looked a greater percentage of the time while listening than while speaking ($p < .001$). This finding was discussed in terms of the greater cognitive difficulty of preparing and presenting messages.

The reinforcement value of visual attention was demonstrated by the interesting but unpredicted findings that when the interviewer looked less, subjects spoke to him less ($p < .001$) and looked at him less when they did speak to him ($p < .03$). Evidence suggesting that females desire greater involvement than males during interaction appears in the findings that females, but not males, looked more when the interviewer's direct gaze increased over the course of an interview ($p < .005$). Furthermore, in comparison with males, females returned the interviewer's gaze more at the close distance but less at the intermediate and farthest distances ($p < .02$). Possible interpretations of these sex differences were discussed along with suggestions for future research.

Approved


Committee Chairperson

Date _____

Dissertation Committee

Jeanne E. Gullahorn

Lawrence A. Messé

Eugene H. Jacobson

William D. Crano

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A FUNCTION OF DISTANCE AND DURATION
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EQUILIBRIUM THEORY REVISITED

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirement
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1972

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I wish to convey my appreciation to all of the people who have assisted in this research project. I am especially grateful to Dr. Jeanne Gullahorn, my dissertation chairwoman, for her careful reading and constructive criticisms of the thesis and for her interest, encouragement, patience, and flexibility during the execution of the study. I am also indebted to Dr. Eugene Jacobson, Dr. Lawrence Messe, and Dr. William Crano for their assistance and guidance during my graduate training.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	
LIST OF FIGURES	
Chapter	
I. INTRODUCTION	1
The Concept of Equilibrium	3
Review of the Literature	4
The Role of Distance	4
Visual Orientation during Interaction	8
Summary	15
II. RATIONALE FOR THE INVESTIGATION	16
Sex Differences	16
Relationship of Distance and Sex	17
Looking While Listening and Speaking	23
III. METHOD	25
Overview	25
Subjects	26
Experimental Setting	27
Apparatus	27
Training of Interviewers and Judges	29
Procedure	30
Measurement of Visual Interaction	32
IV. RESULTS	34

V. DIS

BIBLIOGR

APPENDIC

A.

B.

C.

D.

E.

	Page
Experimental Manipulations	34
Observer Agreement	34
Behavior of Interviewers	34
Experimental Findings: Tests of Hypotheses	36
Additional Significant Effects	43
Summary of Results	46
 V. DISCUSSION	 49
Success of Experimental Manipulations, Controls, and Measurement	49
Two Measures of Visual Orientation	51
Visual Attention Accorded a Speaker	52
Differential Boundary Conditions for Male and Female Visual Behavior	53
Implications for Future Research	57
 BIBLIOGRAPHY	 60
APPENDICES	
A. Operational Definitions of Visual Behavior	70
B. Adjectives Used by Subjects to Describe Interviewers	71
C. Summary of Visual Indices as a Function of Sex, Distance, Order, and Trial	72
D. Student's Attitudes and Reliefs Questionnaire	78
E. Post-experimental Questionnaire	81

Table

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

LIST OF TABLES

Table	Page
1. Reliabilities Between Judges for Scoring Total Amount of Looking and Number of Glances by Subjects at Three Distances	35
2. Analysis of Variance of Amount of Looking by Subjects as a Function of Sex, Distance, Order, and Trial	37
3. Male and Female Looking (out of a possible 180 seconds) as a Function of Distance and Sex	38
4. Correlations Among Visual and Verbal Behaviors of Subjects and Interviewers (Max. N = 240; Min. N = 130)	39
5. Analysis of Variance of Five Indices of Visual Behavior as a Function of Sex, Distance, Order, and Trial	40
6. Male and Female Average Glance Scores as a Function of Distance and Sex	42
7. Male and Female Return Gaze Proportions as a Function of Distance and Sex	42
8. Male and Female Looking While Listening Proportion as a Function of Distance and Sex.....	42
9. Male and Female Looking Behavior as a Function of Interviewer Looking Order.....	44
10. Return Gaze Proportion as a Function of Sex, Distance, and Trial	44
11. Subject's Looking While Speaking Proportion and Amount of Talking (out of a possible 180 seconds) as a Function of Interviewer's Looking Order and Trial	46

C1.

C2.

	Page
C1. Summary of Amount of Looking and Average Length of Glances Variables as a Function of Sex, Distance, Order, and Trial	72
C2. Summary of Three Proportions of Visual Behavior as a Function of Sex, Distance, Order, and Trial ...	75

Figures

1.

2.

LIST OF FIGURES

Figures	Page
1. Experimental setting	28
2. Five indices of visual behavior as a function of sex and distance	41

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Chapter 1

INTRODUCTION

The role of visual behavior during social interaction has interested man from his earliest days, but only in the past decade have social scientists focused empirical attention on this mode of behavior. Tomkins (1963) furnishes an historical prospective of man's most potent sense, beginning with the earliest written records and proceeding to the present day. He maintains that the taboos on looking and on not looking are even more stringent than those on sexuality, and that these taboos are perpetuated in the socialization of children. Simmel thus summarizes the interactive nature of the visual channel:

The union and interaction of individuals is based upon mutual glances...The limits of this relation are to be determined by the significant fact that the glance by which the one seeks to perceive the other is itself expressive. By the glance which reveals the other, one discloses himself. By the same act in which the observer seeks to know the observed, he surrenders himself to be understood by the observer. The eye cannot take unless at the same time it gives. The eye of a person discloses his own soul when he seeks to uncover that of another. What occurs in this direct mutual glance represents the most perfect reciprocity in the entire field of human relations (1920, p. 358).

The initiation and regulation of interpersonal encounters during focused interaction, where participants openly cooperate to sustain a

single focus of attention, are heavily dependent on the visual cues. Goffman (1963) argues that physical positioning and visual exchanges are essential indicators in the process of mutual social accessibility, which determines whether or not an interaction will begin. Once an encounter is under way, the members maintain an "eye-to-eye ecological huddle" that allows the process of association to be preserved.

Argyle and Kendon (1967) view focused social interaction as an organized, directed and adaptive skilled performance, analogous to the skills that go into driving a car, and involving a chain of sensory, central, and motor mechanisms. Since an interactor has some end goal in mind and will carry out a series of actions to attain this goal, it is necessary for him to match his output with the input available to him and then to correct his output as a consequence of the matching process (cf. Welford, 1958). Jones and Thibaut (1958) also note that because information relative to the adequate maintenance of a performance is essential to a communicator, the nature of the cues he watches for during an encounter and the subsequent use he makes of these cues is very much a function of his goal in the interaction.

With reference to the components of a social performance, Argyle and Kendon distinguish standing features and dynamic features. While the standing features--distance, orientation, and posture--are relatively constant in a given interaction, the dynamic features--patterns of looking, utterances, movements, and facial expressions--fluctuate extensively during the encounter. Standing features provide

the context for the interaction and dynamic features offer specific kinds of information concerning the flow and regulation of the process between communicators.

The Concept of Equilibrium

The notion that two or more interacting individuals will move toward a stable balance or equilibrium as time proceeds has been proposed by numerous social scientists (Chapple and Coon, 1942; Bales, 1953; Goffman, 1955; Heider, 1944; Heinicke and Bales, 1953; Homans, 1955; Lennard and Bernstein, 1960; Miller, 1944; Newcomb, 1961; and Simon, 1952). Argyle and Dean adopt this theoretical framework to account for relationships among basic elements of interaction: bodily contact, proximity, orientation, gestures, facial expression, visual behavior, and the verbal and nonverbal aspects of speech. Using a model similar to Miller's (1944) conflict analysis, Argyle and Dean (1965) suggest that both approach and avoidance forces are present in every interpersonal encounter. They argue that there is a certain degree of intimacy for any group of people which is expressed in terms of physical closeness, visual behavior, intimacy of topic, amount of smiling, etc. The more those behaviors take effect, the more "affiliation motivation" is met up to a point of equilibrium. Continuing beyond this point creates anxiety. Once equilibrium is achieved between the interacting participants, if one of the elements is changed, at least one of the other elements must change in the opposite direction to restore the equilibrium level. Should there be excessive intimacy, avoidance forces would predominate. Should there be too little intimacy, approach forces would come into play.

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The present study will examine this equilibrium principle as it relates to male and female visual behavior under varying levels of the distance standing feature and of the dynamic feature involving amount of interviewer looking. The following literature review will focus on previous findings concerning these variables.

Review of the Literature

The Role of Distance

On a sociological level the best single indicator of friendship and interaction patterns is spatial proximity. Numerous studies of towns, neighborhoods, housing projects, and places of employment (Caplow and Forman, 1950; Festinger, Schachter, and Back, 1950; Gullahorn, 1952; Loomis and Beegle, 1950; Warr, 1965; Whyte, 1956; and Willerman and Swanson, 1952) have shown that the closer people are located to one another, the more likely they are to interact and subsequently to like one another. Zajonc's (1968) "mere exposure" hypothesis is one of the most convincing explanations for this process. He believes that the more familiar a person or thing is to us, the more we will tend to like him or it. The only exception to this course seems to exist for evaluations (choices) that are initially strongly negative (Freedman and Suomi, 1967). Further studies by Darley and Berscheid (1967) and Mirels and Mills (1964) found that evaluations were more positive and that negative characteristics were minimized for people with whom the subjects expected to interact.

When liking is used as an independent variable, members of positive affect pairs are found to stand closer together than members of negative

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affect pairs (Aiello and Cooper, 1972; Mehrabian and Diamond, 1971). Similar findings are obtained for subjects who are told to "win the approval" of other persons (Rosenfeld, 1965); to place silhouettes representing people of varying levels of acquaintance (Little, 1965); and to "imagine liked and disliked addressees" and to stand accordingly with a hat-rack (Mehrabian, 1968a; Mehrabian and Friar, 1969).

Sex and status variables also affect interaction distances under a variety of conditions. Women, by and large, prefer to interact at closer distances than men (Aiello and De Carlo, 1971; Aiello and Jones, 1971; Baxter, 1970; and Sommer, 1959). People of equal status sit closer together than people of unequal status (Lott and Sommer, 1967); furthermore, status is also conveyed and maintained by the body orientation between communicators (Strodtbeck and Hook, 1961). Since orientation is held constant across conditions in the present study, this variable will not be reviewed further. Sommer (1967) summarized data concerning orientation and, more generally, the arrangement of individuals in small groups.

The anxiety aroused by inappropriate distances has been explored by several investigators. In library settings, subjects who are approached at very close distances either compensate for the increased "immediacy" (Wiener and Mehrabian, 1968) by using leaning and blocking responses or simply get up and leave (Felipe and Sommer, 1966; Patterson et al., 1971). Movements away from a violator of spatial norms are also reported by Dosey and Meisels (1969) in a rather artificial approach condition and McDowell (1970) in a more realistic ongoing interaction experiment. Further indication that inappropriately close distances lead

to greater anxiety and more arousal is provided by Kleck (1970) and Baxter and Deanovich (1970). Kleck reports that the incidence of self-manipulatory behavior is greater for subjects when interacting with a interviewer at a closer distance than at a farther distance. Baxter and Deanovich found that subjects projected more anxiety on a Make a Picture Story task when inappropriately crowded. Physiological measures of anxiety (GSR and heart rate) have also verified that more proximate distances are associated with greater arousal levels (cf. Finando, 1971; McBride et al., 1965). The social-developmental patterning of reactions to spatial invasion is nicely demonstrated in a study by Fry and Willis (1970). While five year old invaders were greeted with positive reactions by adults, eight year olds were often ignored in this situation, and ten year olds generally received negative responses.

Socialization expectations thus appear to mediate responses to spatial invasion. Hall (1966) contends that although spatial characteristics are deeply rooted in biology and physiology, various cultures and subcultures actually inhabit different sensory worlds and therefore pattern their behavior very differently. Empirical research has upheld this hypothesis. Watson and Graves (1966) report that Arabs appear much more highly involved with one another while interacting (i.e., they stand much closer) than are Americans. Even within American culture there is evidence of subcultural differences (Baxter, 1970; Willis, 1966); furthermore, other investigators (Aiello and De Carlo, 1971; Aiello and Jones, 1971; Jones and Aiello, 1972) have established that such differences are present in very young children but diminish and are replaced by sex differences, as puberty is reached.

Many parallels can be seen between territoriality in animals and men (see Hediger, 1950, 1955, 1961). Hall (1966) proposes that for white middle-class American adults, who are the focus of study in the present investigation, there are four distinct distance zones, each having a close and a far phase. Different behaviors are exhibited and different senses are emphasized within each zone. The intimate distance (0"-18") emphasizes physical contact, olfaction, thermal receptors, and a low voice level. This distance is unusual for public interaction among white middle-class Americans and is usually uncomfortable except under certain situational conditions (i.e., high voice level and low illumination as found at a party). At the personal distance (1 1/2'-4'), holding or grasping is possible and the visual distortion that occurs in the intimate distance is no longer present. Hall maintains that topics of "personal interest and involvement" can be discussed at this distance. The "limit of domination" seems to fall at the upper boundary of the personal zone and the lower boundary of the social distance zone (4'-12'). People are now standing beyond "arms length," touching is no longer expected, and facial details disappear. Impersonal conversation takes place at the close phase of social distance and formal business usually occurs at the far phase. Public distance (above 12') is characterized by careful wording and grammatical or syntactic shifts and is used primarily on public occasions.

Since the large majority of interactions in the American culture occur at personal and social distances, the distances used in the present study are 2 1/2', 6 1/2', and 10 1/2'. The first distance marks the boundary of the close and far phases of the personal zone and the latter

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two distances are representative of the near and far phases of the social distance zone. Distance obviously influences and is influenced by visual interaction; therefore, gaze behavior will be considered now in more detail.

Visual Orientation during Interaction

The checking, moderating, and affective-expressive functions of gaze behavior in dyadic social interaction have been well documented. By monitoring the visual orientation, facial expressions, and bodily posture of his partner or potential partner, a communicator can collect a great deal of data relevant to the initiation and maintenance of an encounter, ascertaining whether or not his associate wants to begin, continue, lessen, or intensify an interaction. Observers report that a communicator will look into the region of his partner's eyes as he completes an utterance, reaches a point of uncertainty in his speech, asks a question, or is interrupting him (cf. Kendon, 1967). How another reacts at such junctions is a determining influence on subsequent interaction. The impact of depriving communicators of visual cues is illustrated by an investigation varying levels of visibility of interacting dyads (Argyle et al., 1968). As one subject was progressively concealed from the other, interaction became increasingly uncomfortable.

A communicator's gaze behavior not only assists his monitoring the interaction process, but the perception of being looked at profoundly affects the partner as well. As Goffman (1963) notes, mutual gazing plays a crucial role in the initiation and maintenance of social encounters among adults. Even children appear very much aware of whether

or not they are being observed (Wardwell, 1960). In fact, Wada (1961), finding a similar perception in rhesus monkeys, suggests that perhaps all primates have this capacity. Reviewing the experimental evidence Gibson and Pick conclude, "The ability to read the eyes seems to be as good as the ability to read fine print on an acuity-chart...[1963, p. 394]." More recent studies of observers' ability to discriminate the line of gaze of another person (Anstis et al., 1969; Cline, 1967) have shown that while the originally reported acuity in "reading eyes" was exaggerated, it is still quite good. Vine (1971) has suggested that it may be sufficient to discriminate between gazes directed at or not directed at the face (rather than directed at the eyes) because "we either give eye-gazes or we look well away from the eyes of the receiver [p. 328]."

In addition to monitoring interaction, visual behavior also serves a moderating or regulatory function, as manifested by the overall order of reciprocal action. Nielson calls this function "visual rhetoric," which he illustrates with a report given by one of his subjects:

Looking away during his own speaking was a way in which the subject indicated that he was still in the process of explaining himself and thus did not want to be interrupted. This way the subject indicated that a pause should not allow the alter to take over. Looking at the alter toward the end of a remark indicated that the subject was through, as if saying: 'This was what I wanted to say. Now what is your answer' (1964, p. 155).

