

PROXEMIC BEHAVIOR AND PERSONALITY

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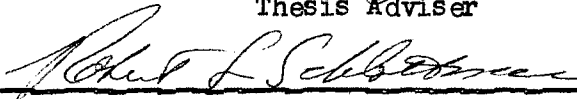
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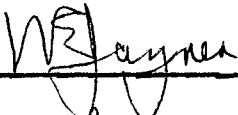
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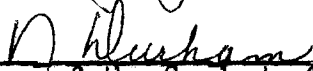
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CHAPTER I

STATEMENT OF THE PROBLEM

Purpose of the Study

This study was designed to investigate the relationships between several types of nonverbal proxemic behaviors and personality traits. Numerous forms of proxemic behavior such as personal space, eye contact, and approach speed have been studied in recent years. Personal space is viewed by Hall (1959) as a well developed complex of patterned spatial modes of relating to, and communicating with, others in the environment. More simply defined, personal space is the area surrounding an individual, the invasion of which constitutes some manner of threat and which he, thus, considers to be personal or his own. Eye contact refers to the extent to which an individual gazes directly into the eyes of another person. Approach speed involves the actual speed at which a person will walk toward another person. It has been demonstrated that as personal space increases eye contact does also (Argyle and Dean, 1965; Sommer, 1967). Persons displaying a high degree of the personality characteristic dominance tend to engage in a relatively large degree of eye contact (Exline, 1963), maintain a small personal space (Butt and Fiske, 1968), and approach others rapidly (Beam, 1971). Williams (1963) has concluded that introverts tend to maintain a greater personal space than do extraverts. It has been suggested that persons with high affiliation needs tend to exhibit less personal space than do

individuals with low affiliation needs (Weinstine, 1967).

Thus, it would appear that many types of interpersonal behaviors are influenced by or in some way related to some of the more enduring aspects of personality such as affiliation, dominance, introversion and extraversion. This study represents an examination of a comprehensive set of personality variables (measured by means of personality inventories and individual scales extracted from inventories) with respect to the nonverbal behaviors personal space, eye contact and approach speed.

Behavioral Variables

Personal space and eye contact, as described with regard to human individuals, has also been found to have a counterpart in lower animal species. It is generally agreed that eye contact serves a dominance-submission role in primates. Marler (1965) reports that if a sparring monkey gazes away from his opponent at any time he has displayed a sign of submission. Aggressive gestures among langurs (Jay, 1965) and gorillas (Schaller, 1965) include visual fixations, while avoiding visual contact signifies submission. Greater personal space displayed by submissive members of primate troupes probably serves an important social role in promoting survival of the species. This type of behavior enables the weaker more submissive animals to maintain their "distance" from aggressive animals and, thus, avoid physical encounters. At the same time, the dominant animals are able to lead or control the troupe without the necessity of constantly establishing power through fighting the other animals into submission. Thus, the primate troupe is a functional social unit based, among other factors, upon dominance-submission

relationships communicated through personal space and eye contact.

Morris (1969) has hypothesized that the basis for mans' territoriality or group space behaviors lies within the realm of evolutionary processes. As man developed into a food growing animal his cooperative tendencies were enhanced while his aggressive tendencies were redirected toward outgroup persons who infringed upon the group territory. As family units developed, a particular type of group space developed simultaneously. The result was the maintenance of family integrity through defense of the family in a spacial sense. Morris (1969) cites as evidence of this in contemporary society the manner in which architecture is employed to promote spacial separation of family unit. Families reside in individual living quarters behind walls and fences-- barriers protecting the family from intruders. This general line of reasoning may be applied to personal as well as group space. To maintain personal integrity and security, an individual places a spatial buffer zone between himself and others. Violations of this interpersonal region constitute acts of aggression resulting in the victim being placed on the defensive, experiencing awkwardness and uneasiness.

Personal space might also be viewed as an index of intimacy. Persons who maintain intimate social role relations such as husband and wife would be expected to display small personal space with respect to each other. However, persons who have no clearly established intimate relationship (strangers for example) would tend to "keep their distance" from each other.

Although this study was designed to evaluate interpersonal behaviors with the individual as the unit of analysis, it should be noted that significant group or cultural influences may be present. These

influences are not of a biological nature as the ones described by Morris (1969), but rather, involve social factors. Employing subjects from several cultural groups (Sweden, Greece, Scotland, United States and Southern Italy) Little (1968) made an examination of personal space. His results indicate that subjects from Northern Europe display greater personal space than do subjects from the Southern European regions. Addid (1966) found that white subjects tend to exhibit greater personal space toward Negroes.

Probably the greatest emphasis in recent personal space research has been placed on examining the influences of individual characteristics manifested by both the person being approached and the person approaching in experimental settings. The variable of subject and participant sex has been explored by numerous researchers. Sommer (1967) found that males maintain a greater personal space in relation to other males than females do in relation to other females. With regard to cross-sex personal space situations, it has been concluded that females approach other females closer than they approach males, while males approach members of the same and opposite sex equal distances (Dosey and Meisels, 1969).

Perceived status of another individual has been found to influence a person's personal space. Utilizing seating positions as personal space measures, Lott and Sommer (1967) discovered that subjects sit closer to persons perceived as having status equal to their own than to persons perceived as being higher or lower in status. Further, Little (1968) concluded that males exhibit less personal space than do females in situations involving interaction with authority figures. Fromme and Conway (1971) found in their study that age and conventionality of

dress of confederates bear some influence on personal space. Subjects approached a conventionally dressed young man closer than either an old man or a young man with unconventional grooming and attire.

Other studies have focused on variables which are of particular interest in relation to this thesis. These involve the examination of personal space with respect to general personality or behavioral patterns. Horowitz, Duff and Stratten (1964) determined that psychiatric patients, including persons diagnosed as schizophrenic, approached inanimate objects more closely than people. Emotionally disturbed boys tend to manifest greater personal space (measured by the distance placed between silhouette figures) than do normal boys (Fisher, 1967). Weinstein (1965) reached a similar conclusion, observing that emotionally disturbed boys placed child figures closer to father and peer figures than mother figures, while the opposite held true for normal boys. As previously mentioned the traits introversion, extraversion and affiliation bear relevance to personal space (Williams, 1963; Weinstein, 1967). Beam (1971) observed that persons scoring high in dominance on the Bernreuter Personality Inventory exhibit less personal space than do low dominance subjects.

Several variables which involve more or less transient psychological states have been explored with regard to personal space. Fromme and Schmidt (in press) discovered that subjects enacting the four states of fear, anger, sorrow and neutral affect displayed the greatest personal space under the fear condition. Gottheil, Corey and Paredes (1968) found that personal space is correlated with a subjective attitude of interpersonal closeness. In addition, conditions perceived as stressful have been found to induce individuals to maintain greater

personal space than neutral conditions (Dosey and Meisels, 1969).

The literature indicates that eye contact and approach speed are influenced by several of the same variables as personal space. Exline (1963) has suggested that eye contact constitutes a symbolic form of dominance. A person's autonomy is preserved and, thus, his dominance established when another individual's gaze is averted from his. Several animal studies previously cited (Marler, 1965; Jay, 1965; Schaller, 1965) lend support to this line of reasoning. Exline (1963) has also found that women tend to engage in more mutual visual interactions and longer interactions with other women than do men with other men. With regard to visual interaction between the sexes, women engage in more mutual gazes than do men regardless of the sex of the other party (Exline, Gray and Schuette, 1965). Affective states have also been shown to influence eye contact. Fromme and Schmidt (in press) demonstrated that eye contact is less for subjects role enacting sorrow than it is for anger, fear or neutral affect. Subjects maintained a greater degree of eye contact with intensely liked experimenters than they did with intensely disliked examiners in a study conducted by Mehrabian (1968). Eye contact has been found to increase as personal space increases (Argyle and Dean, 1965). Approach speed has not been studied extensively but there is some evidence that affective states and dominance are relevant variables (Fromme and Schmidt, in press; Beam, 1971).

