A COMPARATIVE ANALYSIS OF DYADIC SPATIAL INTERACTION VARYING RACE AND SEX

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This is to certify that the

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ABSTRACT

A COMPARATIVE ANALYSIS OF DYADIC SPATIAL INTERACTION VARYING RACE AND SEX

By

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The experiment tested the effect of race and sex on an individual's proxemic pattern in the front and rear. Five hypotheses were tested:

1. Members of different races will show different proxemic patterns as invaders of different races.

2. When the race is the same for invader and subject, Blacks will have a smaller proxemic pattern, i.e., allow the invader to come closer than Whites.

3. For each subject type the proxemic distance at which the invader is stopped will be dependent on the sex and race of the invader.

4. When the sex of the invader and subject are the same, the females will have the smaller proxemic pattern.

5. The proxemic pattern in the rear will be greatest within the groups.

The experiment followed a 2 (race of S) x 2 (sex of S) x 2 (race of E) x 2 (sex of E) x 2 (Front-Rear, repeated

measure) design. Subjects were given instructions that the experimenter was going to approach them from the front and rear, and they were to say, "stop," when the experimenter's approach made them feel uncomfortable.

No significant main effects were produced while a 4-way interaction yielded marginal significance. Front and rear summed data produced the finding that Black males allowed Black experimenters, irrespective of sex, to come closer than Whites. However, there was partial support in the direction of the hypothesis, that Blacks have a smaller proxemic pattern than Whites. There was a reversal of the hypothesis that the proxemic pattern will be greater in the rear than in the front. The lack of conclusive positive results in the experiment suggested that there is not a strong relationship between race, sex, and proxemics within the general culture as measured in the laboratory.

The proxemic pattern chosen by an individual can be influenced by his (her) personality. The Barron Ego Strength Scale and the Rotter Interpersonal Trust Scale were administered to the Ss immediately after each S left the experimental room. These measures were used to assess level of anxiety and trustfulness, which could contribute to the outcome of the proxemic distance chosen.

An overall experimental depression effect was observed with the Ss scoring more anxious and less trusting than the prior norms suggested on both measures. Along with this was a significant race effect which produced higher anxiety

scores and lower trust scores among Blacks. Even with these personality variables operating, Blacks still approached more closely to other presumably more anxious and less trusting Blacks than did Whites approach other presumably less anxious and more trusting Whites. This approach-invasion behavior finding provides some evidence for the presence of subcultural proxemic patterns; and they appear to be stronger than the effects of personality in this laboratory situation.

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(Malik Fufukka)

A DISSERTATION

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This manuscript is dedicated to

the life and memory of

George R. Fleming, Sr.

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INTRODUCTION

Just as animals have various distances which they maintain, from each other, man too has developed a uniformed way of handling distance from his fellow man and with his physical environment. In The Ego and the Id Freud wrote, "The ego is first and foremost a body ego; it is not merely a surface entity, but is itself the protection of a surface" (Freud, 1927). Many psychoanalysts (Hartment, et al., 1946; Bernfield, 1929; Schilder, 1950) have noted the importance of the body image to early ego formation. Bender (1952) and Schilder (1950) regarded an internal concept of the spatial organization of the world to be part of the body image. In considering the immediate body buffer zone as a separate facet of the body image, the body image would be considered comprised of not only an internalized projection of the body's boundary and position, but also a sensitized projection of the immediate area around the body. The body-buffer zone concept suggests that one's concept of self can also extend into nonmaterial space (Horowitz, Duff, Stratton, 1964).

Hall (1966) identifies man's distance sensing system as intimate, personal, social, and public zones of interaction (Appendix A). Along with Bender and Schilder, Hall contends that these distance sensing processes are outside of consciousness. However, he believes man's use of space to be

incorporated in his cultural expression. Proxemics is the term Hall uses to study the utilization of space in a particular culture.

The specific distance chosen for interaction depends on the relationship of the interacting individuals. Where people stand in relation to each other signals their relationship, or how they feel toward each other, or both. This was the body buffer zone facet of the body image; it has a transactional quality. It uses a nonverbal language transmitted and encoded by individuals spontaneously. Instrumental or expressive acts occur when one person's system sends a message to influence the distance maintaining behavior of another person around him. The management of a person's body buffer zone and its disposition in space with respect to the body of the person to be influenced form the nonverbal message system. Some or all of the encoded information must be read by the other person for the message system to be complete. Thus its' size, shape, and penetrability would depend on immediate interpersonal events as well as on the current ego functioning and motivational state of the individual (Proshansky, et al., 1969).

This all happens in accordance to the proxemics of the culture. Hall (1966) speaks of the differences throughout the world and makes special note of the differences within America. He notes that American non-whites have different proxemic patterns. He believes the zones of

interaction to be the same but the distances within them are not. However, this hypothesis was never tested.

It is the investigation of this hypothesis and the examination of various parameters which may affect it which is the primary focus of this dissertation.

Social Schemata Research

Research other than Hall has indicated that norms for social schemata vary with the culture and the degree of indoctrination into the culture. Little (1968) studied variations in social schemata across six cultures. Men and women in six countries placed pairs of dolls, the same sex as themselves, on a flat field. There were three degrees of relationships (friend, acquaintance, and stranger) and three degrees of pleasantness in conversational topics to yield nine sets of instructions for the appropriate interaction. Friends were expected to interact at a closer distance than acquaintances, and acquaintances were expected to be closer than strangers. Members of various cultures differed in desired closeness regardless of instructions. Greeks placed the interacting pairs closest, Americans and Italians were next, while Swedes and Scots placed the pairs farthest apart. Despite cultural differences, there was a differential influence of the subjects sex, intimacy of acquaintance, and pleasantness of conversational topic within each culture.

Kuethe and Stricker (1963) investigated the influences of sex upon social schemata in American culture. They had their male and female subjects form same sex and mixed sex groups by placing figures on a flat surface. The results showed that women applied more idiosyncratic schemata than men and that women separate male-female subgroups, while men organize the figures into a single group which included male-female subgroups within it. Fisher (1967) reviewed Kuethe and Stricker's work and asked whether the effects reported were affected by the perception of the person or by the response set upon which the person's actions were based. Fisher's finding leads to the interpretation that "social schemas operate on the perceptual meaning side" (p. 13). The sex differences were interpreted as different ways in which males and females approached the same task of grouping sex-identified figures.

In a 1968 study, Little, Ulehla, and Kenderson similarly determined that the distance placed between plexiglass human profiles was affected by the degree of acquaintance assigned to the figures. The effect was such that the distance decreased with increased acquaintance. Levinger and Gunner (1967) also found that, when a silhouette figure was described as a friend, the figure was placed significantly closer to a "self" figure than when described as a stranger. Levinger and Moreland (1969) replicated this finding.

Mehrabian (1968a) determined that the closer the distance between two persons conveyed by a photograph, the

greater the positive attitude rated as being conveyed. Mehrabian also found that college students asked to portray different attitudes maintained closer distance to other people in positive affect situations. Similarly, Mehrabian (1968b) ascertained that distance was a decreasing linear function of liking.