While the "floor-apportionment" role of gazing becomes even more complex in larger groups, the same type of look-speak relationship has been observed in a study of the distribution of visual attention in a seven member task group (Weisbrod, 1965). The succession of utterances

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seemed to be a function of whom the speaker looked at last, with that person being the most likely to speak next. Kendon (1967) found that if a speaker did not look up at the end of a speech, the listener's response was considerably delayed.

Looking away at the beginning of a long discourse allows the speaker to block out the input which would come from his partner and facilitates his planning what he wants to say. While Libby (1970) reports that subjects tend to look up rather than down and left rather than right as they started to speak, Day (1964) observed both right or left eye movements among subjects and further noted that the direction of this movement is consistent for an individual. Bakan (1971) also reports individual consistencies in conjugate lateral eye movements which have important implications for determining cerebral hemisphere dominance and associated personality functioning.

Visual behavior also tends to moderate the speech rate. When a speaker looks during his delivery, his speech rate is higher than when he does not look. Argyle et al. (1968) found that with reduced visibility there were longer pauses, more interruptions, and generally less synchronizing of speech.

By its intimate nature, mutual looking also serves an affective or expressive function in interpersonal encounters. Some observers have suggested that eye-to-eye contact between mother and child acts as an innate releaser of maternal caring responses (e.g., Ambrose, 1961; Robson, 1967). Other investigators have proposed that visual contact is the basis of human sociability (Rheingold, 1961), that within its context later and more complex social responses emerge (Moss and Robson,

1968), and that little social interaction is possible without it (Hutt and Ounsted, 1966). In findings consonant with these speculations, Noll (1970) reports significantly more attention to their environment among infants whose mothers maintained high eye contact with them in contrast to those who received less eye contact and that a visual gestalt is one of the earliest and most effective stimuli for eliciting social smiling (e.g., Spitz and Wolff, 1946).

Contact with reality appears to be developed and maintained, to a large degree, through visual behavior. Reimer (1955) contends that abnormalities of the gaze represent distortions of affective communications and has classified these aberrant behaviors according to the degree of severity of the neurosis or psychosis that they represent. The most severe abnormality in this classification is the persistent gaze aversion, which is one of the most prevalent indicators of childhood autism. Hutt and Ounsted (1966) found that not only did autistic children avoid looking at human faces, but also avoided looking at masks of human faces as well. In a related study, Hutt and Vaisey (1966) discovered that these autistic children were also totally unresponsive to other people. Hutt and his associates (Hutt and Hutt, 1965; Hutt and Ounsted, 1966; Hutt and Vaisey, 1966) suggest that autistic children are in a high state of cortical arousal, that eye contact is very arousing to them, and that the aversion of their eyes is an appeasement gesture which inhibits threatening and aggressive behavior from other people. Other investigators have found that an important step in the rehabilitation of these children is the modification of their visual behavior; this permits and then facilitates their

(Davison, 1964, 1965; Wetzel et al., 1966; Wolf et al., 1967; Wolf et al., 1964).

Further indication of the relationship between mutual gaze and emotionality is provided by Kendon (1967), who observed that his subjects tend to look away at times of high emotion. He hypothesizes that the aversion of the eyes serves as a curtailing process as well as an indication to another person that one is embarrassed or over-aroused. This interpretation is compatible with the previously discussed equilibrium theory prediction that avoidance forces (in this case, reduced visual contact) would ensue once a level of balance is exceeded. Modigliani (1971) also reports that embarrassed subjects reduced their eye contact with a group member who had criticized their performance; and Exline and his associates (1965) found that interviewees looked less at interviewers following embarrassing questions than they did after inoffensive questions. Similarly, interviewees who were positively reinforced for their performance increased their mutual glances with the interviewer, whereas subjects who were negatively reinforced decreased their mutual glances even more than the positively reinforced subjects increased theirs (Exline and Winters, 1965a). With the exception of Machiavellians, subjects also tend to decrease visual interaction under interrogation after having cheated (Exline et al., 1961). These results illustrate Tomkin's (1963) "taboo on interocular experience," which Exline and Winters (1965a) interpret as serving to "hide the same" and to reduce the "feeling of shame" by reducing the involvement.

The rewarding value of eye contact is illustrated by the finding that subjects produce a greater number of words (Reece and Whitman, 1962)

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and decoded the same verbal message as more favorable (Exline and Eldridge, 1967) when an experimenter maintained a greater amount of visual contact with them. In two additional studies subjects looked more at a confederate with whom they had previously had a pleasant conversation than at an unknown confederate (Efran and Broughton, 1966); furthermore, subjects looked more at a confederate who smiled and nodded at them than at a more impassive confederate (Efran, 1968).

Visual orientation also appears to be related to personality variables. Mobbs (1968) reports that extroverts engage in more eye contact than do neutrals or introverts. High scoring subjects on the Marlowe-Crowne Social Desirability scale also maintain more looking than do low scorers (Efran and Broughton, 1966). The role of visual contact as an instrumental affiliative act is illustrated in an experiment by Pellegrini et al. (1971). Students who were assigned an approval-seeking role engaged in greater amounts of visual contact than did students assigned an approval-avoiding role. Consistent with the needs associated with greater dependency, Exline and Messick (1967) report that dependent subjects look significantly more at an interviewer than did non-dependent subjects. Furthermore, unlike the non-dependent subjects who averted their gaze when given low reinforcement, the dependent subjects looked significantly more at the interviewer in this situation. In equilibrium theory terms it appears that approach forces are operating in an attempt to satisfy greater dependency motivation. Similarly, people with a high need for affiliation also maintain more looking than do those with lower need levels on this variable in non-competitive interviews and discussions (Exline, 1963; Exline et al.,

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1965). Exline among others also reports that women, who tend to be more affiliative than men, spend more time gazing than men, a finding the author will discuss further in relation to the hypotheses of the present study.

In addition to personal need dispositions, position in a social system is also related to eye contact (Efran, 1968; Hearn, 1957; Mehrabian, 1968a; and Mehrabian and Friar, 1969). High status addressees receive a great amount of visual attention whereas low status addressees (especially when male) receive significantly less eye contact.

Visual attention, of course, does not always imply respect, as in status relationships, or affiliation--looking to like or liking to look. Gazing can have a challenging and combative function. Among animals the relationship of visual interaction to aggressiveness and territoriality has been documented by Chance (1962), Hediger (1950; 1955; 1961), and Tinbergen (1959).

Dominance hierarchies, based on direct gaze, also appear in dyadic social interactions of men, where one member of a pair consistently looks away from eye contact first (Strongman and Champness, 1968). When neither member looks away a struggle ensues. As Kendon remarks, "Though the watcher has the advantage over the watched, if the watched can also watch the watcher, the two become equal to one another [1967, p. 48]." Thus it is interesting to note that in competitive interaction, people with a low need for affiliation seek more visual contact than do those with a high need for affiliation (Exline, 1963).

The findings regarding the role of visual exchange in expressing positive affect or competitive challenge suggest that gaze behavior provides an indication of the level of involvement between members of an encounter. The greater the visual exchange, the higher the level of involvement of the interaction. Thus in interpreting the meaning of visual behavior we must attend both to the situation and the context within which the mutual looking occurs and to the nature of the individuals' relationship prior to any particular meeting.

Summary

This review indicates that for both the distance and for the visual interaction variables there has been a striking consistency of findings across studies. Furthermore, as Duncan (1969) has also noted, mutual verification and extension of results has been the typical case, especially with visual interaction. The major weakness of the studies comprising the literature at this time is the absence of data which would allow us to discover whether or not an organization of verbal and nonverbal behaviors exists that directs the course of social interaction for a given individual or culture. With the exception of investigations conducted by Argyle and Dean (1965), Goldberg et al. (1969) and Mehrabian (1969), little attention has been focused on the relationship between distance and visual interaction, two of the most important variables in Hall's (1963) conceptualization of proxemics. The exploration of this relationship is the aim of the present study.

Chapter II

RATIONALE FOR THE INVESTIGATION

On the basis of the previous overview of theory and research on visual behavior, a rationale will now be presented for the hypotheses developed for this investigation.

Sex Differences

In reviewing the variables affecting visual behavior during interaction Duncan (1969) concludes that the sex of interactants is the most powerful single variable. The present review supports this conclusion. Hall (1966) believes that "men and women often inhabit quite different visual worlds, (that there) are differences that cannot be attributed to variations in visual acuity, (and that) men and women simply have learned to use their eyes in very different ways [1966, pp. 69-70]." Experimental evidence that females look more than males is in abundance (cf. Aiello, 1972). The author believes that this difference represents the very dissimilar socialization patterns to which males and females are exposed. In a study of the developmental patterning of visual orientation, Ashear and Snortum (1971) found evidence of this difference between school-age boys' and girls' eye contact, particularly while speaking to an adult. Among adult populations, women look at each other more; and once contact has been

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made they maintain longer glances than do men under a wide variety of interview situations (Aiello, 1972; Exline, 1963; Exline and Eldridge, 1967; Exline et al., 1965; Exline et al., 1961; Exline and Winters, 1965a). This seeking and sustaining of visual contact by women appears consonant with their greater orientation toward affectionate and inclusive relationships with others (Exline et al., 1965). This interpretation, based on greater affiliative motivation in women, is supported by the previously cited finding that need for affiliation and situational factors affect the visual behavior of women more than men (Exline, 1963). Further corroboration for this speculation is reported by Kersey (1969), who found that when males and females had to choose between members of a panel portraying either constantly available, spontaneously available, or never available visual contact to them, male subjects chose least frequently male interviewers portraying the constantly available condition whereas female subjects chose least frequently interviewers of either sex portraying the never available condition.

The author, expecting to replicate the general finding of sex differences, proposes the following hypothesis.

Hypothesis 1: Females will gaze into the region of an interviewer's eyes more than will males.

Relationship of Distance and Sex

The present research would be of limited value, however, if its objective were simply to replicate the commonly found difference in visual behavior between the sexes. The contribution this author would like to make to the literature is an explication of the relationship

between the differences attributable to the potent sex variable and the effect on the sexes of the implicit cultural norms regarding the permissible ranges of distance between two interactants. As has been discussed previously, sex differences (e.g., Aiello and De Carlo, 1971) as well as differences due to culture (e.g., Watson and Graves, 1966) and to subculture (e.g., Aiello and Jones, 1971) have been found in the patterning of space during interaction. The theoretical formulations of Hall (1966) and Argyle and Dean (1965), which are based on observations of white middle-class English speaking adults, directly apply to the present investigation.

Hall's four distance zones, described above, are based on the assumption that "it is the nature of animals, including man, to exhibit behavior which we call territoriality...(and) they use the senses to distinguish between one space or distance and another [1966, p. 128]." The resulting distance zones are representative of what Hall believes are the four principal categories of human relationship (intimate, personal, social, and public) along with the activities and spaces related to them.

Of these distance zones, the personal and social distances are those that are used for the majority of human social interaction, and because of this they were selected for study in the present investigation. Argyle and Dean have proposed that the reason people select any particular distance for interaction is because it, along with other components of intimacy (i.e., eye contact, intimacy of topic, and amount of smiling), allows the establishment of an equilibrium point for any pair of people which represents the particular balance of

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approach and avoidance forces present in their relationship at that time. It follows from their theory that should one element be disturbed, some attempts will be made to adjust another element or other elements so that the equilibrium point will be restored. If compensation is not possible then discomfort will result.

Support for Argyle and Dean's affiliative conflict theory has been obtained by several investigators. Argyle and Dean (1965) report two studies that provide evidence for their equilibrium notion. In the first study which was disguised as a perceptual experiment, subjects who were asked to stand "as close as is comfortable to see well" stood farthest from a confederate who had his eyes open, next farthest from the same confederate when his eyes were closed, and they stood closest to cut-out life-size photograph of his face. In the second study, described as an "experiment on conversations," a confederate sat at a right angle to the subject and gazed steadily into his or her eyes from a distance of 2', 6', or 10'. The subject and confederate were asked to move their chairs to chalk-marked positions, representing the experimental distances, during the intervals between the three-minute "conversation" periods. Confederates spoke approximately half of the conversation time and maintained "a pleasant-to-neutral (facial) expression." One observer recorded the amount of eye contact on a cumulative stop watch; simultaneously, a second observer recorded the number of glances made by the subject (to allow calculation of average glance). Consistent with the hypothesis derived from the theory, the amount of subjects' eye contact and the length of subjects' glances decreased as

the distance between subject and confederate was reduced. Goldberg et al. (1969), using distances of 2.5' and 6', replicated this finding for males, in spite of the fact that they reduced the level of cognitive activity required during the subjects' task. Similar findings were obtained under more artificial conditions by Mehrabian (1968b), in a study of seated communicators' attitudes toward imagined addressees, and Fischer (1968), in a free-placement social schemata experiment. The problem of inference and generalizability pertaining to the latter two projective procedures would appear to be obvious, but the methodological flaws of the Argyle and Dean (1965) study need to be delineated.

Most studies, including that of Argyle and Dean, have employed constant visual attention by confederates. The author agrees with Duncan (1969) who has cautioned, "The effect on the subject of this possibly unnatural and obtrusive behavior is not known and should be investigated [p. 130]". Further rationale for examining the effects of high as opposed to other looking amounts by confederates is provided by Kendon (1967), who found that in a dyad one member's direction (and duration) of gaze is directly and closely related to his partner's gaze. The present study investigates these effects by having interviewers look into the subjects' eyes a great amount of time (85 percent) in one of the three-minute trials and a small amount of time (15 percent) in the other three-minute trial. Due to the exploratory nature of this endeavor, the author advances no hypothesis concerning possible results of this manipulation.

Another methodological problem of both the Argyle and Dean (1965) and Goldberg et al. (1969) studies occurred as a result of their experimental manipulations. By having subjects move to the various positions to establish the experimental distances, the distances between the subjects and observers changed also. The impact of such changes is shown in Stephenson and Rutter's (1970) study in which observers more frequently recorded gaze not directed at the confederate's eyes as direct gaze (contact) when distance increased. Aiello (1972) overcame this possible defect by having interviewers move to establish the experimental distances, so that the distance between subjects and observers remained constant. He also substituted natural looking behavior of interviewers for the seemingly unnatural 100 percent gazing of confederates to increase generalizability of his findings. Furthermore he substituted looking behavior for eye contact as the dependent variable, a change that was justified by two other observations: (a) Argyle (1970) reports that a person typically either looks into the region of another's eyes or looks well away from this region; and (b) Vine (1971) found that in real-life interactions, people tend either to look at another's eyes or to look well away from his face. As in Argyle and Dean's study, Aiello found that when subjects sat at a right angle to interviewers, females looked more than males and both males and females looked more as distance increased. In the face-to-face orientation, however, distance differentially affected males and females; that is, while looking increased linearly for males as the distance increased from 2' to 6' to 10', for females a curvilinear looking trend was found

as distance increased. Interpreting this result in terms of Exline's (1963) postulate that women are more oriented toward social stimuli than are men, Aiello speculated that:

...the large distance, while comfortable for men, appears to have lacked necessary reinforcement value for women, especially in the more direct orientation where a greater 'availability' for interaction exists. This finding, at the very least, implies a differential upper boundary between the sexes for orientation and distance effects on the visual interaction necessary to maintain equilibrium; further testing of these boundary conditions is needed to refine the theory (1972, p. 336).

The present study is intended to explore the discrepancy between the Argyle and Dean (1965) and the Aiello (1972) results. It is this author's contention that the methodological imperfections of Argyle and Dean's "experiment to determine the effects of distance on eye contact" casts doubt on their finding that the present author did not replicate. The Stephenson and Rutter (1970) report that recorded eye contact increased with distance, and their suggestion that "Argyle and Dean's results may (therefore) have been an artifact of observer performance, not subject performance [1970, p. 385]," reinforces this doubt, especially since the discrepant results are at the farthest distance where greatest observer difficulty would occur. The constant distance between subjects and observers and the more extensive training program for observers employed in the Aiello study appear to correct such procedural flaws. The more natural visual attention of confederates and larger sample of subjects also seem to allow greater generalizability for its findings.

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In light of those findings which were consistent between the studies of Argyle and Dean and Aiello, replication of the following hypotheses is expected.