Personality Variables

This study employed a set of personality variables which was judged to be adequately comprehensive for the purposes of such an experiment. An attempt was made to include many of the major aspects

of personality which have been utilized primarily in describing normal individuals. This was accomplished through the use of two complete personality inventories (Eysenck Personality Inventory and Guilford-Zimmerman Temperament Survey) and six individual scales extracted from three other inventories (Omnibus Personality Inventory, Personal Orientation Inventory and California Psychological Inventory). Although extreme scores on some of the scales may be indicative of deviant personality traits, the primary intent of this study was to evaluate certain interpersonal behaviors with respect to personality patterns displayed by individuals selected from a non-deviant population. In selecting these personality measurement instruments, several criteria were observed. Scales were chosen which 1) have been shown to be reasonably reliable and valid, 2) have minimal item overlap, 3) are easily administered and scores, 4) yield objective measures of personality traits, 5) as a group represent a fairly comprehensive means for evaluating the personality characteristics which were considered to be relevant to the behavioral variables examined in this thesis.

The Eysenck Personality Inventory was designed to measure personality in terms of two independent dimensions identified as extraversion-introversion (E) and neuroticism-stability (N). Each of these traits is measured by means of 24 questions, selected on the basis of factor analysis, to which the examinee answers "yes" or "no." A nine item response distortion (lie) scale is also incorporated. Two reliability studies have been reported by Eysenck (1968). The first involved repeat reliability (test-retest) utilizing two samples, one of size 92 and the other of 27. The elapsed time between test and retest was one year for the former and nine months for the latter. The reliabilities

for the two samples on the "N" scale were .84 and .92 respectively, with coefficients of .88 and .94 on the "E" scale. The second reliability study dealt with split-half reliability using a sample of 1,655 normal individuals. The coefficient for "E" was .86 and for "N" was .89.

The concurrent validity of the EPI was evaluated by Vingoe (1968) who found highly positive correlations between Extraversion and the CPI scales Social Presence, Self-Acceptance, Sociability and Dominance. High negative correlations were obtained between Neuroticism and CPI scales of Well Being, Tolerance and Intellectual Efficiency. Eysenck (1968) reports a study in which judges were asked to nominate people whom they considered to be extreme in either the extraversion or neuroticism dimension. Mean extraversion scores for those nominated as most extraverted were about two standard deviations higher than those nominated as most introverted. Similar results were found for those nominated most neurotic and most stable with the difference being one and one half standard deviations.

The Guilford-Zimmerman Temperament Survey is a factor analytically derived inventory which employs ten independent scales for personality evaluation. These scales correspond to the following traits: 1) General Activity (G), 2) Restraints (R), 3) Ascendance (A), 4) Sociability (S), 5) Emotional Stability (E), 6) Objectivity (O), 7) Friendliness (F), 8) Thoughtfulness (T), 9) Personal Relations (P), 10) Masculinity (M). A total of 300 items are used in the survey, 30 for each of the ten traits. The alternative responses to each item are "yes," "?" and "no." Van Steenberg (1970) in a review of the literature reports that it gives a very favorable impression of a well rounded, carefully

worked out method of evaluating an important portion of the total personality. He further stated that split-half reliability coefficients for the ten scales ranged from .75 to .85 in a study based on a sample of 523 male and 389 female college students. Guilford and Zimmerman (1949) cite validity data which have come from the use of the survey with supervisory and administrative personnel. A table of specific recommendations, based on most favorable and least favorable score ranges for each scale, has been compiled which allows one to evaluate an individual for supervisory or leadership potential. They suggest that such a scheme has more general application since positions of leadership impose relatively more exacting requirements for "good" personality qualities.

The Omnibus Personality Inventory was constructed to assess selected attitudes, values, and interests, chiefly relevant in the areas of normal ego functioning and intellectual activity. The three scales Personal Integration, Anxiety Level and Altruism were selected for use in this study from the 14 total scales. These scales contain 55, 20 and 36 items respectively, all of which are answered "true" or "false." The Personal Integration Scale has one item in common with the Anxiety Level Scale and six items in common with the Altruism Scale. Anxiety Level and Altruism Scales have no common items. Heist and Yonge (1968) report split-half reliability data from a study which involved the testing of 7,283 freshmen from 37 colleges. The reliability coefficients were .89 for Personal Integration, .82 for Anxiety Level and .74 for Altruism. Another study evaluating test-retest reliability with 71 upperclassmen college subjects found reliability coefficients of .91, .84 and .90 respectively for each of the three

scales (Heist and Yonge, 1968). Concurrent validity for each of the scales has been substantiated based on the following correlations: Personal Integration correlated above .70 in the appropriate direction with the Psychathenia, Schizophrenia and K Scales of the MMPI; Anxiety Level correlates .46 with the Social Adjustment Scale and .70 with the Emotional Adjustment Scale of the OASIS; Altruism correlates -.48 on the Economic and .46 on the Social Scales of the Allport-Vernon-Lindzey Study of Values (Heist and Yonge, 1968).

The concept of self-actualization is the theoretical framework upon which the Personal Orientation Inventory (POI) is based. This instrument is aimed at measuring the degree to which an individual has developed and is utilizing all his unique capabilities, or potentialities, free of the inhibitions and emotional turmoil of those less self-actualized. Two scales from this inventory were used in the present study, Self Acceptance (26 items) and Capacity for Intimate Contact (28 items). Only two common items exist between the scales. Items are answered based on two-choice comparative value and behavior judgments. Based on a sample of 48 college students, Klavetter and Mogar (1967) report test-retest reliability coefficients of .80 for Self Acceptance and .75 for Capacity for Intimate Contact. Results of a study reported by Shostrom (1964) indicate that the inventory significantly discriminates between clinically judged self-actualized and non-self actualized groups on 11 of the 12 scales. Another study in a clinical setting involving a criterion group is reported by Fox (1965). The POI was administered to a group of 100 hospitalized psychiatric patients. All scales significantly differentiated (beyond the .001 confidence level) the hospitalized sample from a nominated self-actualized sample and

from a normal adult sample. The following concurrent validity data (significant beyond the .01 confidence level) has been presented by Shostrom (1968): Self Acceptance correlates $-.52$ with the D scale, $-.52$ with the Pd scale, and $-.60$ with the Sc scale of the MMPI: Capacity for Intimate Contact correlates $-.56$ with the D scale, and $-.46$ with the Si scale of the MMPI (N = 39).

The California Psychological Inventory was designed to provide brief, accurate, and dependable subscales for the identification and measurement of personality characteristics important for social living and social interaction. Only the 46 item subscale Dominance of the 18 total scales was used in this thesis. Item response choices are "true" or "false." Test-retest reliability for the Dominance scale has been reported to be $.72$ for females and $.64$ for males based on samples of 125 high school females and 101 high school males. In assessment studies of 70 medical school applicants and 100 military officers, the Dominance scale correlated $.48$ and $.40$ respectively for each of the groups with staff ratings of "dominance." In five high schools where the CPI was administered, principals were asked to nominate the "most" and "least" dominant students. Based on samples of 102 males and 102 females, it was concluded that the Dominance scale distinguishes between the two nominated groups beyond the .01 level of significance (Gough, 1957).

Summary of the Problem

Many recent studies support the conclusion that the interpersonal behaviors, personal space, eye contact and approach speed are all mutually interrelated. The literature also indicates that these behav-

iors are related to such personality attributes as dominance, affiliation and extraversion-introversion. These few personality traits do not, however, give an adequate picture of general personality factors which come to play during the expression of the three interpersonal behaviors. In an attempt to shed light on this problem, the present study examined the relationships between 19 personality measures and the three nonverbal behaviors as displayed in male-male, female-female, and male-female dyads.

CHAPTER II

METHOD

Subjects

Forty male and 40 female Oklahoma State University students served as subjects. These individuals were all English speaking caucasians and were selected from the experimenter's two sections of Introductory Psychology. The age range for males was 18 to 25 with a mean of 18.2. Females ranged in age from 18 to 26 with a mean of 18.4.

Experimental Confederates

The ten male and ten female confederates used in the study were randomly selected from the two Introductory Psychology classes. They played the roles of the individuals whom the subjects approached during the behavioral measurement portion of the experimental procedure. Twenty cohorts were utilized in an attempt to minimize response bias induced by subjects attending to (with or without conscious awareness) experimentally uncontrolled physical or behavioral attributes displayed by the cohorts.