Guardo (1969) found that the distance placed between silhouette figures decreased with increased acquaintance. The distance between the figures was found to correlate very highly with their rating of acquaintance.

Long, Henderson, and Ziller (1967) studied originality in children and its relation to distance placed between geometric symbols representing the self and other people. Children displaying high originality were found to use less interpersonal distance than children low in originality. Tolor (1970) found that unpopular children placed significantly less distance between abstract designs and photographs of children than did popular children.

Frede, Gautney, and Baxter (1968) studied the relationship between students' body barrier scores on the Holtzman Inkblot Test and the distance placed by them between figures. It was found that high barrier Ss tended to place NAPS characters closer to each other and expressed more approach and overall incidents of interaction than did low barrier Ss. Dosey and Meisels (1969), however, report only chance correlations between body barrier scores of

undergraduates and their interpersonal distance as measured by three separate methods.

Weinstein (1968) investigated the relationship between academic achievement and interpersonal distance. Those students who place less distance between self and mother figures than between self and father were determined to be superior in academic achievement.

Norum, Russo, and Stommer (1967) studied preschool and public school children who were told to engage in different activities. The results indicated that in the cooperative situation, side-by-side seating was seen; in the competitive condition, corner seating was observed, and in the co-acting condition, distance seating predominated. When cooperation was stressed, Ss tended to sit alongside a decoy, when competition was stressed, most of the Ss sat opposite. Little (1965) indicated that figure placements were furthest apart when an office waiting room background was used, with a street corner or similar open air setting eliciting the closest interpersonal distance placements.

Conclusion

When individuals use figures to represent social interaction, personal space considerations are observed.

Nonverbal Behavior and Personal Space

Several studies have explored the relationship of interpersonal distance to such other aspects of nonverbal behavior as facial expressions and eye contact. Smith (1953)

found that faces which were seen as friendly or pleasant were set larger, thus subjectively closer, than faces regarded as unfriendly or unpleasant.

Studying eye contact and interpersonal distance, Argyle and Dean (1965) hypothesized an "equilibrium theory of intimacy." Hypothesizing that if the spatial proxemity between people was increased, eye contact would be reduced. The hypothesis was confirmed. This finding was replicated in a 1969 study by Goldberg, Kiesler, and Collins.

Fleming (1972) found the facial expression of threat to produce a significant spatial proxemity increase, over stimuli of equal stimulus value that were not perceived as threatening. The experiment tested the effect of approach behavior of isolated abstract patterns derived from facial threat displays. It was hypothesized that such abstract patterns would produce a greater distance response.

Sommer (1967) observed seating behavior in a university reference room. The first people to enter tended to sit at empty tables. People tended to avoid seats adjacent or opposite to someone already seated. Sommer also found that end chairs were preferred for avoiding distractions while middle chairs were preferred if S wanted a table to himself. Sommer (1961) found that designated leaders preferred the end positions at a table, with other group members sitting close by. Group members tended to sit opposite or across from the leader rather than alongside him. Sommer also determined

that when pairs of people were asked to sit on couches placed at varying distances from one another, five and half feet seemed to be the limit for comfortable conversation in the situation. This finding is shared by Hall (1965).

In a 1965 experiment, Rosenfeld found that approval seeking Ss positioned themselves significantly closer to a confederate than did approval avoiding Ss. This finding is in accord with a study by Danskin, Kennedy, and Friensen (1965).

Conclusion

These studies show that individuals express themselves nonverbally with space. Instrumental acts occur and are expressed in a coded message to another individual. The message is sent to affect the distance maintaining system of the other.

Human Crowding Research

The concern of most early laboratory studies of human crowding has been to discover whether there are any invariable consequences of crowding. In these experiments there are suggestions of behavioral effects that were similar to those found in animals. The effects however are neither as consistant nor as dramatic as those obtained in animal studies.

A study of interest, although social behavior was not directly measured, was conducted by Smith and Haythorne (1972). In this study, number and space were varied independently

although within extremely narrow ranges. The groups were composed of either two or three men who lived for 21 days in either crowded or uncrowded conditions. The space available in the two crowding conditions was either approximately 70 cubic feet per person or approximately 200 cubic feet. Two major findings related to these variables emerged: (1) two-man groups were less stressed, less annoyed and adapted better, (2) group size interacted with crowding in such a way that crowded, three-man groups were the most stressed and worst adapted of groups.

A somewhat more controlled although rather artificial study of interpersonal attraction, affect, and crowding was carried out by Griffitt and Veitch (1971). Using the Byrne paradigm (1969), similarity of attitudes was manipulated by giving the subjects a questionnaire containing attitude ratings of some unknown, same-sexed person. The attitudes were matched with the subjects' own answers to the questionnaire so that the proportion of similar attitudes was either high or low. Subjects' liking ratings in crowded conditions showed significantly less attraction toward both similar and dissimilar others. Crowded subjects also reported more negative personal affect and less positive responses to the experiment and the room. In this study, crowding was manipulated by holding space constant and increasing the number of subjects in the group.

Freedman, Klevansky and Ehrlish (1971), based their experiment on the social facilitation literature (Zajonc, 1965)

indicating "that density may function as an aversive stimulus to arouse drive." Drive, then, should facilitate performance on simple or well learned tasks and debilitate performance on complex or novel tasks by energizing dominant responses. Number of subjects and space per subject were manipulated independently although conditions emerging were not completely comparable in terms of square feet per person. The two sized group contained either five or nine people in rooms of 35, 80 or 160 square feet. A series of group and individual tasks varying somewhat in complexity were performed during each experimental session.

In these three experiments, no differences between conditions were obtained for crowding, task type or an interaction of the two. The authors conclude that density per se must not be aversive or drive inducing when other physical comforts are not impaired.

Glass and Singer (1972) found in numerous studies that unpredictable or uncontrollable noise does not greatly affect task performance in the stressful situation but does interfere with post-stress performance. The Glass and Singer tasks were of two kinds: a dual vehicular steering and backward recall and pronunciation task, and a high-speed pursuit motor task. The Glass and Singer findings suggest a possible qualification of the crowding non-results that Freedman et al., (1971) recognize also: "the experimental situation may have eliminated any stress effects of crowding because

of its extremely structured and controlled nature." Indeed the effect of focusing on the tasks may have been to make the subjects unresponsive to the crowded situation. Secondly, the literature on social facilitation reports effects based on performance of clearly simple or well-learned versus clearly complex or novel tasks. All the tasks employed by Freedman et al., appear to be in a middle range of difficulty. Nor were the most complex tasks, for example, counting irregular clicks, as complex as the complex tasks that Glass and Singer found to be susceptible to the debilitating effects of uncontrollable or unpredictable noise.

Generally, it must be concluded with the authors that the drive facilitation of dominant responses explanation seems inadequate at present as a key to understanding crowding phenomena. A social and anti-social behavior as well as feelings of stress and annoyance are not obviously dominant responses for most individuals. In the course of further investigations, performance on tasks may be shown to be affected by crowding, but the most striking reactions to crowding quite probably are in the realms of affect and social behavior.

Conclusion

The reliable effects of human crowding, if any, much less the critical aspects of a crowded situation leading to these effects, have yet to be discovered. The roles of

spatial restriction and of number cannot be inferred or even distinguished in the studies so far.