Hypothesis 2: At the closest distance (2.5') females will gaze into the region of the interviewer's eyes more than will males.

Hypothesis 3: At the intermediate distance (6.5') females will gaze into the region of the interviewer's eyes more than will males.

As a result of the criticisms of Argyle and Dean's methodology and the findings of Aiello's study improving the methodology, the following hypotheses are proposed concerning the impact of far distance on the visual behavior of the sexes:

Hypothesis 4: At the farthest distance (10.5') males will gaze into the region of the interviewer's eyes more than will females.

Hypothesis 5: As the distance between male subjects and the interviewer increases, a linear trend of looking will result, such that males will gaze into the region of the interviewer's eyes more at the farthest distance than at the intermediate distance and more at the intermediate distance than at the closest distance.

Hypothesis 6: As distance between female subjects and the interviewer increases, a curvilinear trend of looking will result, such that females will gaze into the region of the interviewer's eyes more at the intermediate distance than at either the closest or farthest distances.

Looking While Listening and Speaking

The act of looking into the region of another's eyes does not seem to be a single behavior. The observation that people look more while

they are listening than when they are speaking has been cited frequently. Nielson (1964) reported "a striking regularity" for this finding across twenty-one subjects filmed during an interview. Kendon (1967), who also filmed his subjects, found that of 14 subjects involved in dyadic conversations, 11 spent less than half of their time looking while listening. Other researchers also have consistently found this difference. Exline (1963) treats looking while listening and looking while speaking as separate dependent variables and does not mention in his text any relation between them. Inspection of his table of means, however, reveals consistent differences between these behaviors. Exline et al. (1965) report that 89 percent of their subjects looked relatively more when listening than when speaking; thus they conclude that "visual attention to a speaker, regardless of topic, would seem to be a marked behavioral convention [p. 205]." Exline and Winters (1965a) found differences of an even greater magnitude: Women looked 95 percent of the time while they listened as opposed to only 25 percent of the time while they spoke; similarly, men looked 82 percent of the time while they listened and 16 percent of the time while they spoke. These descriptive data lead the present author to expect a replication of the reported difference when it is actually tested inferentially; therefore, the following hypothesis is proposed:

Hypothesis 7: Subjects will spend a greater amount of time gazing into the region of the interviewer's eyes when they listen than when they speak.

Chapter III

METHOD

This section will present the dependent and independent variables of the study. The training procedures of the interviewers and judges as well as the nature of the judges' measurement of the dependent variables and the apparatus by which these measurements were made are described to provide the reader with a better understanding of the process leading to and the actual gathering of the experimental data. The setting in which the interview was conducted and the procedure to which each subject was exposed is also furnished to set the interview in its context. An interview format was chosen for the present study to provide a maximum flexibility for control with a minimum of obtrusion to interaction. As Argyle notes, the interview setting, "serves to arouse the social conventions and some of the motivation present in real-life encounters...It is possible to create all kinds of experimental manipulations and still keep the situation fairly normal and conventional [1969, p. 21]."

Overview

The experiment employed a 2 x 3 x 2 x 2 x 2 (repeated measures on the fifth factor) design. One of two male interviewers sat at one of

three distances (2.5', 6.5', or 10.5') from either a male or a female subject and maintained a visual orientation order of either high followed by low looking amounts (85 percent during interval one then 15 percent during interval two) or a visual orientation order of low followed by high looking amounts (15 percent then 85 percent). The male interviewers were college juniors, approximately a year older than the average age of the male and female subjects (19.2 years). Each subject received about the same amount of direct gaze from an interviewer, half receiving the low gaze condition first and the other half receiving the high gaze condition first. Both of the interval conditions for any particular subject were conducted at a single distance.

The primary dependent variable in this study was the total amount of direct visual gaze maintained by subjects with interviewers during each experimental interval. Other dependent variables considered were: subjects' amount of looking while talking, subjects' amount of talking, subjects' amount of looking while listening, subjects' return gaze proportion, subjects' average glance time, and number of subjects' glances during each experimental interval. Operational definitions of the visual indices used in this study are presented in Appendix A.

Subjects

Subjects were 131 undergraduate students, 66 males and 65 females, who were enrolled in introductory psychology classes at Michigan State University. All subjects volunteered for participation in the

experiment entitled "student's attitudes and beliefs" to gain credits for the experimental requirement of their psychology course.

Experimental Setting

The experiment was conducted in a room 16.5' x 8.0' with small one-way mirrors located three and one-half feet from the floor on three of the four walls (see Figure 1). Three rectangular tables, 2.5' x 5.0', were placed in the room to provide greater control toward the maintenance of the three experimental distances between interviewers and subjects. A relatively heavy, comfortable blue chair with arm rests was placed just inside the door of the room at table one for subjects to sit in; interviewers sat in one of the light orange chairs placed directly across from the subject's chair at tables one, two, and three. A pile of questionnaires used in the study, Student's Attitudes and Beliefs: Eighteen Year Old Vote (see Appendix D), was placed on the table that the interviewer was to sit at for the next subject. An intercom system between the experimental and viewing rooms allowed monitoring and recording of the conversation between subject and interviewer.

Apparatus

The apparatus consisted of three ninety-minute Hunter interval timers; an Esterline-Angus multipen event recorder; three light mechanisms with red and white bulbs; four Sterling stop clocks; three box units of two button depressors; and an intercom system.

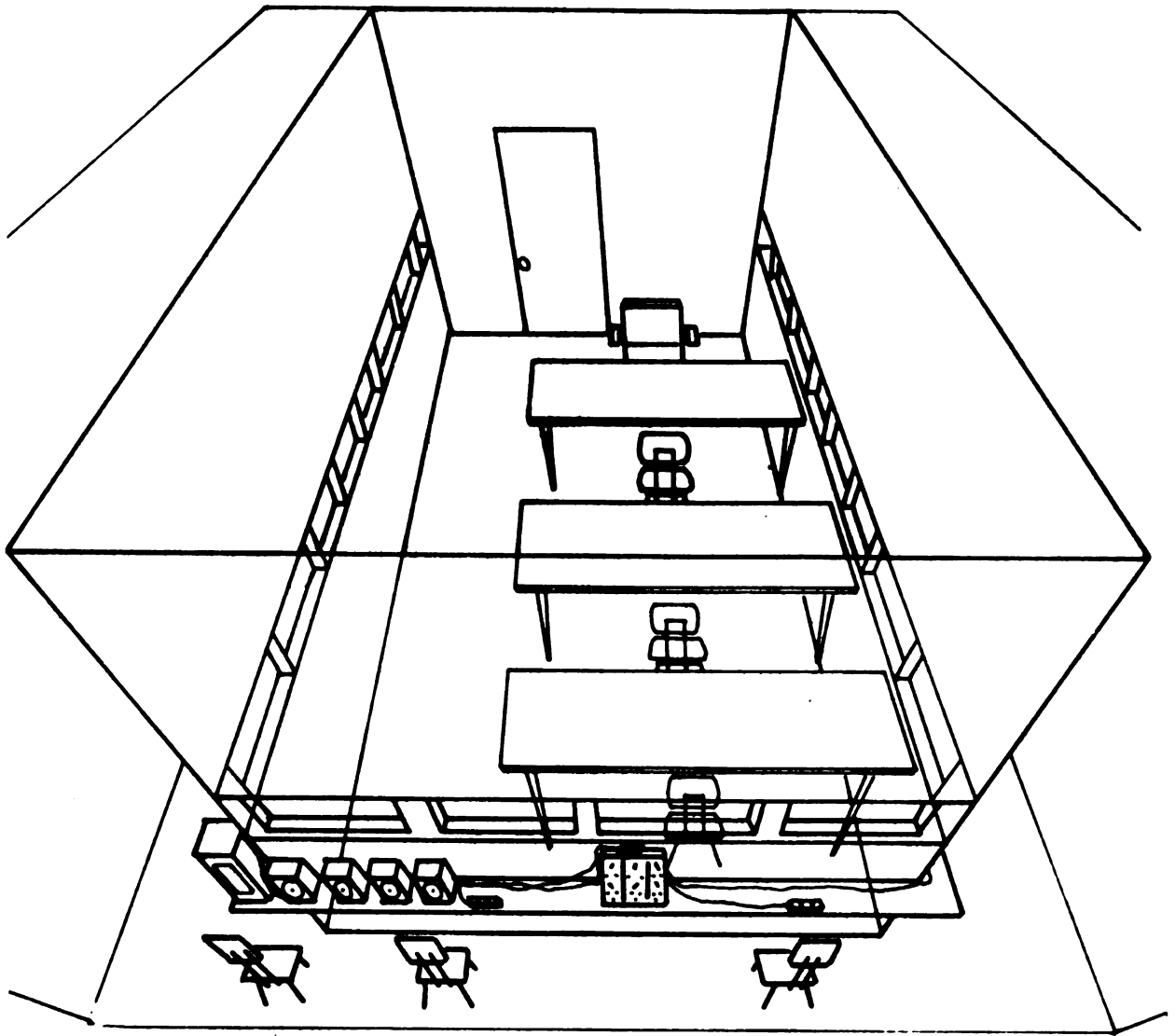


Figure 1. Experimental setting

The timing mechanism was connected to the Esterline-Angus recorder, stop clocks, and light set-up so that when the three minute experimental interval was initiated by the switching-on of the timer, a white light flashed on and was recorded on the Esterline-Angus, signalling judges to begin making observations. These judgments were simultaneously recorded on the Esterline-Angus paper roll and the stop clocks (for immediate written recording after each experimental interval). At the end of each three minute interval a red light flashed on signalling the end of the judging period. This termination was also indicated by a pen of the Esterline-Angus.

Training of Interviewers and Judges

Interviewers were trained to control both their verbal and visual behaviors. In the first step of the training procedure, each interviewer learned to coordinate conversations so that verbal output would be about equal between him and the subject he was interviewing. The second step took thirty hours of practice to attain: interviewers learned to maintain either a 15 percent visual orientation or an 85 percent visual orientation with subjects at the three experimental distances. The final step in the interviewers' training involved coordinating the experimental procedure to be described below.

The three judging roles in this experiment involved measuring the subject's visual orientation, measuring the interviewers' visual orientation, and measuring the subject and interviewers' verbal behavior. Due to the large number of subjects in the experiment, it was necessary to employ three different students for each of these three judging roles.

Judges measuring subject's visual orientation practiced for about twenty-two hours each before the experiment began; other judges practiced about ten hours each. Reliabilities between judges are presented in the discussion of results. The two other experimental assistants, who alternated as coordinator of the Easterline-Angus recorder and of the timing mechanism and clocks used in the recording process, familiarized themselves with their tasks in the experimental pretest.

Procedure

When a subject arrived for the experiment, he or she was escorted into the experimental room by the interviewer and was asked to sit in the "comfortable" chair described above. After signing the subject's credit card, the interviewer proceeded to sit in a chair directly across from the subject at a distance of either 2.5', 6.5', or 10.5', according to the random schedule determined prior to the experiment. The interviewer then introduced himself and informed the subject that:

I am an undergraduate student working with Jeanne Gullahorn and Jack Aiello. What they are trying to do is to put together a student attitude scale. Eventually they would like to give this scale to large numbers of students but right now they are feeling their way into it. As far as you and I are concerned, we will be involved in about a ten minute rap session and then you will fill out a questionnaire that will take about forty to forty-five minutes. The topic of discussion for the rap session is the eighteen year old vote and the many issues that surround it . . .

Shortly after the interviewer introduced the topic of conversation to the subject, he included a word pre-planned to signal the beginning of the first experimental interval. The interviewer's visual orientation

from this point on proceeded according to the randomly assigned sequence of either "high looking" followed by "low looking" (85 percent of the first three minute interval then 15 percent of the second three minute interval) or "low looking" followed by "high looking" (15 percent then 85 percent). The interviewer allowed about two minutes to elapse after the first interval had ended before he moved a pile of questionnaires from one side to the other side of the table at which he was seated; this move signaled the beginning of the second experimental interval. Throughout the interview, the interviewer checked off items on the Student's Attitudes and Beliefs: Eighteen Year Old Vote questionnaire as they applied (about four checks would be made for a subject during each of the experimental intervals). The questionnaire therefore served three purposes: the checking of items on the questionnaire by the interviewer reinforced the legitimacy of the interview format for the subject, the locating of the pile of questionnaires on a particular table provided an unspoken rationale for the seat (distance) the interviewer took in relation to the subject; and the shifting of questionnaires furnished the cue to the judges that the second experimental interval was to begin.

During the entire interview, which lasted between 10 and 15 minutes, the interviewer leaned forward toward the subject to maintain the experimental distance and to convey his interest in the subject. Interviewers spoke one-half of the time during the interview so as to allow for more of a "conversational atmosphere" during the interview. Whenever a subject asked about or looked quizically at the mirrors in

in the room, the interviewer reassured the subject by responding: "This room is usually used by clinical psychologists for the observation of children. We were late in applying for a room and it was the only one left." This explanation was sufficient for all subjects. The mirrors directly across and on the sides of the subject were covered with contact paper to help reduce feelings of self-consciousness of subjects.

When the interview was completed, the interviewer escorted the subject to another room where he or she completed a post-experimental questionnaire of attitude and value scales (see Appendix E). The latter scales are peripheral to this research and were included only for exploratory purposes.

Measurement of Visual Interaction

Unlike previous studies in this area (cf. Argyle and Dean, 1965, Exline and Winters 1965a), the interviewer was not instructed to gaze steadily at the eyes of the subject; interviewers gazed at the subject's eyes 15 percent of the time during the low-look experimental interval and 85 percent of the time during the high-look interval. The subject's visual behavior was recorded on the Esterline-Angus operations recorder by a judge who sat in the observation room, facing the subject, behind and off to one side of the interviewer. The possible artifact of "observer performance, not subject performance" (Stephenson and Rutter, 1970), was guarded against by having the interviewer and not the subject assume the three different distances in the study, thus there was a constant distance between subject and judge across all conditions. The

judge watched the subject's eyes continually and when they looked into the area of the interviewer's eyes the judge depressed a button which activated one pen of the Esterline-Angus recorder. Simultaneously, a second judge, who was located along the side wall, recorded the visual behavior of the interviewer; when the interviewer looked into the area of the subject's eyes he depressed a button which activated another pen of the Esterline-Angus recorder. Also during this time, a third judge recorded the conversation between the subject and interviewer by depressing one button when the subject spoke and another button when the interviewer spoke; each of these buttons activated a pen of the Esterline-Angus recorder. Thus, a simultaneous record of visual and verbal behaviors of subjects and interviewers was established for each interview. This record was later measured in a variety of ways, described in the results section. The data obtained from 11 interviews in which the interviewer's visual or verbal behaviors did not meet the experimental criterion (approximately 15 percent or 85 percent looking and 50 percent speaking) were excluded from further analysis.

Chapter IV

RESULTS

Before discussing the experimental findings data are presented that examine the reliability of the observers and interviewers.

Experimental Manipulations

Observer Agreement. After the three observers who were to record subjects' visual behavior had completed twenty-two hours of training, interjudge reliabilities were calculated. Each reliability estimate was based on five three-minute segments of interview time, during which two judges simultaneously recorded the visual behavior of a single subject. This procedure was followed for each of the three combinations of judges at each of the three experimental distances. As indicated in Table 1, the obtained reliabilities ranged from .870 to .999, with an average reliability of .960. Interjudge reliabilities for the observers of interviewers' visual behavior and of subjects' and interviewers' verbal behaviors all exceeded .900.