Personality Measures

The following 19 personality characteristics were measured for each of the subjects: 1) Extraversion-introversion, 2) Neuroticism-stability, 3) Lie, 4) General Activity, 5) Restraint, 6) Ascendance,

7) Socialibility, 8) Emotional Stability, 9) Objectivity, 10) Friendliness, 11) Thoughtfulness, 12) Personal Relations, 13) Masculinity, 14) Anxiety Level, 15) Altruism, 16) Personal Integration, 17) Capacity for Intimate Contact, 18) Self Acceptance, and 19) Dominance. Traits 4 through 13 and 1 through 3 correspond to the complete set of subscales presented on the Guilford-Zimmerman Temperament Survey and the Eysenck Personality Inventory, respectively. Traits 14 through 16 were measured by means of the three corresponding subscales extracted from the Omnibus Personality Inventory. Two subscales from the Personal Orientation Inventory were employed to measure traits 17 and 18. Trait 19 corresponds to a subscale found on the California Psychological Inventory. Subjects' raw scores on each of the subscales served as experimental measures of the corresponding personality characteristics. Both complete personality inventories and all extracted subscales were administered to the subjects during Introductory Psychology class periods. The time lapse between administering the personality inventories and obtaining the behavioral measures discussed in the next section ranged from 8 to 17 days. This aspect of the experimental procedure was announced to the classes as a demonstration of psychological testing and was, in fact, discussed in some detail by the experimenter later in the semester when the lecture topic was psychological testing.

Behavioral Measures

The interpersonal behaviors personal space, eye contact, and approach speed were measured for each subject in both same sex dyad situations and opposite sex dyad situations. Thus, six behavioral

measures (variates 20 through 25) were made for each subject; personal space-male cohort, personal space-female cohort, eye contact-male cohort, eye contact-female cohort, approach speed-male cohort, and approach speed-female cohort.

Personal space was operationally defined as the nose-to-nose distance between subject and confederate measured by means of one inch gradations marked on a blackboard appropriately positioned in the experimental room. The blackboard markings were disguised as a visual perception display, unrelated to the experiment.

Approach speed was calculated in inches per second by dividing the subjects' approach time (measured by the experimenter with a concealed stop watch) into the distance the subjects moved from a standard position 100 inches from the cohorts. A cumulative stopwatch was used by an observer stationed behind a one-way mirror to determine the amount of time the subjects were engaging in eye contact with the cohorts. The subjects were not aware that they were being observed by this individual. This time was divided by the subjects' total approach time to yield the percentage of eye contact. Confederate eye contact was controlled throughout the experimental procedure by giving the confederates prior instructions to look directly into the approaching subject's eyes for two counts, then glance away for three counts, repeating this sequence until the subject stopped his approach.

Procedure

The subjects were randomly assigned to one male and one female confederate. The two confederates and the subject were taken to a room adjoining the experimental room and the following instructions were

given: "This is a study of what is known as orienting reflexes. These are natural automatic reflex reactions present in everyone. So just relax and we will go through this quickly. First, I want you (one cohort randomly selected from the two) and you (subject) to come to me." The subject and cohort were then ushered into the experimental room. "I would now like for you (cohort) to stand with your toes on this line and you (subject) to stand with your toes on this line. (To the subject) When I tell you to start, I want you to walk toward him (her). When you stop, just stay there until I tell you to return to your position. Are there any questions? Ready, start." After all behavioral measures were secured, the first cohort was led out of the examination room and the second was brought in. "I want you (cohort) to stand with your toes on this line. (To the subject) Just as the last time, I want you to walk toward him (her) when I tell you to start. Any questions? Ready, start." After the second approach interaction was completed, the subject was dismissed.

Once the experiment was completed in its entirety the experimenter presented a psychological testing lecture, which included a discussion of all aspects of the study, to both classes from which subjects were drawn. This lecture served as a debriefing session.

Statistical Analysis

Separate correlation matrices were established for male and female subjects. Each of these two matrices was factor analyzed twice, once employing a principal components solution (Bi-Med Computer Programs, 1964) and once a multiple group general rank reduction solution (Horst, 1965). The principal diagonal elements of the correlation

matrices for all analyses were one's. The principal components solutions were obtained first and an examination was made of the corresponding eigenvalues. Since an eigenvalue of 1.7 represents a factor accounting for a significant proportion of the total variance and is also that point which demarcates five factors for both solutions, it was chosen as a cutoff point for selecting the factors to be reported. In order to simplify the comparability of principal components and multiple group solutions, five general rank reduction factors were extracted for each of the two multiple group analysis. The Varimax factor rotation procedure was applied to the principal components factors to obtain an analytic solution. The subjective graphic-algebraic technique was utilized in rotating the multiple group factors. In all cases, factor rotations were orthonormal.

To achieve a better approximation of positive manifold in the multiple group solutions, it was necessary to reverse the scaling through sign changes in the correlation matrices for variate two of the male data and variates two, five and ten of the female data. Hence, positive factor loadings on variate two are associated with low neuroticism and similarly, positive loadings on five and ten reflect lack of restraint and unfriendliness, respectively. For the sake of uniformity, the signs of these variates have been changed in the principal components factor loading matrices to correspond with the multiple group solutions.

CHAPTER III

RESULTS

The results of all analyses performed in this study are presented in matrix form in Tables I through IV and in the Appendix. The arrangement in tables of the 25 variates is based on the variate sequence which will dramatize the hierarchical factor loading pattern representing the multiple group solutions for male and female subjects. Thus, the order in which the variates are presented differs between male and female data solutions.

An examination of Table I reveals the principal components and multiple group solutions for male data. The correlations among the two sets of factors are presented in Table III. Although several factor loadings in the multiple group solution do not conform to the overall pattern, there exists, none-the-less, a rather well defined hierarchical pattern. This pattern is much more distinct than the simple structure approximation resulting from the varimax rotation of the principal components factors. Two separate hierarchies are evident in the multiple group solution. The first has been identified as an extraversion hierarchy consisting of one major factor (IV.0) and one intermediate factor (IV.1). The second hierarchy represents a stability dimension and consists of one major factor (III.0) and two intermediate factors (III.1 and III.2). On the basis of very substantial inter-factor correlations ($>.85$), two principal components factors have also

TABLE I

SYSTEMATIC ORTHOGONAL FACTOR LOADING HIGHLIGHT MATRICES FOR NINETEEN
PERSONALITY VARIATES AND SIX BEHAVIORAL VARIATES--MALE
SUBJECTS (DECIMALS OMITTED--LOADINGS ≥ 25)

	Principal Components Solution					Multiple Group Solution				
	IV.0	A	III.0	III.1	B	IV.0	IV.1	III.0	III.1	III.2
7 Sociability	81					88				
6 Ascendance	79					83				
19 Dominance	52	56		26		78				
23 Approach Speed-Female	38	29				35				
11 Thoughtfulness		74				34				33
4 General Activity	67			25		47	68		28	
1 Extravertism	76	-25		-39		48	68		32	
18 Self Acceptance		-49		33			27			
8 Emotional Stability			68	38				72		
15 Altruism			70					72		
3 Lie		39	42	25				46		
5 Restraint		59	49				-27	42		

I (Continued)

	Principal Components Solution					Multiple Group Solution				
	IV.0	A	III.0	III.1	B	IV.0	IV.1	III.0	III.1	III.2
9 Objectivity			44	72				58	70	
10 Friendliness			42	70				56	68	
12 Personal Relations			63	53				83	31	
21 PS-Female			-30		80			-27	36	
13 Masculinity				84					61	
2 Neuroticism *			67	25				60		58
14 Anxiety Level	25	26	75			38		56		57
16 Personal Integration			92					82		33
24 Eye Contact-Male		28			-40					29
25 Eye Contact-Female		43		28						28
17 Capacity for Intimate Contact		-50			26					
20 PS-Male					89					
22 Approach Speed-Male	29		-30		-51					

* Signs reversed. See text page 17

TABLE II
 SYSTEMATIC ORTHOGONAL FACTOR LOADING HIGHLIGHT MATRICES FOR NINETEEN
 PERSONALITY VARIATES AND SIX BEHAVIORAL VARIATES--FEMALE
 SUBJECTS (DECIMALS OMITTED--LOADINGS \geq .25)

	Principal Components Solution					Multiple Group Solution				
	IV.0	C	D	III.0	E	IV.0	IV.1	III.0	III.1	III.2
5 Restraint *	76		-25			70				
20 PS-Male	53			-28	57	68				
21 PS-Female	55			-27	53	67	-26			
7 Sociability	55		37	35		53	42		33	
1 Extraversion	84					63	43			
23 Approach Speed-Female				26			28			25
6 Ascendance			67	29		27	42	61	26	
10 Friendliness *	48	-43		-44		58		37	-42	
4 General Activity		-37	56	32			40	64		25
11 Thoughtfulness			70	-28			33	38		-27
19 Dominance	59		54	36		45	50	33	50	
15 Altruism		67		40					83	