Personality and Personal Space

It is expected that the perception of people and events in the surroundings, the tolerance limits of the individual, and his reaction to a situation would become involved as the person's system noted a change, assessed whether or not it called for action, and responded to the situation if a correction was required to maintain the inner state. If a person's system is different from other people's systems in the same category, i.e., a boy in a group of young boys, or a black boy in a group of young white boys, then the transactions in that person's system may dictate different corrective measures to maintain the inner state. Thus a person's needs, personality traits and social learning comprise the framework against which this situation is judged.

Smith's (1954) results show the relevance of personality characteristics, as they affect personal distances chosen. Subjects who were better adjusted as measured by the Bell Adjustment Inventory and more secure in terms of the Knutson Personal Security Inventory made photographic images larger and seemingly closer than subjects not as well adjusted. Luft's (1966) research illustrates the influence of personal characteristics on the perceptual process. He related self-to-other evaluations and to anxiety and authoritarianism.

Highly anxious subjects judged the distance between themselves and another as smaller than it actually was and smaller than did less anxious dyad members. Those who rated others highly tended to have high self regard and to be low in self critical attitudes.

Fisher (1967) found that disturbed children placed more distance between figures than did normals. Scores of the mothers of the disturbed children on a scale of hostility were positively correlated with the distance placements. Weinstein (1965) determined that disturbed children placed mother and child figures further apart than other pairings, in contrast to normals. The disturbed children placed human figures further apart than geometric shapes, another characteristic not found among the normal control Ss. It was concluded that emotionally disturbed children construe human beings as separate and more negative than normal people regardless of age.

Tolar and Donnon (1969) compared psychiatric patients who had been hospitalized for over three years with patients hospitalized less than three months. The latter patients placed more distance between cut-out figures than did the former. Tolar and Orange (1969) investigated the interpersonal distance of disadvantaged (mixed group of non-whites) children. These children were found to be more variable in their distance placements of figures and to place social stimuli further apart than advantaged children, mostly White.

Hobbs (1966) noted greater distance placements by disturbed children prior to a treatment program, but found that the disturbed children more nearly approached the interpersonal distance behavior of normal children following treatment. One study is reported in which no significant differences in interpersonal distance between normal and disturbed children was found. Tolor (1968) found no systematic differences between the groups except that the disturbed children displayed less overall accuracy in distance judgments than the non-disturbed youngsters. Higgins, Peterson, and Dolby (1969) determined that subjects with poor social adjustments placed the son figure closer to the father than to the mother, while the opposite was found for subjects with good social adjustment.

Hutt and Vaizey (1966) observed normal and brain-damaged children during free play in groups of less than six, seven to eleven, and over twelve. The same 29 x 17.5 feet playroom was always used. Normal and brain-damaged children became more aggressive and less sociable in larger groups while autistics became more withdrawn, spending more time near the boundary of the room.

The literature on personal space offers some additional cues to possible mechanisms operating in crowded situations. Felipe and Sommers (1966) have demonstrated that people flee from invasion of the space radiating two or three feet out from them. Both male mental patients and female users of a

library quickly left their seats when an experimenter of the same sex sat down too close to them. Comparison groups of other patients and library users, who were not approached, occupied their seats significantly longer. Since that study, others have attempted to clarify psychological states, personal attributes and situational variables that affect people's preferences for maintaining distance from others. Horowitz, Duff, Stratton (1964), using floor tiles as a measuring scale, studied normals and schizophrenic subjects. They asked the subjects to signal when they felt uncomfortable because of the presence of the experimenter. They found the greater the perceived threat the greater the safety zone required by the subject. Designating the distance chosen as the body-buffer zone, they observed it increased for people in authority and decreased for inanimate subjects and between people who like each other.

One variable that seems to increase the desire for spatial separation from others is the interpersonal evaluation of stress. The experimenters who employed this variable conceived of it simply as stress. However, one study manipulated such stress by telling the subjects they were to be evaluated on personal, especially sexual, attractiveness. Dosey and Meisel's (1969) subjects approached those who were to evaluate them significantly less closely than control subjects who received more neutral instructions. The study found that, the closer to the instructor the subjects sat,

the better the evaluation they expected to receive. They also found that college students whose physical attractiveness was called into question used larger spatial distances than peers in the nonthreatened control group.

Several studies have dealt with the relationship between liking and interpersonal distance. The findings indicate that the more individuals like each other, the closer their interpersonal distance. King (1966) found that the approach distance of kindergarten children to other children serving as confederates was significantly related to previous friendly and unfriendly acts the confederates had been observed to manifest towards the subjects. Kleck (1967) found that the distance placed between photos of fellow students was significantly related to liking as determined by a questionnaire.

Interpersonal distance also appears to effect both the communication of and receptiveness to verbal information. For example, people in circularly arranged discussion groups, talk more to group members opposite them (Steinzer, 1950). Further, Albert and Dabbs (1970) report difference in attitude change as a function of communicator's distance from the subject, such that subjects were less persuaded the closer the communicator sat. Subjects reported paying more attention to the communicator's physical appearance and less to the communication in both the distant and close conditions compared to the medium distance. Both differences were greater for subjects in the closer condition. These findings

suggest that subjects may be resisting the influence of others physically close to them by directing less conversation to them.

The variables of introversion and extraversion have also been investigated with respect to interpersonal distance in several unpublished studies summarized by Latt, Clark, and Altman (1969). In the study it was determined that extraverts are interpersonally closer than introverts.

Conclusion

Quite a number of studies have investigated the interpersonal distance of individuals having various personality differences. In general, the findings indicate that personality abnormality is associated with the use of inappropriate interpersonal distances.

Similarity and Personal Space

In general, similarity seems to increase a person's expectation of or tolerance for spatial closeness. Lott and Sommer (1967) found that in two questionnaire studies of students expectations for seating arrangements, more physical closeness was expected with peers than with others of higher or lower status. In their experimental study they observed actual seating behavior after introducing confederates as either a professor, another similar student or a freshman who was doing badly in school. Sex of the confederate was another factor in the experiment. Seating behavior followed basically the same pattern that it did in the

questionnaire studies. Inspection of the data tables reveals a tendency for subjects to sit closer to low status than to high status confederates, even though the authors do not comment on this trend. Liepman (1970) constructed a forced choice seating arrangement and required white female subjects to invade the personal space of one or two confederates. The choice was between black and white females, white females or males, and black or white males. The results suggest that these subjects preferred to approach the various confederates in the following order: white females, black females, black males, white males, only the effects for sex were significant.

Berg, Stark, and Jameson (1966) noted the effect of stranger's presence on the spatial behavior of preschool children and their mothers. These authors found that for most of the children in their sample, the stranger's presence led to the children staying closer to the mother. For some children, however, the investigations found no such effect.

Conclusion

These results all suggest that a similar other is more approachable. There is also a suggestion that persons who have less status in our society are somewhat more approachable than those who have more status. Freshman students who are doing badly in school, females, and black males seem to be somewhat less intimidating than persons having the opposite characteristics.