Behaviors of Interviewers. The verbal and visual behaviors of the interviewers were controlled across each of the experimental conditions

Table 1

Reliabilities Between Judges for Scoring Total Amount of Looking and Number of Glances by Subjects at Three Distances

Position	Judge	Look Time	#Glances
At 2.5'	1 & 2	.998	.920
	2 & 3	.980	.940
	1 & 3	.970	.950
At 6.5'	1 & 2	.997	.970
	2 & 3	.997	.998
	1 & 3	.900	.900
At 10.5'	1 & 2	.990	.970
	2 & 3	.870	.910
	1 & 3	.999	.996
		$\bar{r} = .97$	$\bar{r} = .95$

in the study. A preliminary analysis tested for possible differences in a subject's behavior as a function of the particular interviewer with whom he or she interacted. No systematic differences appeared in the main effects or interaction effects; therefore the variance accounted for by the interviewer effect variable was included in the error variance calculation. Interviewers looked into the region of the subject's eyes 85.8 percent of the time in the high-looking phase of the interview and 12.5 percent of the time during the low-looking phase of the interview; thus they closely approximated the goal of 85 percent and 15 percent that was set before the experiment. The interviewers spoke 48.3 percent

of the total interview time; subjects spoke somewhat less, 44.4 percent. Some indication of subjects' overall response to the interview situation is provided by the post-experimental questionnaire. Subjects were asked to provide five adjectives which best described their interviewer. The most frequently mentioned adjectives were "friendly" and "pleasant", indicating that subjects were quite positive in evaluating the interviewers (See Appendix B for the complete list of adjectives).

Experimental Findings: Tests of Hypotheses

Hypothesis 1 predicted that females would gaze into the region of the interviewer's eyes more than would males. An analysis of variance for looking scores (see Table 2) revealed a significant main effect for sex ($p < .01$); and as can be seen in Table 3, females looked more than males. While this finding confirms Hypothesis 1, the presence of a significant main effect for distance ($p < .001$) as well as a significant interaction effect between sex and distance for looking scores ($p < .001$) suggested further examination.

Significant differences were found between males and females at each of the three experimental distances: 2.5' ($p < .001$), 6.5' ($p < .01$), and 10.5' ($p < .05$). Examination of the means in Table 3 indicates that while females look more than males at the closest and intermediate distances, males look more than females at the farthest distance. Hypotheses 2,3, and 4, which predicted these relationships, are therefore supported. Related to these findings, Hypotheses 5 and 6 predicted a linear relationship in looking for males and a curvilinear relationship in looking for females. Significant differences were found

Table 2

Analysis of Variance of Amount of Looking by Subjects
as a Function of Sex, Distance, Order, and Trial

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Sex (A)	1	10626.7	7.98**
Distance (B)	2	18941.5	14.22***
A & B	2	18026.3	13.53***
Order (C)	1	759.7	<1
A x C	1	5106.0	3.83*
B x C	2	156.8	<1
A x B x C	2	205.9	<1
Error	108	1332.2	
Trial (D)	1	246.0	<1
A x D	1	127.6	<1
B x D	2	684.2	2.31
A x B x D	2	332.8	1.12
C x D	1	372.5	1.26
A x C x D	1	23.4	<1
B x C x D	2	350.6	1.22
A x B x C x D	2	376.5	1.31
Error	108	296.2	

* $p < .06$
 ** $p < .01$
 *** $p < .001$

in tests between the close and intermediate distance for both males ($p < .01$) and females ($p < .05$) as well as tests between the intermediate and far distances for both males ($p < .01$) and females ($p < .05$).

Inspection of the means reveals that the values of the looking scores are larger at greater distances for the male population, but for females looking increases between the 2.5' and 6.5' conditions and then decreases between the 6.5' and 10.5' conditions. Hypotheses 5 and 6 are therefore upheld.

Table 3

Male and Female Looking (out of a possible 180 seconds) as a Function of Distance and Sex

Distance	Sex		$\bar{x}$
	Male	Female	
2.5'	70.6	104.6	87.6
6.5'	97.8	124.8	111.3
10.5'	127.0	105.9	116.4
$\bar{x}$	98.4	111.8	

As indicated by the correlation matrix of visual and verbal behaviors in Table 4, the principal dependent variable, subject looking amount, is highly related to the secondary dependent variables, subjects' average glance, return gaze proportion, look while listening proportion, and look while speaking proportion. These four secondary variables are also very much interrelated. The high correlation of subject looking with these other variables provides evidence for the utility of this measure, since, of the dependent variables examined, it was the easiest measure to obtain.

In view of these relationships it is not surprising that some findings from the analyses of the secondary dependent variables parallel the looking score results. As indicated in Table 5, there is a significant interaction between sex and distance for the mean length of glances ($p < .01$), mean return gaze proportion ($p < .03$), and mean listening proportion ($p < .01$). Except for the latter proportion, greater distances resulted in a linear relationship for males across distance

Table 4

Correlations Among Visual and Verbal Behaviors of
Subjects and Interviewers (Max. N = 240; Min. N = 130)

		1	2	3	4	5	6	7	8	9	10
Subject Look	1										
S Ave. Glance	2	.69									
S Glance No.	3	-.11	-.55								
Interv. Look	4	.05	.03	-.02							
Interv. Speak	5	.28	.22	-.12	-.24						
Subject Speak	6	-.14	-.22	.20	.27	-.55					
Mutual Look	7	.35	.24	-.03	.86	-.09	.22				
Return G. Pro.	8	.75	.49	.06	.02	.34	-.09	.35			
S Listen Pro.	9	.76	.54	-.05	.06	.16	-.14	.32	.63		
S Speak Pro.	10	.72	.48	.05	.17	.25	-.20	.38	.63	.47	
I. Speak Pro.	11	.07	.04	-.04	.97	-.27	.29	.81	.01	.11	.18

conditions and a curvilinear relationship for females (see Figure 2). As predicted for looking scores, males had longer glances at the 10.5' distance, whereas females had longer glances at the closest and intermediate distance (see Table 6). Similarly male subjects returned the interviewer's gaze more at each successively larger distance condition. For females, however, the same greater return gaze ceased at the intermediate distance, with a sharp decrease in their return of the interviewer's gaze resulting at the farthest distance condition (see Table 7). Although the visual behavior of males while listening and while speaking followed a similar linear pattern with greater distance conditions, the looking pattern of females while listening seemed to be only slightly affected by distance, with somewhat less looking actually taking place at the greater distances (see Table 8).

Table 5

Analysis of Variance of Five Indices of Visual Behavior as a
Function of Sex, Distance, Order, and Trial

Source	df	Average length of Glance $\bar{F}$	df	Return Gaze Proportion $\bar{F}$	Look/Speak Proportion $\bar{F}$	Look/Listen Proportion $\bar{F}$
Sex (A)	1/108	3.46	1/59	1.48	<1	2.07
Distance (B)	2/108	5.48**	2/59	1.64	2.24	1.17
A x B	2/108	5.36**	2/59	3.75*	2.24	4.61**
Order (C)	1/108	1.81	1/59	<1	<1	<1
A x C	1/108	<1	1/59	<1	<1	2.41
B x C	2/108	<1	2/59	<1	<1	<1
A x B x C	2/108	<1	2/59	<1	<1	<1
Trials (D)	1/108	<1	1/59	4.83*	<1	5.93*
A x D	1/108	2.97	1/59	1.19	1.06	<1
B x D	2/108	1.31	2/59	4.99**	<1	<1
A x B x D	2/108	<1	2/59	4.18*	<1	<1
C x D	1/108	<1	1/59	1.77	4.73*	<1
A x C x D	1/108	<1	1/59	3.01	<1	<1
B x C x D	2/108	1.04	2/59	1.71	2.96	<1
A x B x C x D	2/108	1.22	2/59	<1	1.07	1.94

* $p < .05$ ** $p < .01$

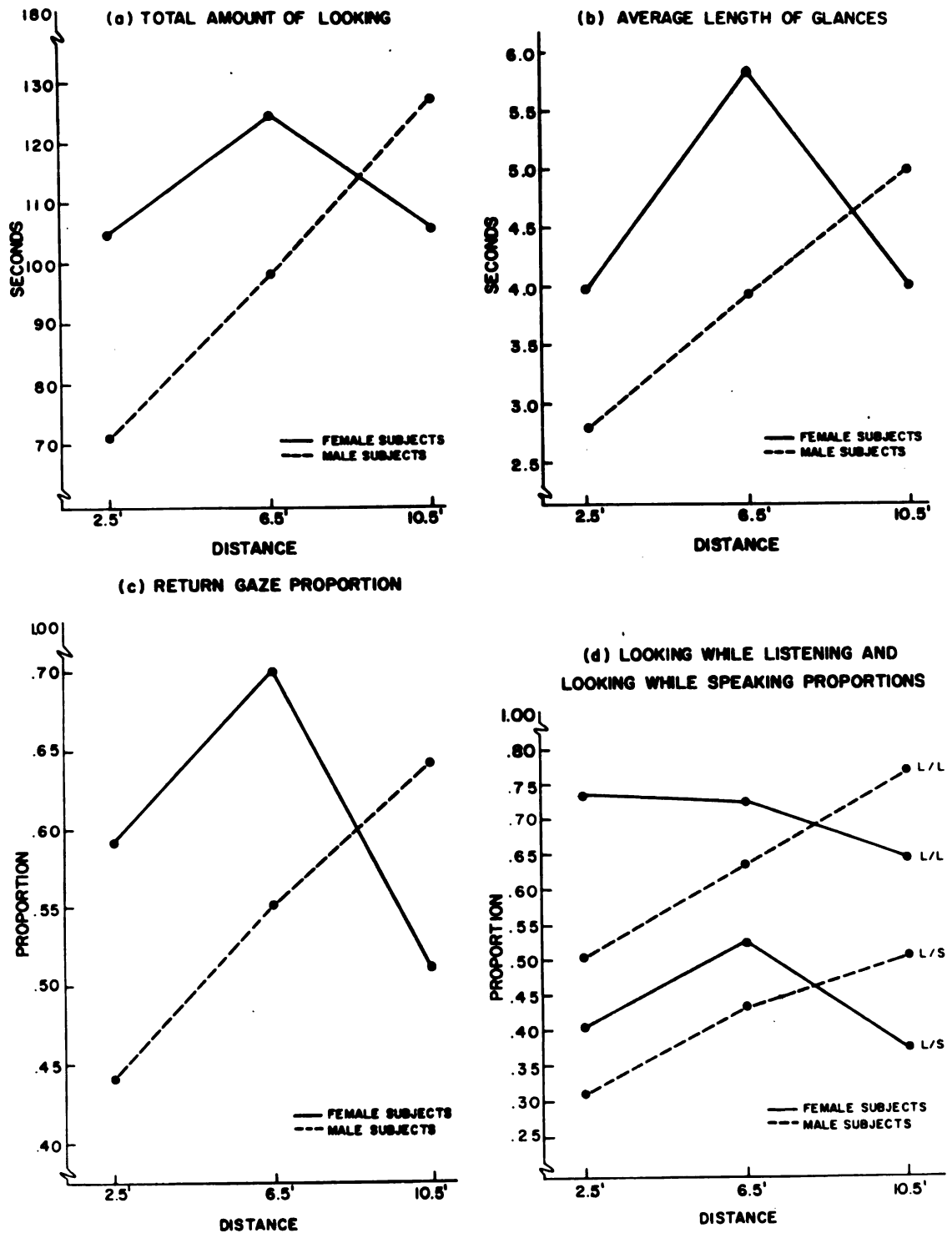


Figure 2. Five indices of visual behavior as a function of sex and distance.

Table 6

Male and Female Average Glance Scores as a Function of Distance and Sex

Distance	Sex		$\bar{x}$
	Male	Female	
2.5'	2.79	3.94	3.37
6.5'	3.87	5.84	4.85
10.5'	4.96	3.97	4.46
$\bar{x}$	3.87	4.58	

Table 7

Male and Female Return Gaze Proportions as a Function of Distance and Sex

Distance	Sex		$\bar{x}$
	Male	Female	
2.5'	.44	.59	.52
6.5'	.55	.70	.62
10.5'	.64	.51	.58
$\bar{x}$	.54	.60	

The final Hypothesis for this study predicted that subjects would look at the interviewer a greater percentage while they were listening to him than when they themselves were speaking. The observed difference

Table 8

Male and Female Looking While Listening Proportions
as a Function of Distance and Sex

Distance	Sex		$\bar{x}$
	Male	Female	
2.5'	.50	.73	.62
6.5'	.63	.72	.67
10.5'	.76	.64	.70
$\bar{x}$	.63	.70	

is significant ($p < .001$), with both males and females looking more while listening (63 percent and 70 percent) than while speaking (41 percent and 43 percent).

Additional Significant Effects

An unexpected and marginally significant ($p < .06$) relationship was found between the sex of a subject and the order of the amount of interviewer looking (see Table 2). The means involved in this interaction are presented in Table 9. An analysis of simple effects (Winer, 1962) reveals that this interesting but unpredicted effect resulted from males looking more when the male interviewer engaged in a high amount of looking at the onset of the interview than when he engaged in a low initial looking amount ($p < .05$) and from males looking considerably less than females in the Low-High interview condition ($p < .005$). An interpretation of these findings are presented in the next chapter.

Table 9

Male and Female Looking Behavior as a Function
of Interviewer Looking Order

Sex	High-Low	Low-High	$\bar{x}$
Male	104.8	92.1	98.4
Female	108.9	114.6	111.8
$\bar{x}$	106.9	103.3	

Other unpredicted significant findings included a significant main effect for trial for subjects' return gaze proportion ($p < .03$), listening proportion ($p < .02$), and amount of talking ($p < .001$). A marginally significant effect was found for the number of subjects' glances ($p < .08$). Subjects returned the interviewer's gaze less, looked into the region of his eyes less while he was speaking, and spoke to him less during the second trial than they did in the first trial. Subjects also had a higher number of glances in the first three-minute interval than in the second interval (29 in trial 1 and 26 in trial 2).

Table 10

Return Gaze Proportion as a Function of
Sex, Distance, and Trial

Distance	Male		Female		M-F	
	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2
2.5'	.44	.44	.54	.64	.49	.54
6.5'	.57	.52	.74	.66	.66	.59
10.5'	.65	.63	.64	.39	.64	.51
$\bar{x}$	.55	.53	.64	.56	.60	.54

Significant interaction effects involving trials also occurred for subjects' return gaze proportion, speaking proportion, and amount of talking (Table 5). For subjects' return gaze proportion, trial interacted with distance ($p < .01$) and with sex and distance ($p < .02$). As can be seen in Table 10, whereas at the closest distance subjects returned the interviewer's gaze more in the second trial than in the first trial, at the intermediate and farthest distance subjects returned the interviewer's look less in the second trial. While there is very little change for males at any distance between trials, females exhibit greater return of the interviewer's gaze at 2.5' in trial two (.54 then .64), a decrease in this behavior in the 6.5' condition of the second trial (.74 then .66), and a large decrease in the return of his visual attention in the second trial of the interview at the farthest distance (.64 then .39).

The interactions between order and trial for subjects' looking while speaking proportion ($p < .03$) and amount of talking ($p < .001$) appears to be accounted for by subjects maintaining a lower level of speaking and looking while speaking when the interviewer had a low level of visual attention after he had maintained a high level of visual attention (see Table 11). A complete summary of means relating to the experimental variables is presented in Appendix C.

Table 11

Subject's Looking While Speaking Proportion and Amount of Talking (out of a possible 180 seconds) as a Function of Interviewer's Looking Order and Trial

Looking Order	Look/Speak Proportion		Amount of Talking	
	Trial 1	Trial 2	Trial 1	Trial 2
High-Low	.46	.38	87.6	69.9
Low-High	.41	.45	78.2	77.6
$\bar{x}$	.44	.42	82.9	73.7

Summary of Results

With considerable training, observers were able to attain a high level of agreement in judging visual and verbal behaviors ($\bar{r} = .96$). The interviewers successfully maintained a friendly atmosphere and were able to control their verbal and visual behaviors so as to talk about as much as subjects (48.3 percent vs. 44.3 percent of total interview time) and to look at the subjects 85.8 percent of the time in the high-looking phase and 12.5 percent of the time in the low-looking phase of the interview.

The following findings supported the experimental hypotheses:

1. Females gazed into the region of the interviewer's eyes more than did males ($p < .01$).
2. When interviewers sat at a greater distance from subjects, the subjects looked more and looked longer at the interviewers ($p < .001$).