II (Continued)

	Principal Components Solution					Multiple Group Solution				
	IV.0	C	D	III.0	E	IV.0	IV.1	III.0	III.1	III.2
12 Personal Relations			47	58					72	
3 Lie		36	57					25	39	
22 Approach Speed-Male		49	25						28	
16 Personal Integration	31			84					63	66
2 Neuroticism *				85					28	75
8 Emotional Stability				74					34	79
9 Objectivity				82					43	58
14 Anxiety Level	25			78			27		39	79
18 Self Acceptance		-71		43						57
13 Masculinity		-58		34						53
25 Eye Contact-Female		-25			80					25
17 Capacity for Intimate Contact		-79		26	28			45		46
24 Eye Contact-Male					89					

* Signs reversed. See text page 17

TABLE III

INTERCORRELATIONS AMONG PRINCIPAL COMPONENTS
AND MULTIPLE GROUP FACTORS
(MALE SUBJECTS)

		Multiple Group Factors				
		IV.0	IV.1	III.0	III.1	III.2
Principal Components Factors	IV.0	89	49	13	07	-03
	A	-06	18	-34	-16	07
	III.0	-12	-29	86	-05	32
	III.1	-21	22	32	63	-22
	B	24	-17	09	06	21

TABLE IV

INTERCORRELATIONS AMONG PRINCIPAL COMPONENTS
AND MULTIPLE GROUP FACTORS
(FEMALE SUBJECTS)

		Multiple Group Factors				
		IV.0	IV.1	IV.2	III.0	III.1
Principal Components Factors	IV.0	91	-24	08	16	03
	C	12	21	24	-07	-19
	D	29	36	49	26	17
	III.0	-09	23	32	81	69
	E	28	07	19	14	24

been identified and labeled as major extraversion (IV.0) and stability (III.0) factors. A third principal components factor displays a reasonable similarity (correlation .63) to the intermediate stability factor III.1 and has been so labeled. The two remaining principal components factors (A and B) show negligible correlation with the multiple group results and, therefore, no attempt has been made to fit them into either of the hierarchies. Factor A has been equated with the trait self control, while factor B pertains almost exclusively to the behavioral variates employed in the study.

A similar evaluation of the female data analyses (Tables II and IV) yields evidence supporting most of the conclusions drawn from the male solutions. Although the multiple group hierarchical pattern of factor loadings is somewhat less clear-cut than its male counter-part, it still represents a considerably more definitive pattern than the principal components simple structure approximation. An extraversion hierarchy consisting of one major factor (IV.0) with two intermediates (IV.1 and IV.2), and a stability hierarchy composed of one major factor (III.0) with one intermediate (III.1) have been identified. Again, substantial interfactor correlations ($>.80$) have lead to equating two principal components factors with the major extraversion (IV.0) and stability (III.0) factors from the multiple group solution. Principal components factors not falling into either hierarchy are C which has been termed social conformity and E which is another behavioral variate factor. Factor D is somewhat similar to IV.2 but the degree of the relationship (correlation .49) does not warrant labeling it as such. It has instead been termed active defensiveness.

In summary, extraversion and stability hierarchies of factor load-

ings were identified in the data for both male and female subjects. Each of these hierarchies consists of one major factor and one or more intermediate factors. Self-control and behavioral variate factors not falling within the hierarchies have been discovered in the male data. Similarly, non-hierarchical factors social conformity, active defensiveness and behavioral variate were evident in the female data.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

Since the purpose of this study was to ascertain the relationships existing between personality traits and proxemic behaviors, a detailed discussion of the results of the factor analyses is limited to only those factors with substantial loadings ($>.30$) on both behavioral and personality variates.

The theoretical frame of reference which serves as a basis for the extraversion and stability hierarchies identified in the data analyses has been borrowed from the work of Eysenck (1967). The reason for employing Eysenck's dimensions of personality are twofold; first, they have been well substantiated through a multitude of studies, and second, factor loadings on the personality variates employed in this study which are associated with the two dimensions are of a high order.

It is interesting to note and also serves as a measure of validity that the patterns of factor loadings found in both male and female data analyses are quite similar. Although no direct statistical comparison was made between the male and female data solutions, it seems evident from a subjective evaluation that the major extraversion and particularly the stability factors are comparable. Significant factor loadings are found in all solutions variates 1, 7, and 19 on extraversion (IV.0), and 8, 9, 12, 14, 15, and 16 on stability (III.0). The intermediate factors in the two hierarchies appear less similar.

others' feelings (variate 15). It would seem, then, that an individual such as this, in comparison with the III.0 male, may be less secure and responsive to others, and attempts to avoid any threat to his masculinity by 'maintaining his distance' from women. Factor III.2 depicts, primarily, freedom from anxiety but lacks any significant behavioral variate loadings.

Personal space with male and female cohorts (variates 20 and 21), approach speed with a male cohort (variate 22), and eye contact with a male cohort (variate 24) all load significantly on the male principal components behavioral factor B. However, since all personality variate loadings are inconsequential the only definitive conclusion which can be drawn is that males who maintain a large personal space tend to approach other males more slowly and maintain less eye contact with other males.

Male principal components factor A (Self Control) incorporates the personality characteristics serious mindedness, deliberateness (variate 5), reflectiveness (variate 11), confidence, and unsubmitiveness (variate 19). It also includes an unwillingness to develop intimate relationships with others, unencumbered by expectations (variate 17), and a tendency to not accept one's own weakness (variate 18). The moderate factor loading on eye contact with a female cohort is probably best explained as being a passive means for establishing control or dominance over a person (female) who is likely to cause the individual to lose his self control. He thus reduces the likelihood that a social situation involving a person of the opposite sex will arouse emotions which he cannot control.

In summarizing the analyses of the male subjects data, it may be

Male Data Analyses

The major extraversion factor (IV.0) identified in the male data analyses depicts a personality dimension typified by individuals who have many friends, like social activities, are not submissive, display leadership habits, are aggressive, confident, energetic and outgoing. There is also a slight element of reflectiveness or interest in thinking (variate 11) which is expected in a college population. The marginal factor loadings on variate 23 indicate that such individuals have a tendency to approach females in a rapid manner. This finding is in accordance with the conclusions drawn by Beam (1971) with respect to the dominance (variate 19) aspect of the factor. The extraverted male, one who enjoys and is relatively confident in social situations, tends to approach females with little hesitation. The intermediate extraversion factor (IV.1) characterized by outgoingness and a fund of energy, failed to display any significant behavioral variate loadings.

The major male stability factor (III.0) is descriptive of the emotionally stable person who is characteristically "thick-skinned," tolerant of people and hostile action, relatively anxiety free, optimistic, and sensitive to the needs of other people. Although the factor loadings are quite low (variate 21), there is some evidence that the stable male will maintain a relatively small personal space in relation to a female. However, factor III.1 suggests that the basically stable male who is somewhat withdrawn (variate 1) and who expresses considerable masculine interests (variate 13) desires a greater heterosexual personal space. This individual also shows no strong tendencies toward freedom from anxiety (variates 8 and 16) and sensitivity toward

said that fairly distinct extraversion and stability factors have been identified. Self control and behavioral variate factors have also been found in the principal components solution. Since factor loadings of a high order are not found for any of these factors on both behavioral and personality variates, no firm conclusions can be drawn. The data does, however, suggest several tentative conclusions: extraverted males tend to approach females with little hesitation, stable males tend to maintain close personal space with females unless they have a strong masculine identity, and males with high self control needs maintain greater eye contact with females. It may also be said that males who maintain a large personal space, approach other males less rapidly and engage in less eye contact with them. More simply stated, the personality traits extraversion, stability and self control are all related to proxemic behaviors. Further, several of the proxemic behaviors are mutually interrelated.