The Problem

Before we can study the effects of restrictions of personal space on individuals, we must be sure the proxemics we choose are accurate. If we cannot anticipate at what point an individual's personal space is violated, we cannot measure the variables that restrict the individual. At this point it is only speculation that the variables which influence tolerance of physical closeness or spatial restriction have the same effect for all individuals throughout the general culture.

Hall (1959, 1966) hypothesized how close individuals habitually position themselves in face to face encounters while talking is culturally determined and highly variant from culture to culture. He has also proposed that such differences are learned at an early age and are basic to culture and subculture. The implication is that subcultural proxemics are not likely to change once they are acquired; thus they become rather permanent barriers to intergroup communication (Hall, 1966). Hall observed that non-white subcultures require more personal space to interact in than do Whites. Hall provides no empirical data to support his conclusions. He relies on personal experience and numerous field observations.

Further research by Willis (1966) and Baxter (1970) gives support to Hall's position. Willis found that the initial distance chosen for interaction of Whites was slightly less than that of Blacks. In establishing these

findings Willis did not control for situation or age of subjects. His data was taken while his subjects were in public areas as well as at home. There was no distinction made between verbal and nonverbal interaction data. Verbalizations allow an individual who is being approached to assess an intrusion condition and respond accordingly (Hall, 1963; Scheflen, 1972; Sundstrom, 1973) as well as, determine the quality of a relationship within the dyad or group. Baxter found that Mexican-Americans "stood closer than 'Anglos' who, in turn, stood closer than Blacks." Baxter made his observations in a zoo setting, scoring the proxemic pattern exactly ten seconds after the subjects arrived at his observation point, whether they were talking or not. Without a distinction between verbal and nonverbal observations, as well as other factors, Baxter's findings are questionable. However, Baxter made his observations with children (5-10 years of age) and adults, and felt his results warranted generalization across indoor and outdoor locations as well. Neither Baxter or Willis reported the observed socioeconomic class of their subjects.

Jones and Aiello (1973) observed proxemic behavior of interacting, first-, third-, and fifth-grade children in a classroom setting. The socioeconomic status was varied along the lines of Hall's greatest distinction of difference in proxemic patterns, i.e., (upper) lower class Blacks and (middle) middle class Whites. The observations were taken

in a simulated classroom situation between same-sex dyads, who were encouraged to talk. The interaction was scored on a system similar to Hall's (1963) scales used to score the quality of proxemic interaction. As in Jones' previous study (1971), Jones and Aiello found that Blacks stand closer than Whites at the earliest grade levels. In the 1973 study this difference disappeared by the fifth grade. The results indicate that while subcultural differences in distance and axis (shoulder orientation) are learned early in life, only axis remains as a possible communication barrier between Blacks and Whites in the later elementary school years (Jones and Aiello, 1973).

Krupka (1970), in an unpublished doctoral dissertation, found the continuation of cultural differences and sex specific responses reported by Jones and Aiello (1973), and by Liepman (1970) in college students. Krupka was interested in the establishment of human territoriality and the consequences of its violation. College students in dorm grills, lounges, the library, and other places who sat alone were approached. The subjects were not aware of their participation in the experiment. The interaction was rated for amount and kind of contact made by the "stranger" experimenter. Nonverbal movement of the subject was observed and scored as well. The evidence of this study confirms the assertion that invasions of even relatively inoffensive types, as sitting next to someone, can be sufficiently stressful enough to set off a threat reaction. Krupka's

data indicated the amount of reactivity is affected by the interaction of sex and race of the victim as well as sex and race of the invader. These findings correlated with Liepman's in relation to race, i.e., that white male invaders were significantly more likely to affect withdrawal with victims of either race than were black invaders.

Although field observations give some support for Hall's idea, the research that has been conducted in the laboratory situation is inconclusive (Forston and Larson, 1968; and Watson and Graves, 1966) and done with different nationalities or subcultures other than Blacks, i.e., Americans of African descent. In an attempt to extend the research in this area, the present study investigates the effect of an invasion condition in which an individual is given the freedom to halt the invader and maintain the proxemic area or body boundary he (she) desires in the front and rear. The resulting distances will be examined by race and sex between Blacks and Whites.

Five hypotheses will be tested.

Hypothesis 1: Members of different races will show different proxemic patterns to invaders of different races.

Hypothesis 2: When the race is the same for invader and subject, Blacks will have a smaller proxemic pattern, i.e., allow the invader to come closer than Whites.

Hypothesis 3: For each subject type the proxemic distance at which the invader is stopped will be dependent on the sex and race of the invader.

Hypothesis 4: When sex of the invader and subject are the same, the females will have the smaller proxemic pattern.

Hypothesis 5: The proxemic pattern in the rear will be greatest within the groups.

METHODS

Subjects

Subjects were selected by race (Black or White) and sex (male or female), with 24 Ss of each race and sex combination. These Ss were students enrolled in introductory psychology courses at Michigan State University during the winter term of 1975. They were recruited by an experimenter who spoke at the beginning of class asking for volunteers for an "Urban Areas Experiment."* The experimenter said:

> I am recruiting students from urban areas in Michigan like Detroit, Flint, Lansing, Grand Rapids, and other areas of the United States like New York, Gary, Ind., Chicago, Toledo, Atlanta, Boston, L.A., and Washington, D.C. to participate in a psychological experiment.
>
> The experiment will take up a half an hour of your time and for your time you will be paid $2.50 or credit. If you are interested, there will be a sign up sheet outside in the hall after this class. Thank you.

The Ss who volunteered were asked to fill out a General Information Sheet (see Appendix A) which asked for their name, telephone number, student number, hometown, ethnic origins, and the days and times they would be available for participation in the experiment.

Blacks and Whites were chosen according to the designation given for ethnic origins and hometown. Whites were

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*This title was given in order to attract a larger Black population.

matched with Blacks so that all Ss came from large urban areas. Ss were telephoned and informed of the time they were scheduled and the location of the experiment.

Experimenters

Experimenters were selected for race and sex combinations with two Es for each combination. The experimenters were identified as to condition, i.e., the Black male condition, the White female condition. Each experimenter was used in all possible subject combinations of race and sex. Two separate experimenters were used to insure that the results were not a reaction to one stimulus (person). The stimulus value of the Es within a condition was matched for moderate height, pleasant appearance, and physical attractiveness. The Es were trained on the procedure and control factors of the experiment. The Es did not initiate or participate in verbal interaction with the subjects during the experiment. If an experimenter was acquainted with any of the subjects he or she invaded, that subject was not used in the experiment. The Es had as many different subject types as possible scheduled in an hour and the Es alternated.