3. A significant interaction effect occurred between sex of subject and distance for the principal dependent variable, amount of looking ($p < .001$), as well as for three of the four minor dependent variables--subjects' average glance length ($p < .01$), subjects' return gaze proportion ($p < .05$), and subjects' looking while listening proportion ($p < .01$). Females looked more, maintained longer glances, returned the interviewer's gaze more, and looked longer while listening than did males at the close and intermediate distances; however, males engaged in higher levels of these behaviors than did females at the farthest distance. While a linear increase in the values of all five of the dependent variables was found for males as a function of the distance between subject and interviewer, a curvilinear pattern was found for females for total amount of looking, average length of glances, return gaze proportion, and looking while speaking proportion, and the inverse of the aforementioned linear relationship occurred for females for the looking while listening proportion.

4. Subjects looked a greater percentage of time while listening than while speaking ($p < .001$).

The following results, while not predicted, were also found:

1. Males looked more when the male interviewer began the interview with a high amount of looking while females looked more when the interviewer had a low amount of initial looking ($p < .06$).
2. During the first trial of the interview, subjects returned the interviewer's gaze more ($p < .03$), looked into the region of his eyes more while they listened ($p < .02$), spoke more to the

interviewer ($p < .001$), and had a larger number of glances ($p < .08$), than in the last trial of the interview.

3. Distance affects females' but not males' returning of the interviewer's gaze as the interview progresses ($p < .02$). As the interview proceeds, females return the interviewer's gaze more at the close distance but less at the intermediate and farthest distances.

4. When the interviewer looked less, subjects spoke to him less ($p < .001$) and looked at him less when they did speak to him ($p < .03$).

Chapter V

DISCUSSION

Success of Experimental Manipulations, Controls, and Measurement

Since the value of any experimental investigation depends on the successful manipulation of the study's independent variables, the control of other possible effects, and the precision in measurement of the dependent variables, I will address myself to these issues before discussing the experimental results. In manipulating distance between subjects and interviewers I used tables to separate the interactants and had the subject sit in a heavy chair that had armrests and was placed with its back against the wall. These props insured the desired direct (face-to-face) angle (within 5 degrees) and distance (within a few inches) between a subject and a confederate. In fact, data from only one subject had to be eliminated due to any failure of this arrangement. Possible effects on a subject's behavior resulting from any physical movement of the subject and interviewer (used by some investigators, e.g., Argyle and Dean, 1965; Goldberg et al., 1969, to establish the experimental distance) were also controlled by having both trials of the interview for any particular subject take place at a single distance.

The difficult task of coordinating the two visual orientations with ongoing conversation was accomplished by the interviewers of this study only after many hours of practice. The data from only

five of the 131 interviews had to be discarded because interviewers deviated from the desired level of gaze. Since an interviewer's verbal behavior also affects subjects' eye contact (e.g., Kendon, 1967), interviewers were also trained to speak about as much as their partners. Only in five additional discarded interviews did interviewers fail to approximate this rule. Changes in the level of topic intimacy across subjects were obviated by adherence to specified types of questions and answers (see Appendix D). Interviewers refrained from excessive smiling, nodding, or gesturing, assumed a friendly manner, and adopted a pleasant facial expression with all subjects. The frequent mention of the adjectives, "friendly" and "pleasant," by the subjects on the post-experimental questionnaire and frequent monitoring of these behaviors by the author attest to the success of this control.

As noted in the introductory chapter, methodological flaws have occurred in past attempts to measure visual behaviors; therefore, as detailed in the procedure chapter, great care was expended to insure accurate measurement of these behaviors. The author arranged the setting to maintain a constant distance between subjects and observer (regardless of experimental distance); he obtained high reliabilities between observers prior to the execution of the experiment; and during the three months that the experiment lasted, he held periodic maintenance sessions in which observer judgments were tested against a pre-arranged schedule of interviewer direct or indirect glances. As this study attests, with all of these precautions very reliable and accurate recordings of subjects' visual behaviors can be obtained.

Two Measures of Visual Orientation

The present study has also demonstrated that the principal dependent measure, subject's amount of looking into the region of the interviewer's eyes, is highly correlated with the other measures of visual interaction: subject's average glance length, return gaze proportion, looking while listening, and looking while speaking. This variable also produced a number of significant results relating to the study's independent variables that was equal to or greater than the more "refined" measures. It would appear that, unless specific information about a particular visual index is desired, investigators can advantageously substitute this measure for the more "refined" measures in future studies of visual behavior, especially in light of the ease with which it can be obtained. Amount of looking would be especially useful for studying interactions in naturalistic settings, where it would be difficult if not impossible to use the equipment necessary for simultaneously recording the visual orientations of two or more people to derive eye contact. Due to the significant differences found in this study between the visual behaviors of looking while listening and looking while speaking however, it is advised that these behaviors, which are components of the total amount of looking variable, be treated separately whenever possible.

Aside from demonstrating the utility of the gaze measure, this study also introduces a new measure of visual interaction. The return gaze proportion, created by the author, permits an assessment of eye contact between subjects and confederate without the necessity for the possibly obtrusive interviewer behavior of 100 percent direct gaze.

Because the interviewers were on a fixed schedule of gaze direction (85 percent direct gaze in the high-look condition and 15 percent direct gaze in the low-look condition), it was the subject who determined the value of this proportion by the amount of time he chose to return the interviewer's direct gaze. The high correlation of the return gaze proportion with the other visual indices, and the similar experimental findings obtained for it, indicate that it too can be employed productively in future research.

Visual Attention Accorded a Speaker

The expectation that subjects would look more when they listened than when they spoke is strongly supported in this study. This difference appears at all distances for both males and females. Exline and associates consider the greater looking by listeners "a marked behavioral convention [1965, p. 205]." I propose, however, that the "convention" has its roots in man's cognitive functioning and consequently in his regulation of interaction. My hypothesis is that the more demanding cognitive task of creating a message as opposed to listening to one, forces a speaker to reduce potentially distracting incoming stimuli so that he can produce an organized delivery. The speaker's reduced looking occurs in spite of the innately satisfying reward value of the looking behavior, the feedback available from the listener, or the affect-conveying potential of the speaker's direct gaze. As Cattell (1963) observes, the use of too many channels for input (as in the talkative individual) reduces the number of channels available for scanning (searching for new ideas). Exline and

Winters (1965b) further report that more eye contact was maintained by subjects while discussing easy, as opposed to difficult, association stories. As in previous studies (e.g., Nielson, 1964), we observed that speakers tended to look away from their listening companions, particularly at the beginning of an utterance. Not only did looking away at the beginning of a delivery apparently facilitate message organization, but it also served a regulatory function by signalling to the interviewer that the subject was about to or would continue to speak.

The impact of the interviewer's visual behavior provides further evidence of the reinforcing value of looking for both sexes. When an interviewer gave greater visual attention to subjects, they spoke more to him and looked at him more as they spoke. In the latter half of the interview, however, subjects' return gaze as well as their amount of looking while listening and looking while speaking diminished. Observing similar behavior, Argyle and Dean (1965) suggest that much essential feedback probably is obtained in the initial trial; moreover, providing additional and possibly more complex ideas as the interview progresses causes subjects to reduce their visual interaction. Even during the latter half of the interview, however, subjects made much more extensive use of the visual channel while listening than while speaking in terms of its feedback-transmitting, information-seeking, and affect-conveying dimensions.

Differential Boundary Conditions for Male and Female Visual Behavior

It has been shown that while females engage in high levels of visual orientation than do males, this greater looking amount for

females occurs only at personal and close social distances. Exline and his colleagues, who similarly found more looking for females at distances within the personal distance zone, interpret this behavior as illustrative of females' greater inclusion and affection orientations as well as the high value females presumably accord to the kinds of information they can obtain through such activity. This interpretation also can apply to the report that females found communication extremely difficult when they could not see their partner (Argyle et al., 1968).

As Witkin (1949; 1950) has shown, women are also more affected by visual cues and by the visual structure of the field in which a figure is embedded. Argyle et al. (1970) also report that females were more affected by nonverbal cues in a projective encounter task. After finding greater reduction in visual interaction among female high affiliators than among male high or low affiliators in a competitive situation, Exline (1963) suggests that:

...women's visual activity is not only more likely to be oriented toward social stimuli than men's, but that it is also more affected by relevant social field conditions. If we assume that competitive situations result in the production of cues of rejection and antagonism...and that highly affiliative persons would be disturbed by the recognition of such cues, then the greater dependence of women on visual stimuli would increase the probability of receiving undesirable stimuli unless the S acts to reduce the reception of such. Reduction in the degree to which one engages in mutual glances would seem to be an effective way of cutting down on the reception of such unpleasant information.

I believe that a similar process occurred in the present study. As I shall note in discussing the post-experimental data, at 10.5' the

reward value of interaction for women was greatly reduced--hence, they looked at the interviewer to a lesser degree and apparently felt less comfortable about the communication situation. In fact, when they were 10.5' from the interviewer females returned the interviewer's direct gaze 37 percent less in the latter half of the interview than they did in the first half of the interview. Clearly, at this distance females appear to "withdraw" visually from the interaction.

Two rival explanations can be proposed to account for the differential effect of distance on male and female visual behavior. This difference could result from the cross-sex situation females encountered by being paired with male interviewers. Data from the author's previous study (1972), however, seem to discount this explanation, inasmuch as no difference was found for the amount of looking by females at 10' when interacting with males as opposed to interacting with females. The other explanation could propose that possible changing voice levels at the three distances somehow differentially affected the need for visual attention by males and females. While there did appear to be somewhat greater speaking volume used by interactants at the farther distances, the author does not know of any biological or social differences between the sexes in auditory acuity.

Post-experimental data from our subjects indicate that females more than males feel that an interviewer who sits as far as ten feet away from them, is rejecting them or is treating them as inferior to him. In discussing the ten foot condition, one subject explained that if the interviewer remained "aloof" after she had tried to "make the

situation more friendly," then she would ignore the experiment." The lower visual attention by females in the latter half of the interview at the 10.5' distance is consistent with this explanation. Males, on the other hand, reported that the ten foot distance would be (was) "comfortable" in the interaction context of the present investigation. The relative discomfort of the close situation for males is illustrated by one young man's remark that the two and a half foot distance is "ridiculously close." The smaller amount of visual orientation for females as the expanse between subject and interviewer reached the ten foot condition was found to exist in this study for subjects' total amount of looking, average glance length, return gaze, looking while listening, and looking while speaking. Thus, it can be stated that, as Aiello (1972) found for subjects' "looking," there is a differential upper boundary that exists for the effect of distance on male and female visual behaviors. Apparently, therefore each sex has a different equilibrium level for these two proxemic variables, looking and distance. Furthermore, the visual interaction measures indicate that while females initiate higher levels of involvement than males, at a close distance which women presumably consider a rewarding interaction situation, so too do females reduce their level of involvement more than men at a far distance, when the interaction apparently lacks reinforcement value. For example, in this study females, but not males, returned the direct gaze of the interviewer more as the interview progressed when they were seated at the closest experimental distance. Evidence suggesting females desire greater involvement also appears in the finding that females

look a good deal more when the interviewer's direct gaze increases over the course of the interview. Males, on the other hand, look considerably less in interviews during which the interviewer increases his gaze. While the female data might indicate their greater affiliative desire to reinforce the interviewer's looking, the greater looking by males, particularly at the closest distance, when the interviewer began the session with a high looking amount suggests that males defined the interaction more competitively.

Implications for Future Research

The present study demonstrates that with sufficient methodological care and training of observers, reliable judgments of visual behaviors can be obtained. Furthermore, effective but unobtrusive manipulations (in this instance, of distance and interviewer looking amount) can be made without interfering with normal interview interaction and without introducing possible observer bias.

Since this study found that an interviewer's amount of looking and also his order of high and low amounts of looking markedly influence subjects' visual behavior, it is suggested that the previously employed unnatural 100 percent direct gaze of interviewers be eliminated in future research and be replaced by more typical visual orientations. This procedural change can be implemented by either using equipment that permits the simultaneous recording of interactants' visual and verbal behaviors or by using the molar amount of looking variable. Vis-à-vis the amount of looking variable, the high correlations found in this investigation between this measure and other visual indices

suggest that this gaze behavior may be substituted effectively for more difficult to gather visual interaction measures such as eye contact. This substitution should be especially helpful in field situations. In measuring subjects' visual behavior, moreover, it is further suggested that subjects' direct gaze be measured separately when they are speaking as opposed to when they are listening, inasmuch as this study uncovered significant differences for these two visual behaviors.

Aside from the methodological refinements just suggested, the present findings regarding the impact on visual orientation of the sex of an individual and the interacting distance indicate that future investigators should examine equilibrium levels of males' and females' behaviors separately rather than assume a single equilibrium level. Present findings also caution that any future inquiry should state results of visual behaviors in terms of the expanse between communicators.

As a direct follow-up to the present investigation, a researcher should explore the visual orientations of looking while listening and looking while speaking for male and female subjects at distances above the intermediate distance of the present study (6.5') in order to determine the exact nature of the differential boundary conditions for the sexes. Based on present findings, we expect little difference between the sexes in their amount of looking while speaking and minimal differences in such behavior as a function of distance. However, we predict that as in the present study, larger distance conditions will be associated with more male gaze while they are listening but with less female gaze while they are listening until an upper boundary of

social distance is reached for the males, at which time the gaze behaviors of both sexes will level off. Aside from such parametric investigations, future research also should further test the suggested interpretations of the observed sex differences in visual behavior.

To ascertain the generalizability of the present results and to provide a more direct test of my critique of Argyle and Dean's (1965) methodology, a second study is also recommended. This study would replicate the present investigation, but would employ both male and female interviewers, who would sit at either 6.5' or 10.5' from either male or female subjects and who would maintain either 100 percent visual attention (as in Argyle and Dean's study) or 85 percent or 15 percent visual attention (as in the present study). The additional exploration of the cross-sex interaction, adding females interviewers with male subjects, should be helpful in further developing an interpretation of the observed sex differences in visual behavior.

BIBLIOGRAPHY

- Aiello, J. R. A test of equilibrium theory: Visual interaction in relation to orientation, distance, and sex of interactants. Psychonomic Science, 1972, 27, 335-336.
- Aiello, J. R. and Cooper, R. The use of personal space as a function of social affect. In Proceedings, 80th Annual Convention, APA, 1972, 205-206.
- Aiello, J. R. and De Carlo, T. The development of proxemic behavior. Unpublished paper. Michigan State University, 1971.
- Aiello, J. R. and Jones, S. E. A field study of the proxemic behavior of young school children in three subcultural groups. Journal of Personality and Social Psychology, 1971, 19, 351-356.
- Ambros, J. A. The development of the smiling response in early infancy. In B. M. Foss (ed.) Determinants of infant behavior, 2. New York: Wiley, 1967.
- Anstis, S. M., Mayhew, J. W., and Morley, T. The perception of where a face or television 'portrait' is looking. American Journal of Psychology, 1969, 82, 474-489.
- Argyle, M. Social interaction. New York: Atherton, 1969.
- Argyle, M. Eye contact and distance: A reply to Stephenson and Rutter. British Journal of Psychology, 1970, 61, 395-396.
- Argyle, M., and Dean, J. Eye contact, distance and affiliation. Sociometry, 1965, 28, 289-304.
- Argyle, M. and Kendon, A. The experimental analysis of human performance. In L. Berkowitz (ed.) Advances in experimental psychology, 3. New York: Academic Press, 1967.
- Argyle, M., Lalljee, M. and Cook, M. Effects of visibility on interaction in a dyad. Human Relations, 1968, 21, 3-17.