Female Data Analyses

The major extraversion factor (IV.0) identified in the female data analyses is the only factor in all male and female solutions which has a combination of both behavioral and personality variate loadings of greater than a marginal magnitude. This factor is characterized by the person who is impulsive, carefree, confident, outgoing, has many friends, enjoys social activities, but who also displays belligerence, hostility (variate 10) a desire to dominate, and a large personal space. The factor is quite similar to its counterpart with male subjects except for the loading in the socially undesirable direction on friendliness (variate 10) and the large loadings on the personal space variates (20

and 21). The seeming dichotomy between extraversion and friendliness may be viewed in terms of the active individual who seeks out the stimulation of social relationships and activities while harboring feelings of hostility and resentment. Perhaps the person's desire to dominate stems from these ill feelings and is satisfied through social interaction. A choleric personality type (Eysenck, 1968) is not portrayed by this factor since there is no evidence of neuroticism. Overt physical acts of hostility and aggression are generally frowned upon in our society, particularly if they are displayed by women. A very small proportion of violent crimes are committed by women, for example. The social role of the woman involves strong sanctions against such behavior. In light of these facts, it seems reasonable that outgoing sociable women who experience interpersonal resentments would not be so overt in expressing their hostility and desire to dominate as to maintain a small personal space. Quite the contrary, they would desire a larger interpersonal buffer zone to minimize the possibility of their losing control and violating their social role with a more physical act of belligerence. The large personal space would also reduce the threat of a physical form of retaliation from another person who responds aggressively to the woman's hostility. Extraverted males who tend to be belligerent would be expected to have small personal space since their social role allows them greater latitude in expressing aggression. The conclusions drawn from this factor appear to be in conflict with other studies which assessed personal space with regard to dominance (Beam, 1971) and extraversion (Williams, 1963). Perhaps the findings of these studies would have been in greater accord with the present conclusions if they had taken into account the temperament characteristic friend-

liness (variate 10). In other words, dominance and extraversion scales per se do not incorporate a measure of friendliness-belligerence as factor IV.0 does.

No sizeable behavioral variate loadings are found on the major stability factor (III.0). It should be mentioned that this factor has loadings on several variates (7, 10 and 14) in common with the extraversion factors. This overlap of the hierarchies may be interpreted in terms of Eysenck's (1968) explanation of the four basic temperaments; sanguine, choleric, melancholic and phlegmatic. Factor III.0 depicts stability in conjunction with friendliness (variate 10), dominance (variate 19) and a slight degree of sociability (variate 7). Therefore, these three out of pattern factor loadings indicate that III.0 is picking up some aspect of the sanguine temperament dimension. Factor III.1 which is characterized by low anxiety level and emotional stability also manifests no substantial behavioral variate loadings.

Social conformity factor C from the principal components solution includes a tendency to falsely represent oneself, fatigueability, inefficiency, tolerance of hostile action, feminine interests, affiliation, trust in other people, and fairly strong resistances to accepting one's own weaknesses or entering into meaningful relationships with others unencumbered by expectations. The rapid approach speed with respect to males is probably related to the defensive quality of the factor. A person with a fairly strong feminine identity who is unwilling to face her own weaknesses or accept others intimately might be expected to display some overt sign (rapid approach of males) to convince herself and others that she does not possess these negative qualities.

The behavioral variates failed to load on active defensiveness factor D characterized by ascendance, dominance, thoughtfulness and willingness to misrepresent oneself.

The last factor to be discussed is behavioral variate factor E from the principal components analysis. Since all of the personality variates failed to load on this factor, it may only be stated that women who tend to require a large personal space also engage in a large amount of eye contact. This conclusion is definitive only if personality variates are not taken into account since factor IV.0 loads on personal space and several personality measures but not eye contact. Perhaps this factor is indicative of the fact that proxemic behaviors are influenced to some extent, by variables other than those falling into the temperament realm.

In summary, the most significant finding in evaluating the female subjects data is that extraverted women who harbor feelings of resentment of hostility maintain a relatively large personal space. There is also some evidence to indicate that socially conforming women approach males rapidly and that high eye contact and personal space are related in women. The overlap of several variates between extraversion and stability factors renders the two hierarchies somewhat less distinct than the equivalent hierarchies identified in the male subjects data. Thus, proxemic behaviors in women are related to the personality characteristics extraversion and social conformity. A mutual interrelationship also exists between several of the proxemic behaviors.

Conclusions

An overview of all male and female data analyses yields several communalities with respect to personality variables and proxemic behaviors. Although the specific proxemic behaviors displayed (personal space, etc.) differs between male and female subjects, it does appear that the extraversion temperament dimension is an influential element underlying the emission of such behaviors. The data also supports the conclusion that proxemic behaviors are interrelated for both male and female subjects. Further, stability and need for self control in male subjects, and social conformity in female subjects mediate proxemic behaviors.

This study lends credence to the notion that proxemic behaviors in humans are influenced by personality traits or temperaments. Several animal studies (Marler, 1965; Jay, 1965; and Schaller, 1965) have shown that the proxemic behaviors eye contact and personal space play an important role in primate dominance-submission relations. This finding has been equated with human behavior based on studies which evaluated trait dominance with respect to proxemic behaviors (Exline, 1963; Butt and Fiske, 1968; and Beam, 1971). Although dominance does appear to be a relevant variable in human proxemic behavior, the complex social nature of human interaction dictates taking into account various other factors. The present study has suggested that the temperament extraversion, which is viewed as a person's social interest and activity including dominance, may place proxemic behavior in a somewhat different perspective. In other words, proxemics may be symbolic representations of social factors other than dominance per se. This statement is

supported by the work of Williams (1963) and Weinstein (1967) who equated personal space with extraversion-introversion and affiliation needs, respectively. The present study also supports the general finding that males and females display proxemic behaviors in different manners (Sommer, 1967; and Dosey and Meisels, 1969). For example, the specific proxemic behaviors displayed by extraverted males and extraverted females were demonstrated to be different. It was also shown that personality factors which influence proxemic behavior differ between men (stability and need for self control) and women (social conformity). Further, it has been demonstrated that although an interrelationship exists between the various proxemic behaviors, the specific nature of their interrelationships differs for males and females.

The relative contribution of personality variables in influencing the emission of proxemic behaviors may be estimated from the Multiple Group factor loadings on the behavioral variates. This statement is substantiated by the small variate variance associated with behavioral variates in the Multiple Group solutions (Appendix, Tables XIII and XIV, Systematic Variance Associated with Factors and Variates, Male and Female Subjects). In other words, the Multiple Group solutions are relatively uncontaminated by behavioral influences which were controlled in the study. It may, then, be estimated that for male subjects less than 13 percent of the variance associated with proxemic behaviors is accounted for by personality variables (Table I, Multiple Group Factor III.1, variate 21) and similarly for female subjects less than 47 percent of this variance is accounted for by personality variables (Table II, Multiple Group Factor IV.0, variate 20).

Based on the findings of this and other studies the following variates are suggested as being of relevance in mediating proxemic behavior: extraversion, stability, need for self control, social conformity, need for affiliation, dominance, sex and various other situational variables. It is thereby suggested that proxemic behaviors may be symbolic representations of these variables.

Since it does appear that relationships do exist in the form of factors among personality and behavioral variates, there is good reason to pursue this line of research further. Application might be made in the areas of abnormal psychology, particularly personality assessment and psychotherapy. If personal space, approach speed and eye contact do constitute symbolic forms of such personality characteristics as extraversion, stability, etc., then it should be possible to develop tests employing behavioral measures which unobtrusively evaluate personality traits. Further, persons behaving deviantly may be displaying subtle forms of symbolic behavior which elicit adverse reactions from other persons, thereby amplifying and complicating their inability to behave more adaptively. These subtle behaviors might be identified using techniques similar to the one employed in this study. This type of multivariate analysis could be used to evaluate a multitude of behavioral as well as personality variates in normal and abnormal populations. The identification of these subtle behaviors could lead to psychotherapeutic techniques aimed at modifying them.

CHAPTER V

SUMMARY

This study evaluated 40 male and 40 female undergraduate college students in terms of 19 personality and six proxemic behavior variates. Correlation matrices were calculated among the 25 variates for male and female subjects, and principal components and multiple group factor analyses were performed. Extraversion and stability hierarchies of factor loadings were identified along with several other factors not falling within the hierarchies. Several of the behavioral variates were found to load significantly on factors, yielding the following tentative conclusions: extraverted males tend to approach females with little hesitation; stable males tend to maintain close personal space with females unless they have strong masculine identity (in which case personal space is greater); males with high need for self control maintain greater eye contact with females, males who maintain a large personal space approach other males less rapidly and engage in less eye contact with them; extraverted women who harbor feelings of hostility maintain a relatively large personal space; socially conforming women approach males rapidly; and high eye contact and personal space are related in women. The findings of this study support the idea that proxemic behavior is influenced by personality traits.