Apparatus

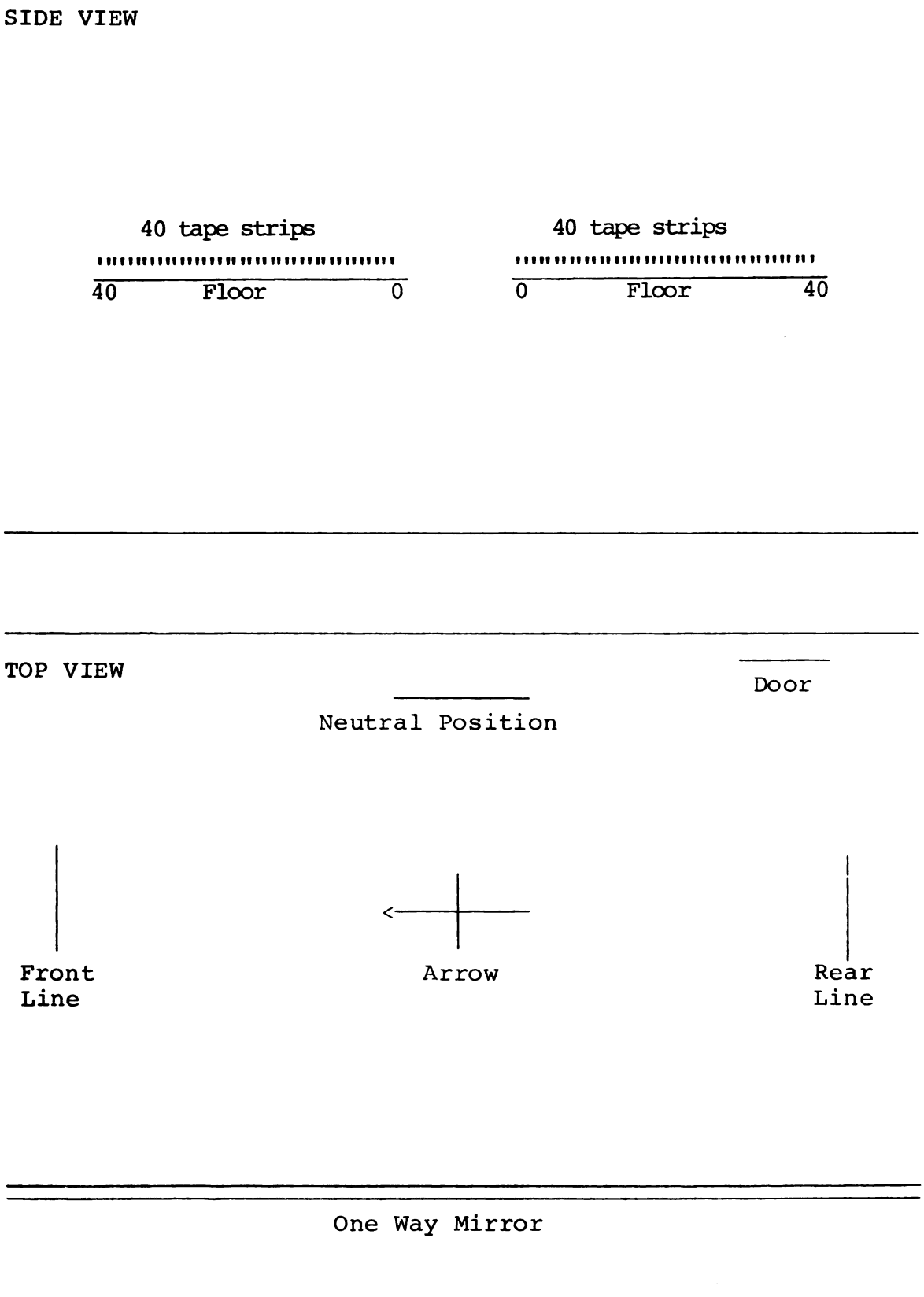
The experiment room measured 38 ft. x 17 ft. and was empty and evenly lit by fluorescent lights overhead. A 1 ft. long arrow was taped to the floor in the middle of the room and was parallel with the length of the room. In the middle

of the arrow a perpendicular line 6 in. long was placed, so the Ss could put their feet on the line and face in the direction of the arrow. 10 ft. 4 1/2 in. directly in front of the arrow was placed a 9 in. line, perpendicular to the arrow. This line will be called the Front Line and served as a starting point for the E when the approach came from the front. Exactly the same distance to the rear another line was placed. This line was called the Rear line and had the same function as the Front line. Against the right wall the two walkways were established and marked off by 40 narrow strips of masking tape, 3 in. apart and 1 1/2 in. up from the floor. This series of tape marks had been marked from the arrow out to the front and Rear lines by consecutive increasing numbers to form the scale of distance. The 9 inch distance between the scales was allotted for the Ss shoes (see Figure 1).

Each S was observed through a one-way mirror. The mirror was on the left wall and extended the entire length of the wall. An observer unaware of each condition was trained in determining the Ss responses and viewed the experiment from behind the one-way mirror.

Two personality measures (Interpersonal Trust and Ego Strength, see Appendix C) were administered to the subjects immediately after they left the experiment room.

Figure 1


SIDE VIEW
40 tape strips
40
Floor
0
40 tape strips
0
Floor
40
TOP VIEW
Door
Neutral Position
Front Line
Arrow
Rear Line
One Way Mirror

Procedure

The E greeted the S outside the experiment room saying, "Are you here for the Urban Areas Experiment? . . . Come with me." Then the E led the S into the room. When the door was closed the E requested the S to place their hands by their side and put their feet on the line facing in the direction of the arrow with the line positioned in the middle of the S's feet. The E instructed the S to move up or back if he was out of position. These initial instructions were given while the E was at the door. The E then moved to the Neutral Position, facing the S and against the right wall between the two zeroes of the distance scales. From the Neutral Position the E told the S what was required of him (her) in the experiment.

> I will be approaching you and I want you to tell me to stop when my approach or closeness begins to make you feel uncomfortable. If when I stop my final position is too close, you can tell me to move back. Do you understand?

If the S did not understand what was required of him or her, the E repeated the instructions and assisted the S without giving any more information than in the original instructions.

The order of the four approaches by the E were Front, Rear, Rear and Front. After the S acknowledged an understanding of what was required of him the E, from the Neutral Position, said, "I will approach you from the Front." The E then walked to the Front starting point and said, "Ready?"

When the S indicated that he was, the E would begin the approach. The E approached the S with their hands at their side, while taking normal steps and keeping their eyes straight ahead with the absence of emotion on their faces. The E would only stop upon the S's signal, and moved back and forth as much as necessary to satisfy the S. When no signal to stop was given the E proceeded with the approach until the E's shoes touched the S's shoes (a zero score). The Es held their final position for a three count, so that the measurement could be taken by the observer.

The E then returned to the Neutral Position and informed the S; "Now I will approach you from the rear." The E then proceeded to the Rear starting position. When there the E informed the S that, "keeping your hands by your side and your feet in the same direction, you can look at me if you like. Ready?" Upon the S's signal the E began the approach. The E stopped when told, and then returned to the Neutral Position. The same approach pattern was used for the remaining Rear-Front repeated measures. The E's walking style and rhythm while moving between Front and Rear positions was the same as the one used on the approach of the Ss.

When the E completed the final Front approach, the E escorted the S to a table at the back wall of the room. There the E picked up the personality measures, noted their name on it, gave it to the S, and said, "This is the second part of the experiment. Here is the general opinion survey (see Appendix C) for you to fill out. Read the directions

carefully." The E then escorted the S to a nearby testing room where the S alone and undisturbed completed the personality measures. The E pointed out the posted directions that told the S where they are to turn in the answer sheets, be paid, and be debriefed.