- Argyle, M., Salter, V., Nicholson, H., Williams, M., and Burgess, P. The communication of inferior and superior attitudes by verbal and non-verbal signals. British Journal of Social and Clinical Psychology, 1970, 9, 222-231.
- Ashear, V. and Snortum, J. R. Eye contact in children as a function of age, sex, and social and intellectual variables. Developmental Psychology, 1971, 4, 479.
- Bakan, P. The eyes have it. Psychology Today, April, 1971, 64-67, 96.
- Bales, R. F. The equilibrium problem in small groups. In T. Parsons, R. F. Bales, and C. A. Shils (eds.) Working papers in the theory of action. New York: Free Press, 1953.
- Baxter, J. C. Interpersonal spacing in natural settings. Sociometry, 1970, 33, 444-456.
- Baxter, J. C. and Deanovich, B. Anxiety arousing effects of inappropriate crowding. Journal of Consulting and Clinical Psychology, 1970, 35, 174-178.
- Caplow, T. and Forman, R. Neighborhood interaction in a homogeneous community. American Sociological Review, 1950, 15, 357-366.
- Cattell, R. B. The personality and the motivation of the researcher from measurement of contemporaries and from biography. In C. W. Taylor and F. Barron (eds.) Scientific Creativity. New York: Wiley, 1963.
- Chance, M. R. A. An interpretation of some agonistic postures; the role of "cut-off" acts and postures. Symposia of the Zoological Society of London, 1962, 8, 71-89.
- Chapple, E. D. and Coon, C. S. Principles of anthropology. New York: Holt, Rinehart, and Winston, 1942.
- Cline, M. G. The perception of where a person is looking. American Journal of Psychology, 1967, 80, 41-50.
- Darley, J. M. and Bersheid, E. Increased liking caused by the anticipation of personal contact. Human Relations, 1967, 20, 29-40.
- Davison, G. C. A social learning therapy program with an autistic child. Behavior Research and Therapy, 1964, 2, 149-159.

- Day, M. E. An eye movement phenomenon relating to attention, thought, and anxiety. Perceptual and Motor Skills, 1964, 19, 443-446.
- Dosey, M. A., and Meisels, M. Personal space and self-protection. Journal of Personality and Social Psychology, 1969, 11, 93-97.
- Duncan, S. Nonverbal communication. Psychological Bulletin, 1969, 72, 118-137.
- Efran, J. S. Looking for approval: Effects on visual behavior of approbation from persons differing in importance. Journal of Personality and Social Psychology, 1968, 10, 21-25.
- Efran, J. S., and Broughton, A. Effect of expectancies for social approval on visual behavior. Journal of Personality and Social Psychology, 1966, 4, 103-107.
- Exline, R. V. Explorations in the process of person perception: Visual interaction in relation to competition, sex, and need for affiliation. Journal of Personality, 1963, 31, 1-20.
- Exline, R. V., and Eldridge, C. Effects of two patterns of a speaker's visual behavior upon the perception of the authenticity of his verbal message. Paper presented at the Eastern Psychological Association Convention, Boston, April, 1967.
- Exline, R. V., Gray D., and Schuette, D. Visual behavior in a dyad as affected by interview content and sex of respondent. Journal of Personality and Social Psychology, 1965, 1, 201-209.
- Exline, R. V., Thibaut, J., Brannon, C., and Gumpert, P. Visual interaction in relation to machiavellianism and an unethical act. American Psychologist, 1961, 16, 396.
- Exline, R. V. and Winters, L. C. Affective relations and mutual glances in dyads. In S. Tomkins and C. Izard (eds.) Affect, Cognition, and Personality. New York: Springer, 1965a.
- Exline, R. V. and Winters, L. The effects of cognitive difficulty and cognitive style upon eye-to-eye contact in interviews. Paper presented at Eastern Psychological Association Convention, Atlantic City, New Jersey, 1965b.
- Felipe, N. J., and Sommer, R. Invasions of personal space. Social Problems, 1966, 14, 206-214.

- Festinger, L., Schachter, S., and Back, K. Social pressures in informal groups: A study of human factors in housing. New York: Harper and Row, 1950.
- Finando, S. J. Psychological arousal as a function of personal distance: Toward a theory of proxemic equilibrium. Unpublished paper. Florida State University, 1971.
- Fischer, C. T. Social schemas: Response sets or perceptual meanings? Journal of Personality and Social Psychology, 1968, 10, 8-14.
- Freedman, J. L. and Suomi, S. The effect of familiarity on liking. Unpublished paper. Stanford University, 1967.
- Fry, A. M. and Willis, F. N. Invasion of personal space as a function of age. Unpublished paper. University of Missouri-Kansas City, 1970.
- Gibson, J. J., and Pick, A. D. Perception of another person's looking behavior. American Journal of Psychology, 1963, 76, 86-94.
- Goffman, E. Behavior in public places. New York: Free Press, 1963.
- Goldberg, G. N., Keisler, C., and Collins, B. Visual behavior and face-to-face distance during interaction. Sociometry, 1969, 32, 43-53.
- Gullahorn, J. T. Distance and friendship in the gross interaction matrix. Sociometry, 1952, 15, 123-134.
- Hall, E. T. The hidden dimension. New York: Doubleday, 1966.
- Hearn, G. Leadership and the spatial factor in small groups. Journal of Abnormal and Social Psychology, 1957, 54, 269-272.
- Hediger, H. Wild animals in captivity. London: Butterworth and Company, 1950.
- Hediger, H. Studies of the psychology and behavior of captive animals in zoos and circuses. London: Butterworth and Company, 1955.
- Hediger, H. The evolution of territorial behavior. In S. L. Washburn (ed.) Social life of early man. New York: Viking Fund Publications in Anthropology, No. 31, 1961.
- Heider, F. Social perception and phenomenal causality. Psychological Review, 1944, 51, 358-374.

- Heinicke, C. and Bales, R. F. Developmental trends in the structure of small groups. Sociometry, 1953, 16, 7-38.
- Homans, G. C. C. The human group. New York: Harcourt, Brace, and World 1950.
- Hutt, C. and Hutt, S. J. Effects of environmental complexity on stereotyped behaviors of children. Animal Behavior, 1965, 13, 1-4.
- Hutt, C. and Ounsted, C. The biological significance of gaze aversion with particular reference to the syndrome of infantile autism. Behavioral Science, 1966, 11, 346-356.
- Hutt, C. and Vaizey, M. Differential effects of group density on social behavior. Nature, 1966, 209, 1371-1372.
- Jones, E. E. and Thibaut, J. W. Interaction goals as bases of inference in interpersonal perception. In R. Tagiuri and L. Petrullo (eds.) Person perception and interpersonal behavior. Stanford: Stanford University Press, 1958.
- Jones, S. E. A comparative proxemics analysis of dyadic interaction in selected subcultures of New York City. Journal of Social Psychology, 1971, 84, 35-44.
- Jones, S. E. and Aiello, J. R. Proxemic behavior of black and white first, third, and fifth grade children. Journal of Personality and Social Psychology, 1972, in press.
- Kendon, A. Some functions of gaze direction in social interaction. Acta Psychologica, 1967, 26, 22-63.
- Kendon, A., and Cook, M. The consistency of gaze patterns in social interaction. British Journal of Psychology, 1969, 60, 481-494.
- Kersey, J. F. Eye-contact phenomena related to choice of partner and aggressive/passive role playing. Dissertation Abstracts International, 1969, 31, 466.
- Kleck, R. E. Interaction distance and non-verbal agreeing responses. British Journal of Social and Clinical Psychology, 1970, 9, 180-182.
- Lennard, H. L. and Bernstein, A. The anatomy of psychotherapy. New York: Columbia University Press, 1960.

- Libby, W. L. Eye contact and direction of looking as stable individual differences. Journal of Experimental Research in Personality, 1970, 4, 303-312.
- Little, K. B. Personal space. Journal of Experimental Social Psychology, 1965, 1, 237-247.
- Loomis, C. R. and Beegle, J. A. Rural social systems. New York: Prentice Hall, 1950.
- Lott, D. F. and Sommer, R. Seating arrangements and status. Journal of Personality and Social Psychology, 1967, 7, 90-94.
- Lovaas, O. I., Freitag, G., Kinder, M. I., Rubenstein, B. D., Schaeffer, B., and Simmons, J. Q. Establishment of social reinforcers in two schizophrenic children on the basis of food. Journal of Experimental Child Psychology, 1966, 4, 109-125.
- McBride, C., King, M. G., and James, J. W. Social proximity effects on galvanic skin response in adult humans. Journal of Personality, 1965, 61, 153.
- McDowell, K. Violations of personal space. Dissertation Abstracts, 1970, 467-A.
- Mehrabian, A. Inference of attitudes from the posture, orientation, and distance of a communicator. Journal of Consulting and Clinical Psychology, 1968a, 32, 296-308.
- Mehrabian, A. Relationship of attitude to seated posture, orientation, and distance. Journal of Personality and Social Psychology, 1968b, 10, 26-30.
- Mehrabian, A. Significance of posture and position in the communication of attitude and status relationships. Psychological Bulletin, 1969, 71, 359-372.
- Mehrabian, A. and Diamond, S. G. Effects of furniture arrangement, props, and personality on social interaction. Journal of Personality and Social Psychology, 1971, 20, 18-30.
- Mehrabian, A. and Ferris, S. Inference of attitude from non-verbal communication in two channels. Journal of Consulting Psychology, 1967, 31, 248-252.
- Mehrabian, A. and Friar, J. Encoding of attitude by a seated communicator via posture and position cues. Journal of Consulting and Clinical Psychology, 1969, 33, 330-336.

- Miller, N. E. Experimental studies in conflict. In J. M. Hutt (ed.) Personality and the behavior disorders, 1. New York: Ronald, 1944.
- Mirels, H. and Mills, J. Perception of the pleasantness and competence of a partner. Journal of Abnormal and Social Psychology, 1964, 68, 456-460.
- Mobbs, N. A. Eye-contact in relation to social introversion/extroversion. British Journal of Social and Clinical Psychology, 1968, 7, 305-306.
- Modigliani, A. Embarrassment, facework and eye contact: Testing a theory of embarrassment. Journal of Personality and Social Psychology, 1971, 17, 15-24.
- Moss, H. A. and Robson, K. S. Maternal influences in early social-visual behavior. Child Development, 1968, 39, 401-408.
- Newcomb, T. M. The acquaintance process. New York: Holt, Rinehart, and Winston, 1961.
- Nielsen, G. Studies in self-confrontation. Cleveland: Howard Allen, 1964.
- Noll, R. L. The relationship between visual behavior of mothers and infant attentiveness. Dissertation Abstracts, 1970, 250-A.
- Patterson, M. L. Compensatory reactions to spatial intrusion. Sociometry, 1971, 34, 114-121.
- Pellegrini, R. J., Hicks, R. A. and Gordon L. The effect of an approval-seeking induction on eye-contact in dyads. British Journal of Social and Clinical Psychology, 1971, 9, 373-374.
- Reece, M. M. and Whitman, R. N. Expressive movements, warmth, and verbal reinforcement. Journal of Abnormal and Social Psychology, 1962, 64, 234-236.
- Rheingold, H. L. The effect of environmental stimulation upon social and exploratory behavior in the human infant. In B. M. Foss (ed.). Determinants of infant behavior, 1. New York: Wiley, 1961.
- Riemer, M. D. Abnormalities of the gaze: A classification. Psychiatric Quarterly, 1955, 29, 659-672.

- Robson, K. S. The role of eye-to-eye contact in maternal infant attachment. Journal of Child Psychology and Psychiatry, 1967, 8, 13-25.
- Rosenfeld, H. M. Effect of an approval-seeking induction on inter-personal proximity. Psychological Reports, 1965, 17, 120-122.
- Simmel, G. Sociology of the senses: Visual interaction. In R. E. Park and E. W. Burgess (eds.). Introduction to the science of sociology. Chicago: University of Chicago Press, 1920.
- Simon, H. A. A formal theory of interaction in social groups. American Sociological Review, 1952, 17, 202-211.
- Sommer, R. Studies in personal space. Sociometry, 1959, 22, 247-260.
- Sommer, R. Small group ecology. Psychological Bulletin, 1967, 67, 145-151.
- Spitz, R. A. and Wolff, K. M. The smiling response. Genetic Psychological Monograph no. 34, 1946.
- Stephenson, G. and Rutter, D. R. Eye-contact, distance, and affiliation: A reevaluation. British Journal of Psychology, 1970, 61, 385-393.
- Strodtbeck, F. L. and Hook, L. H. The social dimensions of a twelve-man jury table. Sociometry, 1961, 24, 397-415.
- Strongman, K. T. and Champness, B. Dominance hierarchies and conflict in eye contact. Acta Psychologica, 1968, 28, 376-386.
- Tinbergen, N. Comparative study of the behavior of gulls: A progress report. Behaviour, 1959, 15, 1-70.
- Tomkins, S. S. Affect, imagery, consciousness, 2, The negative affects. New York: Springer, 1963.
- Tomkins, S. S. and Izard. Affect, Cognition, and Personality. New York: Springer, 1965.
- Vine, I. Judgment of direction of gaze. An interpretation of discrepant results. British Journal of Social and Clinical Psychology, 1971, 10, 320-331.
- Wada, J. A. Modification of cortically induced responses in brain stem of shift of attention in monkeys. Science, 1961, 133, 40-42.

- Wardwell, E. Children's reactions to being watched during success and failure. Dissertation Abstracts, 1960, 4741.
- Warr, P. B. Proximity as a determinant of positive and negative sociometric choice. British Journal of Social and Clinical Psychology, 1965, 4, 104-109.
- Watson, O. M. and Graves, T. D. Quantitative research in proxemic behavior. American Anthropologist, 1966, 68, 971-985.
- Weisbrod, R. M. Looking behavior in a discussion group. Unpublished paper. Cornell University, 1965.
- Welford, A. T. Aging and human skill. New York: Oxford University Press, 1958.
- Wetzel, R. J., Baker, J., Roney, M., and Martin, M. Outpatient treatment of autistic behavior. Behaviour Research and Therapy, 1966, 4, 169-177.
- Whyte, W. H., Jr. The organization man. New York: Simon and Schuster, 1956.
- Wiener, M. and Mehrabian, A. Language within language: Immediacy, a channel in verbal communication. New York: Appleton-Century-Crofts, 1968.
- Willerman, B. and Swanson, L. An ecological determinant of differential amounts of sociometric choices within college sororities. Sociometry, 1952, 15, 326-329.
- Willis, N. Initial speaking distance as a function of the speakers' relationship. Psychonomic Science, 1966, 5, 221-222.
- Winer, B. J. Statistical principals in experimental design. New York: McGraw-Hill, 1962.
- Witkin, H. A. Sex differences in perception. Transactions of the New York Academy of Sciences, 1949, 12, 22-26.
- Witkin, H. A. Individual differences in ease of perception of embedded figures. Journal of Personality, 1950, 19, 1-15.
- Wolf, M., Risley, T., Johnston, M., Harris, F., and Allen, E. Application of operant conditioning procedures to the behavior problems of an autistic child: A follow-up and extension. Behaviour Research and Therapy, 1967, 5, 103-111.

Wolf, M., Risley, T. and Mees, H. Application of operant conditioning procedures to the behaviour problems of an autistic child. Behaviour Research and Therapy, 1944, 1, 305-312.

Zajonc, R. B. Attitudinal effects of mere exposure. Journal of Personality and Social Psychology, 8, Monograph, 1-29.

APPENDICES

APPENDIX A

Operational Definitions of Visual Behavior

<u>Visual Behavior</u>	<u>Operational Definitions</u>
1) Total Amount of Looking	The amount of time during any three-minute experimental interval that the observer judges the subject to be looking into the region of the interviewer's eyes.
2) Number of Glances	The number of visual fixations made by the subject into the region of the interviewer's eyes during any three-minute experimental interval.
3) Average Length of Glances	Total Amount of Looking divided by the Number of Glances.
4) Return Gaze Proportion	The amount of time during any three-minute experimental interval that the subject looked into the region of the interviewer's eyes while the interviewer was gazing into the region of the subject's eyes divided by the total amount of time that the interviewer gazed into the region of the subject's eyes. This proportion differs from Eye Contact in that the interviewer does not need to gaze continually into the eyes of the subject but rather can be on a schedule of looking.
5) Looking While Speaking Proportion	The Total Amount of Looking by a subject as he or she is simultaneously engaged in speaking to the interviewer divided by the total amount of speaking by the subject during any three-minute experimental interval.
6) Looking While Listening Proportion	The Total Amount of Looking by a subject as he or she is simultaneously engaged in listening to the interviewer divided by the total amount of speaking by the interviewer during any three-minute experimental interval.