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TABLE V

CORRELATION MATRIX (MALE SUBJECTS)

	7	6	19	23	11	4	1	18	8	15	3	5	9	10	12	21	13	2	14	16	24	25	17	20	22	
7		73	51	28	29	50	43	1	28	-1	9	16	26	5	6	11	20	11	26	10	-1	11	-19	-5	23	
6			40	41	16	40	37	16	21	22	3	-2	30	10	5	7	25	12	16	8	-4	16	4	9	12	
19				24	46	32	32	-37	1	-4	8	20	-8	-18	-19	-21	-39	7	47	20	17	2	-42	-14	5	
23					35	29	3	8	18	28	24	27	27	26	20	-18	13	27	14	10	14	28	5	-11	18	
11						10	-1	-19	-9	-15	18	38	-5	16	-10	11	-6	2	38	-8	10	19	-11	-3	20	
4							44	8	24	-10	7	7	21	14	14	-2	29	-2	18	4	16	4	-6	-25	19	
1								18	-7	-10	-28	-43	-37	-37	-43	16	-15	-13	9	-14	20	-10	11	27	12	
18									-7	15	-21	-27	11	14	-1	17	34	16	-15	-13	1	0	19	24	-8	
8										31	40	24	59	47	64	-23	32	55	50	63	-5	14	18	-17	11	
15											27	30	32	40	50	-30	-9	40	38	54	-3	-5	9	-18	0	
3												34	23	26	49	-15	13	41	28	36	16	23	-10	-3	0	
5													35	51	45	4	3	24	41	54	-5	16	-9	-17	0	
9														71	66	7	48	44	24	43	-12	18	7	-21	19	
10															55	7	46	39	25	38	-4	21	13	-19	-1	
12																-13	36	44	34	55	-8	-1	0	-28	0	
21																	30	-27	-39	-26	-23	-9	17	70	-15	
13																		18	-15	-6	-11	27	22	8	-3	
2																			57	64	18	31	1	-7	1	
14																				73	17	10	2	-24	19	
16																						1	13	13	-7	3
24																							51	-24	-10	13
25																								-14	7	4
17																									24	19
20																										-45
22																										

TABLE VI

CORRELATION MATRIX (FEMALE SUBJECTS)

	5	20	21	7	1	23	6	10	4	11	19	15	12	3	22	16	2	8	9	14	18	13	25	17	24
5		29	23	27	64	-4	4	26	-5	-24	28	-2	-9	-23	10	19	15	-2	-6	14	10	4	18	2	-27
20			91	28	32	-26	-5	18	-8	0	18	5	-14	1	-7	-18	-36	-23	-19	-15	11	-14	40	0	26
21				22	31	-28	0	25	-2	-5	24	9	-16	2	-6	-5	-45	-21	-16	-13	-15	-14	25	3	30
7					55	17	59	10	28	11	56	36	35	3	-9	35	30	42	21	35	16	-3	23	13	18
1						17	29	27	28	-15	52	19	9	-19	1	43	19	7	5	38	4	9	16	2	3
23							6	-24	33	-8	-9	-10	17	-21	35	27	36	9	31	21	32	12	8	-4	9
6								24	51	23	68	19	36	20	-22	38	26	30	22	35	28	17	5	42	7
10									6	7	15	-32	-54	-11	-21	-18	-19	-13	-50	-11	10	4	-7	28	-10
4										28	43	-7	49	12	-8	25	19	20	32	33	28	46	26	38	20
11											21	2	5	36	-12	-27	-20	-16	-22	-18	-31	7	6	-20	7
19												52	35	7	-2	51	25	25	30	49	18	18	7	31	6
15													34	30	35	47	19	25	20	29	-19	-27	-1	-20	26
12														28	-7	36	33	36	64	40	9	17	-1	3	-5
3															4	9	5	14	-4	2	-27	4	3	-24	11
22																25	26	-6	-8	-17	-10	-22	-8	-24	20
16																	67	67	61	76	24	24	2	18	12
2																		66	63	65	44	31	22	30	6
8																			64	68	35	39	18	34	10
9																				69	42	45	20	39	5
14																					36	50	8	31	5
18																						42	25	76	12
13																							-1	40	-23
25																								36	66
17																									24
24																									

TABLE VII

SYSTEMATIC ORTHOGONAL FACTOR LOADING EXTRACTION
MATRIX FOR MULTIPLE GROUP SOLUTION
(MALE SUBJECTS)

	* IV.0	III.0	IV.1	III.1	III.2
7 Sociability	1	0	1	0	0
6 Ascendance	1	0	0	0	0
19 Dominance	1	0	0	0	0
23 Approach Speed-Female	0	0	0	0	0
11 Thoughtfulness	0	0	0	0	0
4 General Activity	0	0	1	0	0
1 Extraversion	0	0	1	0	0
18 Self Acceptance	0	0	0	0	0
8 Emotional Stability	0	1	0	0	0
15 Altruism	0	1	0	0	0
3 Lie	0	0	0	0	0
5 Restraint	0	0	0	0	0
9 Objectivity	0	0	0	1	0
10 Friendliness	0	0	0	1	0
12 Personal Relations	0	1	0	1	0
21 PS-Female	0	0	0	0	0
13 Masculinity	0	0	0	0	0
2 Neuroticism	0	0	0	0	1
14 Anxiety Level	0	0	0	0	1
16 Personal Integration	0	1	0	0	1
24 Eye Contact-Male	0	0	0	0	0
25 Eye Contact-Female	0	0	0	0	0
17 Capacity for Intimate Contact	0	0	0	0	0

VII (Continued)

	IV.0	III.0	IV.1	III.1	III.2
20 PS-Male	0	0	0	0	0
22 Approach Speed-Male	0	0	0	0	0

* Factors listed in sequence extracted

TABLE VIII
 SYSTEMATIC ORTHOGONAL FACTOR LOADING EXTRACTION
 MATRIX FOR MULTIPLE GROUP SOLUTION
 (FEMALE SUBJECTS)

	*	IV.0	III.1	IV.1	IV.2	III.1
5 Restraint		1	0	0	0	0
20 PS-Male		0	0	0	0	0
21 PS-Female		1	0	0	0	0
7 Sociability		1	0	1	0	0
1 Extraversion		0	0	1	0	0
23 Approach Speed-Female		0	0	0	0	0
6 Ascendance		0	0	0	1	0
10 Friendliness		1	0	0	0	0
4 General Activity		0	0	0	1	0
11 Thoughtfulness		0	0	0	0	0
19 Dominance		0	0	1	1	0
15 Altruism		0	1	0	0	0
12 Personal Relations		0	1	0	0	0
3 Lie		0	0	0	0	0
22 Approach Speed-Male		0	0	0	0	0
16 Personal Integration		0	1	0	0	1
2 Neuroticism		0	0	0	0	1
8 Emotional Stability		0	0	0	0	1
9 Objectivity		0	0	0	0	1
14 Anxiety Level		0	0	0	0	1
18 Self Acceptance		0	0	0	0	0
13 Masculinity		0	0	0	0	0
25 Eye Contact-Female		0	0	0	0	0

VIII (Continued)

	IV.0	III.1	IV.1	IV.2	III.1
17 Capacity for Intimate Contact	0	0	0	0	0
24 Eye Contact-Male	0	0	0	0	0

* Factors listed in sequence extracted

TABLE IX

RESIDUAL MATRIX--PRINCIPAL COMPONENTS ABOVE DIAGONAL, MULTIPLE
GROUP BELOW DIAGONAL (MALE SUBJECTS)