At the end of the expeirment the S's were paid or given class credit for participating in the study. Each S was also debriefed, i.e., given a short explanation of what had occurred. S's were then thanked for their participation and asked to maintain secrecy in order not to jeopardize the results of the experiment.

RESULTS

Distance Scores

A 2 (race of S) x 2 (sex of S) x 2 (race of E) x 2 (sex of E) x 2 (Front-Rear, a repeated measure) analysis of variance of the distance scores was performed. Summed data (Front + Rear distance scores) were used in the analysis. Preliminary inspection of the data indicated no nested effects within sex and race of the E. Therefore, pooled error terms, that is Ss within conditions, were used in the analysis. The ANOVA revealed no significant main effects or interactions.

A visual examination of the data, however, revealed that a large number of Ss generated zero distance scores on both the Front and Rear repeated measures. Each condition of the design generated at least one single zero distance score and 16 Ss produced zero distance scores on both the Front and Rear measures. The zero distance score was most prevalent for the Rear measure, a finding that was opposite to the prediction of Hypothesis 5. The distribution of the sixteen zero distance score Ss and their Rotter Interpersonal Trust Score means are shown in Table 1. A t-test was done to compare these S's personality measure scores with all the remaining Ss; this test indicated a significantly higher score on the Rotter Interpersonal Trust Scale

Table 1. Rotter Interpersonal Trust Scale Means for Zero Front and Zero Rear Distance Ss and Remaining Ss.

	Black		White	
	Male	Female	Male	Female
Mean of Ss with zero distance score (N=16)	65.17 (N=6)	59.00 (N=4)	70.00 (N=5)	70.00 (N=1)
Mean of Ss with a measured distance score (N=80)	55.94 (N=18)	55.65 (N=20)	63.21 (N=19)	60.96 (N=23)

(t = 2.41, p = .02) for zero score Ss. Therefore, their distance scores were not as influenced by the experimental treatment and thus are not as usable, so these Ss were deleted from further analysis.

Table 2 shows the revised distance score cell means (i.e., with the zero-score Ss' data deleted). A repeated measures, unequal n analysis of variance of these data yielded no significant main effects, but it did show a marginally significant ($F = 3.53$, $df = 1/64$, $P < .06$) 4-way interaction. An analysis of the simple effects underlying this interaction, shown in Table 3, yielded one significant finding: Black male Ss allowed Black Es, irrespective of sex, to come closer than White Es ($F = 5.00$, $df = 1/64$, $P < .05$).

The major hypothesis was that the race and sex of the dyad would interact so that the smallest distance scores, would occur in those cells in which the race and sex of the

Table 2. Summary of Mean Distance Responses in Inches for S Interaction with E Conditions.

Es	Males		Females	
	Black	White	Black	White
Black Males				
Front	13.20	25.88	18.60	18.30
Rear	12.00	24.38	16.20	19.80
White Males				
Front	11.75	24.38	24.75	15.25
Rear	11.25	17.63	20.25	11.00
Black Females				
Front	2.25	22.25	16.70	13.75
Rear	6.38	25.50	13.20	10.25
White Females				
Front	21.00	11.40	17.75	22.00
Rear	19.00	8.40	10.50	20.50

Table 3. Between-subjects Main Effects and Interactions Summed over Male and Female Subjects

Source	Within Male Ss		Within Female Ss	
	F Ratio	P Value	F Ratio	P Value
A (S Race)	.058	.25	.039	.25
B (E Sex)	.447	.25	.298	.25
C (E Race)	1.772	.25	.181	.25
AB (S Race x E Sex)	.670	.25	.443	.25
AC (S Race x E Race)	3.354	.06	.003	.25
BC (E Sex x E Race)	1.302	.25	.268	.25
ABC (S Race x E Sex x E Race)	2.214	.10	1.393	.25

[F Ratio = (df = 1/64)]

E and S were the same. Inspection of Table 2, however, reveals that this hypothesis was not supported, since these cells usually did not produce means that were the lowest in their row or column.

The second major hypothesis was that the similarity effect would be stronger for Blacks than for Whites. An individual orthogonal comparison--a procedure recommended by Winer (1971, pp. 381-386) when specific hypotheses are being examined--therefore, was performed comparing the scores of Black Ss paired with Black Es to those of White Ss with White Es. This comparison and inspection of the appropriate cell means in Table 2 revealed partial support for the hypothesis, since differences were in the predicted direction and the individual comparison was marginally significant ($t = 1.60$, $P < .075$).

Personality Measures

The mean scores for the Rotter and the Barron are presented in Table 4 for each S and E combination. No significant linear relationship was found between distance score and either measure. The mean scores recorded in the experiment were more than one standard deviation below the means suggested by Rotter (1967) and Barron (1953). Thus this S population was measured to be less trusting and more anxious than previous samples; however, no standards as yet have been established for Blacks. A subsequent analysis of covariance of distance scores with the two personality

Table 4. Summary of Rotter and Barron Mean Scores for S Interaction with E Conditions.

Es	Black		White	
	Male	Female	Male	Female
Black Male				
Rotter	56.83	50.33	69.00	63.83
Barron	43.67	40.83	44.33	40.50
Black Female				
Rotter	61.67	57.50	60.83	62.50
Barron	41.17	35.00	47.50	39.50
White Male				
Rotter	58.00	56.50	64.33	60.17
Barron	43.33	38.83	45.50	41.67
White Female				
Rotter	56.50	60.50	64.33	58.83
Female	41.83	37.33	46.67	42.67
Totals Over All E Conditions				
Rotter	58.25	55.21	64.63	61.33
Barron	42.50	38.00	46.00	41.08

measures as covariates failed to yield any significant main effects or interactions.

A multivariate analysis of variance on Ss' scores on the two measures produced significant main effects for S Race on both the Rotter Interpersonal Trust scale ($F = 8.24$, $df = 1/80$, $P < .005$) and the Barron Ego Strength Scale ($F = 4.88$, $df = 1/80$, $P < .03$), with Black trust being lower

and Black anxiety (i.e., ego strength being lower) being higher. The Barron Ego Strength Scale also yielded a significant main effect for S Sex ($F = 9.99$, df = 1/80, $P < .002$). This finding indicated that females were more anxious than males following the invasion situation.

DISCUSSION AND CONCLUSIONS

Of the five hypotheses tested, hypotheses 1, 3, 4, and 5 were not supported, while hypothesis 2 was partially supported. Hypothesis 2 stated that when race is the same for invader and subject, Blacks will have a smaller proxemic pattern, i.e., allow the invader to come closer. The strongest support for this hypothesis was from Black male Ss. It is likely that this finding occurs for Black males and not Black females because it is assumed that Black males would continue to produce a subcultural proxemic pattern longer into later childhood and early adulthood than females, due to the fact that a male is most likely to be the invader in any given dyad. Sommer (1969) reports males to be more likely to challenge those who encroach on their personal space and also more likely to disregard the territory of others. The invader sets the proxemic pattern when the invadee cannot produce a defense strong enough to counteract the invasion.