APPENDIX B**Adjectives Used by Subjects to Describe Interviewers**

1. Pleasant
2. Friendly
3. Intelligent
4. Nice
5. Kind
6. Interested
7. Helpful
8. Calm
9. Polite
10. Interesting
11. Concerned
12. Understanding

Note. Adjectives appear in their order of frequency.

APPENDIX C

Summary of Visual Indices as a Function of Sex, Distance, Order, and Trial

TABLE C1

Summary of Amount of Looking and Average Length of Glances Variables
as a Function of Sex, Distance, Order, and Trial

Independent Variables	N	Amount of Looking	Average Length of Glances
Sex: Male (M) Female (F)	120 120	98.4 111.8	3.87 4.58
Distance: 2.5' (1) 6.5' (2) 10.5' (3)	80 80 80	87.6 111.3 116.4	3.37 4.85 4.46
Order: High-Low (HL) Low-High (LH)	120 120	106.9 103.3	4.48 3.97
Trial: First 1 Second 2	120 120	106.1 104.1	4.20 4.25
Interactions M (1) Sex M (2) X M (3) Distance F (1) F (2) F (3)	40 40 40 40 40 40	70.6 97.8 127.0 104.6 124.8 105.9	2.79 3.87 4.96 3.94 5.82 3.97
Sex M-HL X M-LH Order F-HL F-LH	60 60 60 60	104.8 92.1 108.9 114.6	4.13 3.62 4.83 4.32
Sex M1 X M2 Trial F1 F2	60 60 60 60	100.2 96.7 112.0 111.5	3.69 4.06 4.70 4.45
Distance (1)HL X (1)LH Order (2)HL (2)LH (3)HL (3)LH	40 40 40 40 40 40	90.8 84.4 111.7 110.9 118.2 114.6	3.40 3.34 5.41 4.28 4.63 4.29

C1
TABLE (cont'd)

Independent Variables		N	Amount of Looking	Average Length of Glances
Sex X Distance X Order	M(1)HL	20	78.1	2.80
	M(1)LH	20	63.1	2.79
	M(2)HL	20	104.5	4.17
	M(2)LH	20	91.1	3.57
	M(3)HL	20	132.0	5.41
	M(3)LH	20	122.0	4.50
	F(1)HL	20	103.5	4.00
	F(1)LH	20	105.7	3.88
	F(2)HL	20	118.9	6.64
	F(2)LH	20	130.8	4.50
	F(3)HL	20	104.5	3.85
	F(3)LH	20	107.3	4.09
Distance X Trial	(1)1	40	86.3	3.24
	(1)2	40	88.9	3.50
	(2)1	40	115.6	5.02
	(2)2	40	107.0	4.67
	(3)1	40	116.5	4.33
	(3)2	40	116.4	4.60
Order X Trial	HL1	60	109.1	4.51
	HL2	60	104.6	4.45
	LH1	60	103.1	3.89
	LH2	60	103.6	4.06
Sex X Distance X Trial	M(1)1	20	68.7	2.60
	M(1)2	20	72.5	2.98
	M(2)1	20	105.2	3.82
	M(2)2	20	90.4	3.93
	M(3)1	20	126.8	4.66
	M(3)2	20	127.2	5.25
	F(1)1	20	103.9	4.05
	F(1)2	20	105.3	4.45
	F(2)1	20	126.1	6.78
	F(2)2	20	123.6	5.45
	F(3)1	20	106.2	4.01
	F(3)2	20	105.6	3.94
Sex X Order X Trial	MHL 1	30	108.1	4.00
	MHL 2	30	101.5	4.25
	MLH 1	30	92.2	3.38
	MLH 2	30	91.9	3.86
	FHL 1	30	110.1	5.02
	FHL 2	30	107.7	4.65
	FLH 1	30	113.9	4.39
	FLH 2	30	115.2	4.26

C1
TABLE (cont'd)

Independent Variables			N	Amount of Looking	Average Length of Glances
Distance	(1)	HL 1	20	93.0	3.48
X	(1)	HL 2	20	88.6	3.32
Order	(1)	LH 1	20	79.6	3.00
X	(1)	LH 2	20	89.2	3.67
Trial	(2)	HL 1	20	116.9	5.65
	(2)	HL 2	20	106.5	5.16
	(2)	LH 1	20	114.4	4.39
	(2)	LH 2	20	107.5	4.18
	(3)	HL 1	20	117.6	4.40
	(3)	HL 2	20	118.8	4.87
	(3)	LH 1	20	115.3	4.29
	(3)	LH 2	20	114.0	4.32
Sex	M(1)	HL 1	10	82.0	2.90
X	M(1)	HL 2	10	74.1	2.69
Distance	M(1)	LH 1	10	55.3	2.30
X	M(1)	LH 2	10	70.9	3.27
Order	M(2)	HL 1	10	110.8	3.99
X	M(2)	HL 2	10	98.2	4.36
Trial	M(2)	LH 1	10	99.5	3.64
	M(2)	LH 2	10	82.6	3.50
	M(3)	HL 1	10	131.6	5.12
	M(3)	HL 2	10	132.3	5.71
	M(3)	LH 1	10	121.9	4.21
	M(3)	LH 2	10	122.1	4.80
	F(1)	HL 1	10	103.9	4.06
	F(1)	HL 2	10	103.0	3.95
	F(1)	LH 1	10	103.9	3.69
	F(1)	LH 2	10	107.5	4.07
	F(2)	HL 1	10	122.9	7.32
	F(2)	HL 2	10	114.8	5.97
	F(2)	LH 1	10	129.2	5.14
	F(2)	LH 2	10	132.4	4.86
	F(3)	HL 1	10	103.6	3.68
	F(3)	HL 2	10	105.3	4.03
	F(3)	LH 1	10	108.7	4.33
	F(3)	LH 2	10	105.8	3.84

Note: Amount of Looking is out of a possible 180 seconds.

TABLE C2

Summary of Three Proportions of Visual Behavior as a
Function of Sex, Distance, Order, and Trial

Independent Variables	N	Return Gaze Proport.	Look/ Listen Proport.	Look/ Speak Proport.
Sex: Male (M)	80	.541	.630	.413
Female (F)	62	.600	.699	.433
Distance: 2.5' (1)	52	.515	.616	.353
6.5' (2)	50	.622	.673	.479
10.5' (3)	40	.575	.704	.436
Order: High-Low(HL)	70	.563	.675	.417
Low-High(LH)	72	.578	.653	.429
Trial: First 1	71	.596	.696	.432
Second 2	71	.544	.633	.414
Interactions M (1)	30	.438	.501	.305
Sex M (2)	26	.546	.626	.434
X M (3)	24	.639	.764	.500
Distance F (1)	22	.591	.731	.402
F (2)	24	.698	.720	.524
F (3)	16	.511	.644	.372
Sex M-HL	34	.551	.678	.414
X M-LH	46	.531	.582	.412
Order F-HI	36	.574	.673	.419
F-LH	26	.625	.724	.446
Sex M1	40	.554	.657	.407
X M2	40	.528	.604	.419
Trial F1	31	.639	.735	.457
F2	31	.561	.662	.408
Distance (1)HL	28	.552	.644	.354
X (1)LH	24	.477	.588	.352
Order (2)HL	26	.598	.710	.450
(2)LH	24	.644	.636	.509
(3)HL	16	.538	.673	.446
(3)LH	24	.612	.735	.426

TABLE C2 (cont'd)

Independent Variables		N	Return Gaze Proport.	Look/ Listen Proport.	Look/ Speak Proport.
Sex	M(1)HL	12	.475	.542	.307
X	M(1)LH	18	.401	.460	.302
Distance	M(2)HL	12	.582	.704	.445
X	M(2)LH	14	.508	.547	.424
Order	M(3)HL	10	.596	.788	.491
	M(3)LH	14	.683	.740	.510
	M(1)HL	16	.629	.746	.401
	F(1)LH	6	.552	.717	.402
	F(2)HL	14	.615	.715	.459
	F(2)LH	10	.781	.725	.594
	F(3)HL	6	.479	.557	.402
	F(3)LH	10	.542	.731	.342
Distance	(1)1	26	.491	.655	.349
X	(1)2	26	.538	.577	.358
Trial	(2)1	25	.657	.706	.505
	(2)2	25	.586	.640	.454
	(3)1	20	.642	.726	.443
	(3)2	20	.508	.682	.429
Order	HL1	35	.604	.720	.459
X	HL2	35	.521	.631	.375
Trial	LH1	36	.588	.672	.406
	LH2	36	.568	.635	.452
Sex	M(1)1	15	.440	.537	.303
X	M(1)2	15	.436	.464	.307
Distance	M(2)1	13	.574	.658	.442
X	M(2)2	13	.517	.593	.426
Trial	M(3)1	12	.648	.775	.475
	M(3)2	12	.630	.753	.525
	F(1)1	11	.541	.773	.395
	F(1)2	11	.640	.690	.409
	F(2)1	12	.740	.754	.567
	F(2)2	12	.656	.686	.482
	F(3)1	8	.635	.678	.411
	F(3)2	8	.386	.610	.333
Sex	MHL 1	17	.559	.772	.447
X	MHL 2	17	.543	.634	.381
Order	MLH 1	23	.549	.591	.366
X	MLH 2	23	.513	.573	.457
Trial	FHL 1	18	.650	.717	.470
	FHL 2	18	.499	.628	.368
	FLH 1	13	.628	.753	.445
	FLH 2	13	.622	.696	.447

TABLE C2 (cont'd)

Independent Variables			N	Return Gaze Proport.	Look/Listen Proport.	Look/Speak Proport.
Distance	(1)	HL 1	14	.575	.701	.403
X	(1)	HL 2	14	.529	.586	.305
Order	(1)	LH 1	12	.407	.609	.295
X	(1)	LH 2	12	.547	.567	.410
Trial	(2)	HL 1	13	.630	.763	.456
	(2)	HL 2	13	.566	.657	.443
	(2)	LH 1	12	.683	.650	.553
	(2)	LH 2	12	.606	.622	.465
	(3)	HL 1	8	.608	.695	.517
	(3)	HL 2	3	.467	.650	.376
	(3)	LH 1	12	.675	.757	.369
	(3)	LH 2	12	.550	.714	.483
Sex	M(1)	HL 1	6	.487	.635	.347
X	M(1)	HL 2	6	.463	.448	.267
Distance	M(1)	LH 1	9	.393	.440	.258
X	M(1)	LH 2	9	.410	.479	.364
Order	M(2)	HL 1	6	.594	.755	.472
X	M(2)	HL 2	6	.570	.653	.418
Trial	M(2)	LH 1	7	.553	.561	.413
	M(2)	LH 2	7	.463	.533	.435
	M(3)	HL 1	5	.597	.776	.523
	M(3)	HL 2	5	.595	.800	.459
	M(3)	LH 1	7	.700	.773	.428
	M(3)	LH 2	7	.666	.706	.591
	F(1)	HL 1	8	.662	.767	.458
	F(1)	HL 2	8	.595	.724	.344
	F(1)	LH 1	3	.420	.779	.331
	F(1)	LH 2	3	.684	.655	.473
	F(2)	HL 1	7	.667	.770	.441
	F(2)	HL 2	7	.563	.661	.469
	F(2)	LH 1	5	.813	.739	.693
	F(2)	LH 2	5	.749	.711	.495
	F(3)	HL 1	3	.620	.614	.511
	F(3)	HL 2	3	.339	.500	.292
	F(3)	LH 1	5	.650	.741	.310
	F(3)	LH 2	5	.434	.721	.374

Note: Return gaze proportion is the mutual looking engaged in by subjects out of the time available (time interviewer looks).

APPENDIX D

STUDENT'S ATTITUDES AND BELIEFS QUESTIONNAIRE

STUDENT'S ATTITUDES & BELIEFS

Eighteen Year Vote

I. Campus eligibility

- A. Will there be continued stress between students and residents?
- B. If there is stress do you see a solution that will satisfy all concerned?
- C. Will it be necessary for the courts to step in as they did for Blacks in the south?
- D. Will a great many students actively seek political office?

II. Non-students and Older Voters

- A. Will non-students in the 18-21 year age group get involved in voting?
- B. Will older voters feel threatened and react by voting heavily?
- C. Could the 18 year old vote cause a shakeup in national politics?
- D. Could this result in a third party?
- E. Strengthening of the Republican Party?
- F. Strengthening of the Democratic Party?
- G. Will the 18 year vote be a victory for liberalism?
- H. Will the 18 year vote be a victory for conservatism?
- I. Will the 18 year vote be a victory for middle roaders?

III. Will youth be impressed by a candidate's personality and appearance as opposed to his party or proposed program

- A. Is candidate's party important?
- B. Is his platform important?
- C. Is charisma important in the voter's opinion of a candidate?

IV. Will legal changes result from the 18 year vote

- A. May there be constitutional changes allowing younger people to hold elective offices?
- B. If this occurred would it be a good thing?
- C. Do you feel that politically youth will be more impulsive than other voters?
- D. The family is disintegrating. Do you feel that as a result of the youth enfranchisement that old people will be even more alienated from society than they now are?
- E. Do you see social legislation as a result of the 18 year old vote in such areas as
 - 1. Civil Rights?
 - 2. Poverty Programs?
 - 3. Drug Legislation?
 - 4. Pollution Control?
 - 5. Consumer Legislation?
 - 6. Military Conscription?

V. High school students

- A. Will curricula change because of 18 year olds enfranchisement?
- B. If a portion of a student body is of legal age will they want a voice in such areas as
 - 1. Administration?
 - 2. P.T.A.?
 - 3. School Board?
- C. Should 18 year olds who are neither property owners nor heads of households be allowed to vote in millage elections?
- D. Why?
- E. Should political parties be allowed to organize political clubs on the high school campus?
- F. If yes should this right be extended to all political groups such as the Communist Party & Nazi Party?
- G. In the past youth was embraced by both political parties to be used for passing out pamphlets, working as ushers, etc. Do you see a new role for youth in the future?

VI. 18 year olds' right to make legal contracts

- A. In favor?
- B. Is 18 year old competent and responsible enough?
- C. Is this a college oriented market anyway?
 - 1. Who has the money?
 - 2. Who does business try to attract?
- D. Does this movement stem from big business trying to increase a shrinking market?
 - 1. Is it a genuine effort? or
 - 2. Is it a coverup to get people into debt to their necks?
- E. What type of added consumer protection should be added to insure against unjust practices by business (in this area)?
- F. If this right to make contracts at 18 years old is not enacted
 - 1. Do you feel as though it is a right and an issue for the Supreme Court?
 - 2. Do you feel that an offensive could be launched against the opposers to this right?
 - a. Successful?
- G. Situational
 - 1. If 18 year old should not make contract what about individual who has already been out working in the world-- say with a family and a job?
 - 2. Do you feel that the 18 year old has enough stability? (financially and emotionally)?

APPENDIX E
POST-EXPERIMENTAL QUESTIONNAIRE

VALUE SURVEY

Name _____ Sex: Male ____ Female ____

Birthdate _____ City and State of Birth _____

Below is a list of 18 values arranged in alphabetical order. Your task is to arrange them in order of their importance to YOU, as guiding principles in YOUR life.

Study the list carefully. Then place a 1 next to the value which is most important for you, place a 2 next to the value which is second most important to you, etc. The value which is least important, relative to the others, should be ranked 18.

Work slowly and think carefully. If you change your mind, feel free to change your answers. The end result should truly show how you really feel.

- _____ A COMFORTABLE LIFE (a prosperous life)
- _____ AN EXCITING LIFE (a stimulating, active life)
- _____ A SENSE OF ACCOMPLISHMENT (lasting contribution)
- _____ A WORLD AT PEACE (free of war and conflict)
- _____ A WORLD OF BEAUTY (beauty of nature and the arts)
- _____ EQUALITY (brotherhood, equal opportunity for all)
- _____ FAMILY SECURITY (taking care of loved ones)
- _____ FREEDOM (independence, free choice)
- _____ HAPPINESS (contentedness)
- _____ INNER HARMONY (freedom from inner conflict)
- _____ MATURE LOVE (sexual and spiritual intimacy)
- _____ NATIONAL SECURITY (protection from attack)
- _____ PLEASURE (an enjoyable, leisurely life)
- _____ SALVATION (saved, eternal life)
- _____ SELF-RESPECT (self-esteem)
- _____ SOCIAL RECOGNITION (respect, admiration)
- _____ TRUE FRIENDSHIP (close companionship)
- _____ WISDOM (a mature understanding of life)

1

Below is a list of another 18 values. Rank these in order of importance in the same way you ranked the first list on the preceding page.