	7	6	19	23	11	4	1	18	8	15	3	5	9	10	12	21	13	2	14	16	24	25	17	20	22
7	26	4	-1	-15	-8	-7	-6	-7	4	-3	0	5	5	2	6	1	1	6	-7	-2	-16	-10	-15	-9	1
6	15	31	4	4	-6	-15	-14	-6	-7	14	0	-4	4	8	1	-9	-2	6	-11	-5	-10	2	-5	-3	-7
19	-5	23	17	-2	-7	3	-7	-1	0	-4	-6	-3	10	-26	0	-1	2	2	-4	0	-9	-10	-9	-5	-9
23	-10	-18	28	62	6	-9	-2	9	-11	19	1	2	-8	16	-3	-11	-12	-3	-13	-7	-4	-1	15	8	-3
11	-8	6	2	80	39	-8	-1	12	-3	2	-6	-1	-6	8	-3	0	-1	1	16	-10	-11	-13	24	-7	20
4	1	-10	9	22	68	43	6	-8	2	-10	5	12	-3	18	10	5	3	13	0	5	-4	-16	-3	-5	-16
1	-10	-3	13	8	3	23	18	-1	3	2	6	-1	-8	-19	1	6	0	-4	3	1	19	10	1	6	-1
18	-5	7	-3	-1	-4	-13	17	56	18	13	-3	1	-8	24	-7	-8	-7	-18	9	-1	18	9	-15	6	-10
8	1	22	-23	10	-15	-11	10	89	34	22	6	-9	-1	19	2	-1	4	2	-1	0	-1	4	1	5	-3
15	4	-2	-2	-5	0	-2	-2	-10	31	46	1	5	-5	13	-1	-1	-10	9	-11	-10	7	3	-9	-1	-4
3	-5	9	-4	14	2	-5	10	23	-24	39	59	-17	-14	0	6	-3	3	-4	-9	-6	9	-1	-	12	0
5	3	-7	4	12	20	8	-11	-18	4	-8	76	32	-3	19	0	6	-4	16	-3	5	-10	-13	8	-12	10
9	5	-17	11	9	28	9	-15	-24	-13	-1	9	66	27	48	0	9	-9	5	-2	1	-10	-9	-9	-4	6
10	1	3	-4	-3	-16	-2	1	3	5	-2	-8	-12	14	70	24	17	47	-9	-7	-2	-1	16	13	-14	4
10	-3	2	1	4	11	-3	5	3	-1	12	-2	9	-9	21											

IX (Continued)

	7	6	19	23	11	4	1	18	8	15	3	5	9	10	12	21	13	2	14	16	24	25	17	20	22	
12	2	-5	3	-1	6	4	-6	-6	-4	-10	10	2	-5	-12	17	27	6	1	13	-4	-4	-3	-18	-14	-3	-6
21	5	5	-10	-18	7	-18	13	7	-4	-4	0	15	2	1	-2	76	20	-6	5	1	3	4	-12	-1	-3	21
13	5	15	-21	-1	-9	-2	-4	18	11	-10	7	-11	-2	-2	3	10	57	22	-5	8	2	-2	1	-1	-2	-9
2	3	9	-11	12	13	-5	2	17	5	4	8	-17	2	-2	1	-2	13	25	46	-5	-1	-20	-21	8	-12	6
14	-2	-6	8	-5	20	3	-1	-11	-1	1	-3	5	-4	2	3	-9	-9	-16	19	23	2	7	4	10	1	7
16	-1	-3	3	-7	-7	2	-2	-7	-4	-6	-6	11	2	1	-3	10	-4	-10	-3	13	15	9	14	3	5	5
24	-7	-1	8	16	3	5	2	-3	-4	7	19	-2	-4	1	3	-21	-8	5	1	-6	88	73	33	2	25	-11
25	2	9	-11	21	2	1	-3	0	8	-3	17	3	1	5	-6	-9	21	9	-10	0	45	87	65	5	23	-8
17	-3	23	-21	11	5	-9	11	12	7	1	-13	-8	6	7	-13	20	18	-4	0	4	-26	-10	88	63	1	29
20	1	15	-17	-3	-3	-18	17	26	2	-4	7	-4	3	3	-5	69	20	6	-14	8	-12	11	26	93	19	-1
22	5	0	-5	11	14	-2	-3	-13	3	1	-1	-3	10	-8	-3	-18	-11	-7	8	-2	8	0	19	-43	93	64

TABLE X

RESIDUAL MATRIX--PRINCIPAL COMPONENTS ABOVE DIAGONAL, MULTIPLE
GROUP BELOW DIAGONAL (FEMALE SUBJECTS)

	5	20	21	7	1	23	6	10	4	11	19	15	12	3	22	16	2	8	9	14	18	13	25	17	24	
5	34	1	8	5	-1	1	7	-12	-5	-10	4	5	-9	-12	6	6	7	3	-1	7	1	-3	-21	6	6	
20	49	24	17	-2	-6	-3	-10	14	-5	-4	-5	-7	12	5	-5	-3	3	3	14	6	0	17	-4	-5	-16	
21	-18	48	21	-10	-8	-4	-8	7	-1	-11	-2	-4	8	4	-3	7	12	4	16	6	-2	16	-15	-1	-8	
7	-23	37	41	38	-1	16	8	-1	-7	5	-11	-5	2	-10	-5	-13	-4	9	-6	-10	5	-13	0	-6	-2	
1	-16	0	-5	28	25	19	-4	1	18	7	-6	-9	4	-2	2	-3	1	-12	-5	-1	-7	5	6	-10	7	
23	13	-3	0	-17	23	70	10	-3	28	19	-6	-16	0	-9	17	-6	6	-23	-9	-9	3	-2	-2	-20	0	
6	6	-5	-3	8	10	81	31	-7	-5	-7	2	1	-6	-4	8	3	-2	-7	-9	-12	7	-21	-6	8	5	
10	-6	-8	-9	12	-7	-3	23	37	0	-2	1	-5	21	-12	-20	-8	13	-11	16	-1	0	9	4	-5	-13	
4	-9	-22	-16	-7	3	-10	4	33	43	2	-1	-11	11	-8	20	0	8	-18	-7	-7	-7	5	0	-9	2	
11	4	4	5	4	0	13	22	-18	-7	31	38	5	-5	-15	-11	12	-2	-12	-3	-4	-1	-2	6	11	-10	2
19	-11	4	0	10	-13	-9	-3	-1	-1	68	22	11	-6	-13	13	0	2	-11	1	-2	7	-3	-5	11	0	
15	2	3	5	-11	-6	-19	-5	4	-13	4	18	26	-9	-4	-1	-2	5	1	-2	2	11	-2	-5	13	3	
12	-12	-1	0	0	-9	-11	2	9	11	8	10	22	40	-8	-13	-13	10	-11	14	-8	2	-5	-1	-2	-13	
3	5	7	-1	11	0	4	-3	-15	14	-1	-11	-21	38	49	2	7	-13	10	-7	3	4	12	7	-2	-3	
	-13	5	-2	8	-4	-13	6	5	-2	32	-4	4	0	73												

X (Continued)

	5	20	21	7	1	23	6	10	4	11	19	15	12	3	22	16	2	8	9	14	18	13	25	17	24	
22	-3	-1	0	-7	5	34	-8	8	6	-6	2	8	-23	-5	84	55	4	-10	-10	-17	-16	7	10	-11	8	2
16	7	-7	1	-10	9	7	1	6	-2	-7	1	-1	-16	-4	16	18	19	2	6	-3	4	-4	2	-6	3	7
2	-14	-8	-16	3	-1	7	4	4	-2	2	-2	2	0	8	23	-1	25	26	-2	8	2	2	4	-11	0	-1
8	-6	-4	-5	15	-11	-13	5	4	-1	11	-4	4	1	9	-7	-6	-6	25	40	-1	4	-7	2	3	0	0
9	7	15	15	1	-2	5	-5	-17	4	-5	1	-7	17	-14	-15	-9	-8	-6	26	3	-7	6	-1	0	-12	
14	6	3	4	-8	5	-6	-4	4	1	-1	3	3	-2	1	-17	-1	-10	-6	-3	26	-8	8	-1	-6	6	
18	10	2	-3	4	-4	17	0	-5	-1	-27	1	1	4	-21	5	-5	6	-5	8	-4	62	27	-7	-10	5	-2
13	13	9	8	-10	8	-7	-13	-5	11	7	2	-5	8	10	-6	-4	-11	-1	7	8	1	54	45	0	-10	-6
25	4	32	17	7	-1	6	-9	-25	15	10	-6	8	3	10	2	-11	8	2	11	-10	9	-16	89	28	-9	-4
17	0	8	7	-1	-5	-14	0	-1	-6	-25	6	7	-2	-21	-1	-5	-1	0	11	-5	33	-6	17	46	22	1
24	-29	26	27	9	-2	8	-4	-8	11	5	-7	15	-16	5	19	1	1	3	-3	-3	10	-25	66	21	97	19

TABLE XI

SYSTEMATIC ORTHOGONAL FACTOR LOADING MATRICES
BEFORE ROTATION--MALE SUBJECTS
(DECIMALS OMITTED)