It is likely that the similarity in the proxemic patterns of Blacks and Whites is due to the fact that the use of Black college student Ss, as opposed to the study of Black Ss from other social classes, produces the strictest test of the hypotheses under laboratory conditions. Black college students on a White college campus emulate the White experience and incorporate successful behavior for functioning

within it. On these campuses there is more than one kind of Black student. Some continue to emulate the White experience after college while others are in school to achieve specific skills. However, the fact that they have attained enrollment in college after twelve or thirteen years of main stream cultural standards and norms with successful social learning from their education does imply that their subcultural proxemic patterns have been affected. Little (1968) reports that norms for social schemata vary with the culture and the degree of indoctrination into the culture. It is assumed that successful socialization is causing Black college students to abandon subcultural proxemics and adopt the majority culture's proxemics.

Hypothesis 1, that members of different races will show different proxemic patterns to invaders of different races, produced a trend in the direction of the hypothesis. This trend was strongest among males. Ss tended to respond with significantly different distance responses to only one race and sex E type and respond to the remaining Es as if they were all of the same race and sex. Presently, there is not sufficient information available to explain these phenomena.

Hypothesis 3 stated that for each subject type the proxemic pattern at which the invader is stopped will be dependent on the race and sex of the invader. It was believed that a main effect for race and/or sex would be

produced to support this hypothesis (Liepman, 1970; Krupka, 1970; and Horowitz et al., 1964). However, this was not the case. Further research is needed to clarify this issue.

Hypothesis 4, which stated that when the sex of the invader and subject are the same the females will have the smaller proxemic pattern, was not confirmed. What was confirmed was that when race of the invader and S are the same, and male Ss are being invaded by female Es, the males will allow the females to come significantly closer than any other E. This is appropriate heterosexual behavior among college students today and was not reported in previous research (Horowitz et al., 1964; Liepman, 1970; Pelligrini and Empey, 1970; Krupka, 1970; Mehrabian and Diamond, 1971).

With females the results were not consistent with the hypothesis. Black female Ss produced a trend in the direction of the hypothesis, while White females produced a reversal of the hypothesis. The distance score for White female Es with White female Ss was the largest produced by White female Ss. This finding was not present in the research studies previously cited. Dosey and Meisels (1969) report space may be used to defend against an impulse's expression as well as to express an impulse. It is an assumption that the White female Ss in this experiment may have been responding to a quality in the White female Es that no other S set

perceived, perhaps a degree of threat such as homosexual feelings.

Hypothesis 5 stated that the proxemic pattern in the rear will be greatest within the groups. This hypothesis was not confirmed and produced a reversal of the hypothesis. This hypothesis was originally proposed on the basis of findings from Newman and Pollack (1973). "Visual contact and feedback afford the most useful orienting cues. The data clearly shows as visual contact decreases, proxemic distance increases," (p. 8). Thus, when you cannot see someone approaching you, you would be more likely to stop them sooner. With just sound as a cue an overestimation would occur due to the threat of the situation. However, the present experimental situation minimized this effect. Ss were allowed to turn their bodies so they could see the invader, if they felt the need to do so. The vast majority did, and behaved the way people typically do when they are lining up, i.e., looking and letting others approach closely. This was a difference in procedure not present in the Newman and Pollack study. Without this alternative Ss are forced to rely on sound alone to approximate the invader's distance in the rear. The effect this has is demonstrated in their findings.

Another difference was S populations. Newman and Pollack did not use college students from dormitories. They used ninth-through eleventh-grade boys living at home. The

high regularity of line behavior, in addition to the crowded conditions of the college campus, could produce a proxemic pattern with reduced rear invasion tolerance among this age group.

Proxemic research is not abundant and the procedures utilized are new procedures or adaptations of previous procedures. The testing of rear proxemic distance, in this experiment, was an adapted procedure with two differences. The presence of such differences yielded a new finding that with the addition of visual cues the rear proxemic distance is decreased.

The variance within S cells in the distance measures was high. The effect of this high degree of variability and low cell ns may have contributed to the lack of significant findings. Larger ns are needed to reduce the high degree of variance. In this study an n of 96 was chosen due to the difficulty of obtaining Black Ss, particularly males. Since the Black student population at this institution is not interested in participating in psychological research, in this study, financial incentives and a Black target appeal, "Urban Areas Experiment," were used to engage their participation.

Personality Effects

The Rotter Interpersonal Trust Scale and the Barron Ego Strength Scale were used to assess the personality factors possibly contributing to the outcome of the proxemic distance

chosen. It has been shown that the proxemic pattern chosen by an individual can be influenced by personality factors such as; trustfulness vs. suspiciousness (Elison and Firestone, 1974 and Lindskold and Norai, 1974) and anxiety (Horowitz, Duff, Stratton, 1964; Krupka, 1970; Baxter and Deanovich, 1970; Sundstrom, 1973; and Byrne, 1961). A personality determined response is based upon the individual's over or under-expectations of the situation; inadequate coping responses are the result. The Ego Strength Scale (Barron, 1953) was used to assess the subjects' anxiety level, and the Rotter (1967) Interpersonal Trust Scale was used to examine the subjects' willingness to trust others.

The mean scores recorded from the experiment were more than one standard deviation below the means suggested by Rotter (1967) and Barron (1953). When Rotter and Barron established the norms and range for their instruments the Ss were just responding to one procedure, their instrument. When, as in this experiment, these personality measures are given immediately after an experimental situation of close proxemity or threat the resulting scores are most likely affected. It is likely then that an overall depression effect was produced in this experiment, with the Ss scoring less trusting and more anxious following their participation in the experimental situation. Along with this difference was a significant S race effect which produced lower trust scores and higher anxiety scores among Blacks. Black trust scores were expected to be lower due to the series of

subcultural adaptive responses produced by the Black life style in this country. Black anxiety scores were expected to be higher for the same reasons. Even with these personality variables operating, Blacks still approached more closely to other presumably more anxious and less trusting Blacks than did Whites approach other presumably less anxious and more trusting Whites.

The approach-invasion behavior finding provides some evidence for the presence of the subcultural proxemic patterns; and they appear to be stronger than the effects of personality in this laboratory situation. However, there are no Black norms recorded for either the Rotter or the Barron Scales. Without Black norms the importance of the significant difference between Blacks and Whites cannot be adequately evaluated with regard to the magnitude and quality of the observed differences. It could be concluded that this study establishes Black norms, were it not for the possible confounding effect of the experimental situation upon the personality scores themselves, i.e., measures being administered after the experiment was concluded.

The trust scores for the zero score Ss (i.e., zeroes on all four repeated measures) were significantly higher than the others; this suggests that a behavioral response was operating for these high trust Ss that was based upon personality, i.e., high trust, influences alone, and was not subject to modification by the experimental manipulation. Subsequently,

the zero score Ss were dropped from analysis. Zero scores occurred in all S types and were most frequent in Blacks and males. Although there was no linear relationship found between proxemic distance and trust, results did indicate that, for the total sample, Ss who allowed the E to come to zero distance at both Front and Rear were more trusting.

Females produced a significant main effect for sex on the Barron Ego Strength Scale. The female Ss' anxiety score was significantly higher than the male Ss'. Given that no female invasion effects were present, this finding is best explained not as a product of the experimental situation, but simply as a replication of Barron's earlier finding that females score higher on anxiety.