- _____ AMBITIOUS (hard-working, aspiring)
- _____ BROADMINDED (open-minded)
- _____ CAPABLE (competent, effective)
- _____ CHEERFUL (lighthearted, joyful)
- _____ CLEAN (neat, tidy)
- _____ COURAGEOUS (standing up for your beliefs)
- _____ FORGIVING (willing to pardon others)
- _____ HELPFUL (working for the welfare of others)
- _____ HONEST (sincere, truthful)
- _____ IMAGINATIVE (daring, creative)
- _____ INDEPENDENT (self-reliant, self-sufficient)
- _____ INTELLECTUAL (intelligent, reflective)
- _____ LOGICAL (consistent, rational)
- _____ LOVING (affectionate, tender)
- _____ OBEDIENT (dutiful, respectful)
- _____ POLITE (courteous, well-mannered)
- _____ RESPONSIBLE (dependable, reliable)
- _____ SELF-CONTROLLED (restrained, self-disciplined)

ATTITUDE SCALE I

Directions:

Using the following scale, please indicate the extent of your agreement or disagreement about the twenty items below by circling the number which best represents your attitude.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|-----------------------|--------------------------|----------------------|---------------|-------------------------|-----------------------------|--------------------------|
| | Agree
very
much | Agree
on the
whole | Agree
a
little | Don't
know | Disagree
a
little | Disagree
on the
whole | Disagree
very
much |
| 1. In this complicated world of ours the only way we know what's going on is to rely on leaders or experts who can be trusted. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. My blood boils whenever a person stubbornly refuses to admit he's wrong. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. There are two kinds of people in this world: those who are for the truth and those who are against the truth. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Most people just don't know what's good for them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Of all the different philosophies which exist in this world there is probably only one which is correct. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. The main thing in life is for a person to want to do something important. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I'd like it if I could find someone who would tell me how to solve my personal problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. Most of the ideas which get printed nowadays aren't worth the paper they are printed on. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Man on his own is a helpless and miserable creature. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. It is only when a person devotes himself to an ideal or cause that life becomes meaningful. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

ATTITUDE SCALE I (continued)

- | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|
| 12. | Most people just don't give a "damn" for others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | The present is all too often full of unhappiness. It is only the future that counts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. | The United States and Russia have just about nothing in common. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. | In a discussion I often find it necessary to repeat myself several times to make sure I am being understood. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. | While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. | Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. | It is better to be a dead hero than to be a live coward. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

ADJECTIVE CHECK LIST

Directions: Circle the words which best describe you.

- | | | |
|--------------------|-------------------|-----------------------|
| 1. absent-minded | 51. cowardly | 101. gloomy |
| 2. active | 52. cruel | 102. good-looking |
| 3. adaptable | 53. curious | 103. good-natured |
| 4. adventurous | 54. cynical | 104. greedy |
| 5. affected | 55. daring | 105. handsome |
| 6. affectionate | 56. deceitful | 106. hard-headed |
| 7. aggressive | 57. defensive | 107. hard-hearted |
| 8. alert | 58. deliberate | 108. hasty |
| 9. aloof | 59. demanding | 109. headstrong |
| 10. ambitious | 60. dependable | 110. healthy |
| 11. anxious | 61. dependent | 111. helpful |
| 12. apathetic | 62. despondent | 112. high-strung |
| 13. appreciative | 63. determined | 113. honest |
| 14. argumentative | 64. dignified | 114. hostile |
| 15. arrogant | 65. discreet | 115. humorous |
| 16. artistic | 66. disorderly | 116. hurried |
| 17. assertive | 67. dissatisfied | 117. idealistic |
| 18. attractive | 68. distractible | 118. imaginative |
| 19. autocratic | 69. distrustful | 119. immature |
| 20. awkward | 70. dominant | 120. impatient |
| 21. bitter | 71. dreamy | 121. impulsive |
| 22. blustery | 72. dull | 122. independent |
| 23. boastful | 73. easy going | 123. indifferent |
| 24. bossy | 74. effeminate | 124. individualistic |
| 25. calm | 75. efficient | 125. industrious |
| 26. capable | 76. egotistical | 126. infantile |
| 27. careless | 77. emotional | 127. informal |
| 28. cautious | 78. energetic | 128. ingenious |
| 29. changeable | 79. enterprising | 129. inhibited |
| 30. charming | 80. enthusiastic | 130. initiative |
| 31. cheerful | 81. evasive | 131. insightful |
| 32. civilized | 82. excitable | 132. intelligent |
| 33. clear-thinking | 83. fair-minded | 133. interests narrow |
| 34. clever | 84. fault-finding | 134. interests wide |
| 35. coarse | 85. fearful | 135. intolerant |
| 36. cold | 86. feminine | 136. inventive |
| 37. commonplace | 87. fickle | 137. irresponsible |
| 38. complaining | 88. flirtatious | 138. irritable |
| 39. complicated | 89. foolish | 139. jolly |
| 40. conceited | 90. forceful | 140. kind |
| 41. confident | 91. foresighted | 141. lazy |
| 42. confused | 92. forgetful | 142. leisurely |
| 43. conscientious | 93. forgiving | 143. logical |
| 44. conservative | 94. formal | 144. loud |
| 45. considerate | 95. frank | 145. loyal |
| 46. contented | 96. friendly | 146. mannerly |
| 47. conventional | 97. frivolous | 147. masculine |
| 48. cool | 98. fussy | 148. mature |
| 49. cooperative | 99. generous | 149. meek |
| 50. courageous | 100. gentle | 150. methodical |

[illegible]

ADJECTIVE CHECK LIST (continued)

151. mild
 152. mischievous
 153. moderate
 154. modest
 155. moody
 156. nagging
 157. natural
 158. nervous
 159. noisy
 160. obliging
 161. obnoxious
 162. opinionated
 163. opportunistic
 164. optimistic
 165. organized
 166. outgoing
 167. original
 168. outspoken
 169. painstaking
 170. patient
 171. peaceable
 172. peculiar
 173. persevering
 174. persistent
 175. pessimistic
 176. planful
 177. pleasant
 178. pleasure seeking
 179. posed
 180. polished
 181. practical
 182. praising
 183. precise
 184. prejudiced
 185. preoccupied
 186. progressive
 187. prudish
 188. quarrelsome
 189. queer
 190. quick
 191. quiet
 192. quitting
 193. rational
 194. rattlebrained
 195. realistic
 196. reasonable
 197. rebellious
 198. reckless
 199. reflective
 200. relaxed

201. reliable
 202. resentful
 203. reserved
 204. resourceful
 205. responsible
 206. restless
 207. retiring
 208. rigid
 209. robust
 210. rude
 211. sarcastic
 212. self-centered
 213. self-confident
 214. self-controlled
 215. self-denying
 216. self-pitying
 217. self-punishing
 218. self-seeking
 219. selfish
 220. sensitive
 221. sentimental
 222. serious
 223. severe
 224. sexy
 225. shallow
 226. sharp-witted
 227. shiftless
 228. show-off
 229. shrewd
 230. shy
 231. silent
 232. simple
 233. sincere
 234. slipshod
 235. slow
 236. sly
 237. smug
 238. snobbish
 239. sociable
 240. soft-hearted
 241. sophisticated
 242. spineless
 243. spontaneous
 244. spunky
 245. stable
 246. steady
 247. stern
 248. spontaneous
 249. stingy
 250. stolid

251. strong
 252. stubborn
 253. submissive
 254. suggestible
 255. sulky
 256. superstitious
 257. suspicious
 258. sympathetic
 259. tactful
 260. tactless
 261. talkative
 262. temperamental
 263. tense
 264. thankless
 265. thorough
 266. thoughtful
 267. thrifty
 268. timid
 269. tolerant
 270. touchy
 271. tough
 272. trusting
 273. unaffected
 274. ambitious
 275. unassuming
 276. unconventional
 277. undependable
 278. understanding
 279. unemotional
 280. unexcitable
 281. unfriendly
 282. uninhibited
 283. unintelligent
 284. unkind
 285. unrealistic
 286. unscrupulous
 287. unselfish
 288. unstable
 289. vindictive
 290. versatile
 291. warm
 292. wary
 293. weak
 294. whiny
 295. wholesome
 296. wise
 297. withdrawn
 298. witty
 299. worrying
 300. zany

ATTITUDE SCALE II

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

- T F 1. Before voting I thoroughly investigate the qualifications of all the candidates.
- T F 2. I never hesitate to go out of my way to help someone in trouble.
- T F 3. It is sometimes hard for me to go on with my work if I am not encouraged.
- T F 4. I have never intensely disliked anyone.
- T F 5. On occasion I have had doubts about my ability to succeed in life.
- T F 6. I sometimes feel resentful when I don't get my way.
- T F 7. I am always careful about my manner of dress.
- T F 8. My table manners at home are as good as when I eat out in a restaurant.
- T F 9. If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.
- T F 10. On a few occasions, I have given up doing something because I thought too little of my ability.
- T F 11. I like to gossip at times.
- T F 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
- T F 13. No matter who I'm talking to, I'm always a good listener.
- T F 14. I can remember "playing sick" to get out of something.
- T F 15. There have been occasions when I took advantage of someone.
- T F 16. I'm always willing to admit it when I make a mistake.
- T F 17. I always try to practice what I preach.
- T F 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

ATTITUDE SCALE II CONTINUED

- T F 19. I sometimes try to get even, rather than forgive and forget.
- T F 20. When I don't know something I don't at all mind admitting it.
- T F 21. I am always courteous, even to people who are disagreeable.
- T F 22. At times I really insisted on having things my own way.
- T F 23. There have been occasions when I felt like smashing things.
- T F 24. I would never think of letting someone else be punished for my wrongdoings.
- T F 25. I never resent being asked to return a favor.
- T F 26. I have never been irked when people expressed ideas very different from my own.
- T F 27. I never make a long trip without checking the safety of my car.
- T F 28. There have been times when I was quite jealous of the good fortune of others.
- T F 29. I have almost never felt the urge to tell someone off.
- T F 30. I am sometimes irritated by people who ask favors of me.
- T F 31. I have never felt that I was punished without cause.
- T F 32. I sometime think when people have a misfortune they only got what they deserved.
- T F 33. I have never deliberately said something that hurt someone's feelings.

ATTITUDE TOWARD SELF

Directions: On a scale of one to seven indicate where you would locate yourself in terms of the following characteristics. Then evaluate your degree of certainty about each of your previous choices.

A)		MY SELF							Very certain...uncertain				
Sociable	—	—	—	—	—	—	—	—	Unsociable	—	—	—	—
Good	—	—	—	—	—	—	—	—	Bad	—	—	—	—
Kind	—	—	—	—	—	—	—	—	Cruel	—	—	—	—
Unselfish	—	—	—	—	—	—	—	—	Selfish	—	—	—	—
Wise	—	—	—	—	—	—	—	—	Foolish	—	—	—	—
Active	—	—	—	—	—	—	—	—	Passive	—	—	—	—
Eager	—	—	—	—	—	—	—	—	Indifferent	—	—	—	—
Rash	—	—	—	—	—	—	—	—	Cautious	—	—	—	—
Excitable	—	—	—	—	—	—	—	—	Calm	—	—	—	—
Strong	—	—	—	—	—	—	—	—	Weak	—	—	—	—
Free	—	—	—	—	—	—	—	—	Constrained	—	—	—	—
Severe	—	—	—	—	—	—	—	—	Lenient	—	—	—	—
Hard	—	—	—	—	—	—	—	—	Soft	—	—	—	—

ATTITUDE TOWARD SELF (continued)

B) How important would you rate each of these scales as a personality trait?

	Very important	Very unimportant	
Sociable-Unsociable	Very important	___ ___ ___ ___	Very unimportant
Good-Bad	Very important	___ ___ ___ ___	Very unimportant
Kind-Cruel	Very important	___ ___ ___ ___	Very unimportant
Unselfish-Selfish	Very important	___ ___ ___ ___	Very unimportant
Wise-Foolish	Very important	___ ___ ___ ___	Very unimportant
Active-Passive	Very important	___ ___ ___ ___	Very unimportant
Eager-Indifferent	Very important	___ ___ ___ ___	Very unimportant
Rash-Cautious	Very important	___ ___ ___ ___	Very unimportant
Excitable-Calm	Very important	___ ___ ___ ___	Very unimportant
Strong-Weak	Very important	___ ___ ___ ___	Very unimportant
Free-Constrained	Very important	___ ___ ___ ___	Very unimportant
Severe-Lenient	Very important	___ ___ ___ ___	Very unimportant
Hard-Soft	Very important	___ ___ ___ ___	Very unimportant

1000000

1000000

H

IMPORTANT: (1) Place your X-marks in the middle of spaces, not on the boundaries:

This Not This

— — — — —

(2) Be sure you check every scale for every concept--
do not omit any.

(3) Never put more than one X-mark on a single scale.

Make each scale item a separate and independent judgement. Once you have made a judgement, move on to the next one, do not look back, or consider past judgements. Work at fairly high speed through this test. Do not worry or puzzle over individual items. There are no "right" or "wrong" answers. It is your first impression, your immediate "feelings" about the concept and scale that we want. On the other hand, please do not be careless, because we want your true impressions.

LEGALIZED ABORTION

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

THE BLACK PANTHERS

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud

1

OUR CONTROL LAWS

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

LEGALIZATION OF MARIJUANA

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

INTERCOLLEGIATE ATHLETICS

Simple	_____	Complex
Honest	_____	Dishonest
Clean	_____	Dirty
Pleasant	_____	Unpleasant
Active	_____	Passive
Fragrant	_____	Foul
Kind	_____	Cruel
Fast	_____	Slow
Soft	_____	Loud
Loose	_____	Tight

SUPREME COURT

Simple	_____	Complex
Honest	_____	Dishonest
Clean	_____	Dirty
Pleasant	_____	Unpleasant
Active	_____	Passive
Fragrant	_____	Foul
Kind	_____	Cruel
Fast	_____	Slow
Soft	_____	Loud
Loose	_____	Tight

DRAFT LOTTERY

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

SPIRO AGNEW

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

MEDICARE

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

FRATERNITIES

Simple	— — — — —	Complex
Honest	— — — — —	Dishonest
Clean	— — — — —	Dirty
Pleasant	— — — — —	Unpleasant
Active	— — — — —	Passive
Fragrant	— — — — —	Foul
Kind	— — — — —	Cruel
Fast	— — — — —	Slow
Soft	— — — — —	Loud
Loose	— — — — —	Tight

18 Year Old Vote

Good	— — — — —	Bad
Mild	— — — — —	Intense
Beautiful	— — — — —	Ugly
Sweet	— — — — —	Sour
Strong	— — — — —	Weak
Nice	— — — — —	Awful
Fair	— — — — —	Unfair
Large	— — — — —	Small
Hot	— — — — —	Cold
Even	— — — — —	Uneven
Important	— — — — —	Unimportant

How Certain are you of your opinion regarding this issue?

Very Certain — — — — — Very Uncertain

Circle the statement which best describes your position:

1. I am very much in favor of the 18 year old vote.
2. I am in favor of the 18 year old vote.
3. I honestly have no opinion regarding the 18 year old vote.
4. I am opposed to the 18 year old vote.
5. I am very much opposed to the 18 year old vote.

To help us assess the effectiveness of the procedure which we have decided to use, please answer the following:

What was the purpose of the experiment in which you have just participated?

Please provide five (5) adjectives which you would use to describe the interviewer.

Was there anything which you feel inhibited the process of our obtaining the information we wished to gather?

Any other comments or suggestions would be appreciated

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