	Principal Components Solution					Multiple Group Solution				
	IV.0	A	III.0	III.1	B	IV.0	IV.1	III.0	III.1	III.2
7 Soc	64	00	34	45	07	89	20	03	12	-04
6 Asc	49	-13	32	57	09	85	-03	07	11	-19
19 Dom	83	07	19	-21	25	76	-18	-10	-23	23
23 AS-F	30	15	45	20	-15	37	-03	20	17	-03
11 Tho	48	56	19	-04	14	36	-21	-17	17	33
4 GA	49	-09	28	41	-29	49	69	04	24	01
1 Ext	61	-44	-26	39	17	45	65	-29	-36	04
18 SA	-23	-26	-05	55	-09	-08	27	-01	18	04
8 ES	-11	-25	76	11	03	20	17	79	06	01
15 Alt	-19	-38	56	-14	18	07	-11	73	-16	-19
3 Lie	-05	27	55	-17	08	08	-11	47	02	03
5 Res	-03	45	61	-21	25	13	-22	46	20	16
9 Obj	-26	06	73	31	-16	19	-08	60	68	04
10 Fri	-35	23	69	21	-08	-01	-02	57	68	12
12 PR	-39	-03	76	-01	-06	-03	01	84	31	-16
21 PS-F	-17	39	-29	61	40	-02	14	-29	36	-11
13 Mas	-33	22	29	68	-27	03	21	16	60	-05
2 Neu	08	14	-70	05	-12	12	-08	62	00	58
14 AL	33	-21	67	-29	28	36	00	57	-22	57
16 PI	-08	-26	75	-23	39	16	-06	83	-21	33
24 EC-M	34	12	08	-17	-33	05	16	-05	-07	29
25 EC-F	13	43	29	09	-23	11	-09	05	15	28

XI (Continued)

	Principal Components Solution					Multiple Group Solution				
	IV.0	A	III.0	III.1	B	IV.0	IV.1	III.0	III.1	III.2
17 CIC	-33	-34	02	34	15	-23	21	16	-04	01
20 PS-M	-14	17	-34	44	68	-04	00	-22	-15	01
22 AS-M	28	-19	18	01	-46	16	17	03	08	09

TABLE XII

SYSTEMATIC ORTHOGONAL FACTOR LOADING MATRICES
BEFORE ROTATION--FEMALE SUBJECTS
(DECIMALS OMITTED)

	Principal Components Solution					Multiple Group Solution				
	IV.0	C	D	III.0	E	IV.0	IV.1	III.0	III.1	III.2
5 Res	-47	21	46	-16	40	68	-07	-21	04	02
20 PS-M	81	07	-13	-15	25	64	-19	-11	-11	-23
21 PS-F	81	09	-10	-13	20	66	-30	01	-05	-25
7 Soc	49	21	01	57	-10	62	34	-07	46	04
1 Ext	59	02	-34	42	-34	69	38	-23	31	03
23 AS-F	-31	-05	-25	33	16	-15	29	-05	14	24
6 Asc	30	01	45	60	-19	34	37	60	40	02
10 Fri	-52	49	-13	15	30	62	03	27	-45	09
4 GA	12	-11	47	56	12	11	36	68	29	06
11 Tho	13	26	72	-11	-01	-04	34	32	-09	-31
19 Dom	49	20	17	63	-27	48	38	30	60	-07
15 Alt	13	77	-15	33	-03	05	-07	-21	78	-34
12 PR	-19	38	26	58	-04	-17	08	20	74	-09
3 Lie	-03	52	48	05	05	-11	-26	25	29	-21
22 AS-M	-19	42	-25	-02	17	-18	-09	-22	23	-15
16 PI	-06	24	-30	80	-14	12	-01	01	79	43
2 Neu	32	01	26	-75	-02	-07	15	-05	51	67
8 ES	-20	01	-02	74	04	03	-06	05	55	67
9 Obj	-32	00	-06	78	16	-20	05	10	62	54
14 AL	-07	-02	-09	84	-15	10	18	05	63	61
18 SA	-08	-61	-08	54	25	08	13	28	06	53
13 Mas	-17	-45	28	48	-13	-03	20	34	06	55

XII (Continued)

	Principal Components Solution					Multiple Group Solution				
	IV.0	C	D	III.0	E	IV.0	IV.1	III.0	III.1	III.2
25 EC-F	36	-09	-05	26	72	23	04	07	00	23
17 CIC	14	-63	15	50	31	18	13	51	00	48
24 EC-M	28	21	-02	16	81	04	00	07	15	-03

TABLE XIII

SYSTEMATIC VARIANCE ASSOCIATED WITH FACTORS AND VARIATES (MALE SUBJECTS)

	Principal Components Solution				Variate Variance	Multiple Group Solution					Variate Variance
	IV.0	A	III.0	III.1		B	IV.0	IV.1	III.0	III.1	
7 Soc					.74						.86
6 Asc					.69						.76
19 Dom					.83						.73
23 AS-F					.38						.20
11 Tho					.61						.34
4 GA					.57						.77
1 Ext					.82						.84
18 SA					.44						.12
8 ES					.66						.57
15 Alt					.54						.62
3 Lie					.41						.22
5 Res					.68						.34
9 Obj					.73						.86
10 Fri					.21						.80

XIII (Continued)

	Principal Components Solution					Variate Variance	Multiple Group Solution					Variate Variance
	IV.0	A	III.0	III.1	B		IV.0	IV.1	III.0	III.1	III.2	
12 PR						.73						.82
21 PS-F						.80						.25
13 Mas						.78						.44
2 Neu						.54						.73
14 AL						.77						.82
16 PI						.85						.87
24 EC-M						.27						.14
25 EC-F						.35						.10
17 CIC						.37						.12
20 PS-M						.81						.07
22 AS-M						.36						.07
Factor Variance	3.12	2.48	4.26	2.80	2.26	14.94	3.13	1.46	4.50	2.13	1.26	12.47

TABLE XIV

SYSTEMATIC VARIANCE ASSOCIATED WITH FACTORS AND VARIATES (FEMALE SUBJECTS)

	Principal Components Solution					Variate Variance	Multiple Group Solution					Variate Variance
	IV.0	C	D	III.0	E		IV.0	IV.1	IV.2	III.0	III.1	
5 Res						.66						.51
20 PS-M						.76						.54
21 PS-F						.73						.59
7 Soc						.62						.74
1 Ext						.75						.64
23 AS-F						.30						.22
6 Asc						.69						.76
10 Fri						.63						.66
4 GA						.57						.66
11 Tho						.62						.35
19 Dom						.78						.85
15 Alt						.74						.76
12 PR						.60						.64
3 Lie						.51						.27

XIV (Continued)

	Principal Components Solution					Variate Variance	Multiple Group Solution					Variate Variance
	IV.0	C	D	III.0	E		IV.0	IV.1	IV.2	III.0	III.1	
22 AS-M						.45						.16
16 PI						.81						.86
2 Neu						.74						.73
8 ES						.60						.74
9 Obj						.74						.59
14 AL						.74						.86
18 SA						.73						.39
13 Mas						.55						.38
25 EC-F						.72						.11
17 CIC						.78						.46
24 EC-M						.81						.04
Factor Variance	3.20	2.90	2.67	5.45	2.39	16.63	3.06	1.61	1.75	3.15	3.97	13.52

V I T A

Tommy Hugh Poling

Candidate for the Degree of

Master of Science

Thesis: PROXEMIC BEHAVIOR AND PERSONALITY

Major Field: Psychology

Biographical:

Personal Data: Born in Oklahoma City, Oklahoma, December 21, 1945, the son of Mr. and Mrs. Verne L. Poling.

Education: Graduated from Lawton High School, Lawton, Oklahoma in May, 1963; attended Cameron Junior College, 1963 through 1965; received the Bachelor of Science degree from Oklahoma State University in 1967 with a major in microbiology; completed requirements for Master of Science degree from Oklahoma State University in May, 1973.

Professional Experience: Psychology teaching assistant, 1970 to 1971; Psychometrist, Oklahoma Crippled Children's Society, 1971; practicum trainee, Payne County Guidance Clinic, 1971; Introductory Psychology lecturer, 1971 to 1972; practicum trainee, University Counseling Service, 1971 to 1972; NIMH Trainee, 1972 to 1973.

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