Proxemic research involves a great many variables contributing to the outcome of dyadic interaction. Sommer (1967) referred to orientations in the dyad toward one another as "relational" (internal) space. By contrast the use of fixed locations as a setting involved "locational" space. Another component set forth in this study was "interactional" space, i.e., the behavioral response generated between the invader and invadee. Thus, the invader-invadee dyad is a multidimentional situation which may require a wide range of "relational" variables, of which anxiety and trust are only two.

The laboratory requires a design which weakens the phenomenon of a stranger's approach. The experimental quality of the laboratory has certain expectancy characteristics

that are not given to the natural setting. The extremely structured and controlled nature of the laboratory may be inhibiting here as in Forston and Larson's (1968) and Watson and Graves' (1966) work. Sommers' (1967) concept of "locational space" is applicable here. Different locations produce different proxemic behavior, e.g., crowded subways, in line at the movies, etc. Krupka (1970) used the natural setting and got significant results. Invader behavior in the natural setting is not as predictable, i.e., non-threatening, as in the laboratory and if measured accurately would produce a better test of the hypotheses. When the laboratory is used for proxemic research the findings cannot be generalized to another location due to the specific characteristics of the situation. Future research is anticipated and if done in the laboratory it should be done when the Ss are not aware that they are participating in an experiment. If the Ss are invaded in a private area that has been designated to them as a waiting area for the experiment, then the proxemic measure taken will be less likely to be affected by the security of the laboratory. This study should have another study of equal magnitude done in a more natural setting to support or disprove the findings. Research such as this will add to better understanding of the findings and questions raised in this study.

APPENDICES

APPENDIX A

General Information Sheet

1. Name (print) _____
   first last

2. Telephone Number _____

   Student Number _____

3. Part of the United States you are from _____
   (hometown)

4. A) Sex: _____ or _____
   Male Female

   B) Marital Status _____
   C) Your ethnic origins _____

5. When are you most likely to be available for the experiment? Check at least three.

Monday	Tuesday	Wednesday	Saturday
a. ____ 4-5	e. ____ 4-5	i. ____ 4-5	m. ____ 1-2
b. ____ 5-6	f. ____ 5-6	j. ____ 5-6	n. ____ 2-3
c. ____ 6-7	g. ____ 6-7	k. ____ 6-7	o. ____ 3-4
d. ____ 7-8	h. ____ 7-8	l. ____ 7-8	p. ____ 4-5
			q. ____ 5-6

APPENDIX B

From Hall's (1963) interviews and observations of White, middle class, healthy adults, he developed the proxemics, interpersonal distance patterns, for Western man. He explains them as follows:

Intimate Distance

"At intimate distance, the presence of the other person is unmistakable and may at times be overwhelming because of the greatly stepped-up sensory inputs. Sight (often distorted), olfaction, heat from the other person's body, sound, smell and feel of the breath all combine to signal unmistakable involvement with another body.

Intimate Distance-Close Phase
(touching)

This is the distance of love-making and wrestling, comforting and protecting. Physical contact or the high possibility of physical involvement is uppermost in the awareness of both persons. The use of their distance receptors is greatly reduced except for olfaction and sensation of radiant heat, both of which are stepped up. In the maximum contact phase, the muscles and skin communicate. Pelvis, thighs, and head can be brought into play; arms can encircle. Except at the outer limits, sharp vision is blurred. When close vision is possible within the intimate range - as with children - the image is greatly enlarged and stimulates much, if not all, of the retina. The detail plus the cross-eyed pull of the eye muscles provide a visual experience that cannot be confused with any other distance. Vocalization at intimate distance plays a very minor part in the communication process, which is carried mainly by other channels. A whisper has the effect of expanding the distance. The vocalizations that do occur are largely involuntary.

Intimate Distance-Far Phase
(Distance: six to eighteen inches)

Heads, thighs, and pelvis are not easily brought into contact, but hands can reach and grasp extremities. The head is seen as enlarged in size, and its features are distorted. Ability to focus the eye easily is an important feature of this distance for Americans. The iris of the other person's eye seen at about six to nine inches is enlarged to more than life-size. Small blood vessels in the sclera are clearly perceived, pores are enlarged. Clear vision (15 degrees) includes the upper or lower portion of the face, which is perceived as enlarged. The nose is seen as over-large and may

look distorted, as will other features such as lips, teeth, and tongue. Peripheral vision (30 to 180 degrees) includes the outline of head and shoulders and very often the hands. . . . At six to eighteen inches the voice is used but is normally held at a very low level or even a whisper. As Martin Joos, the linguist, describes it, "An intimate utterance pointedly avoids giving the addressee information from outside of the speaker's skin. The point . . . . is simply to remind (hardly inform) the addressee of some feeling . . . inside the speaker's skin." The heat and odor of the other person's breath may be detected, even though it is directed away from subject's face. Heat loss or gain from other person's body begins to be noticed by some subjects.

The use of intimate distance in public is not considered proper by adult, middle class Americans even though their young may be observed intimately involved with each other in automobiles and on beaches. Crowded subways and buses may bring strangers into what would ordinarily be classed as intimate spatial relations, but subway riders have defensive devices which take the real intimacy out of intimate space in public conveyances. The basic tactic is to be as immobile as possible and, when part of the trunk or extremities touches another person, withdraw if possible. If this is not possible, the muscles in the affected areas are kept tense. For members of the non-contact group, it is taboo to relax and enjoy bodily contact with strangers. In crowded elevators the hands are kept at the side or used to steady the body by grasping a railing. The eyes are fixed on infinity and are not brought to bear on anyone for more than a passing glance.

Personal Distance

"Personal distance" is the term originally used by Hediger to designate the distance consistently separating the members of non-contact species. It might be thought of as a small protective sphere or bubble that an organism maintains between itself and others.

Personal Distance-Close Phase
(Distance: one and a half to two and a half feet)

The kinesthetic sense of closeness derives in part from the possibilities present in regard to what each participant can do to the other with his extremities. At this distance, one can hold or grasp the other person. Visual distortion of the other's features is no longer apparent. A visual angle of 15 degrees takes in another person's upper or lower face, which is seen with exceptional clarity. The planes and roundness of the face are accentuated; the nose projects and the ears recede; fine hair of the face, eyelashes, and pores is clearly visible. The three-dimensional quality of objects is particularly pronounced. Objects have roundness, substance, and form unlike that perceived at any other distance. Surface textures are also very prominent and are clearly differentiated from each other.

Personal Distance-Far Phase
(Distance: two and a half to four feet)

Keeping someone at "arm's length" is one way of expressing the far phase of personal distance. It extends from a point that is just outside easy touching distance by one person to a point where two people can touch fingers if they extend both arms. This is the limit of physical domination in the very real sense. Beyond it, a person cannot easily "get his hands on" someone else. Subjects of personal interest and involvement can be discussed at this distance. Head size is perceived as normal and details of the other person's features are clearly visible. Also easily seen are fine details of skin, "sleep" in the eye, stains on teeth spots, small wrinkles, or dirt on clothing. Foveal vision covers only an area the size of the tip of the nose or one eye, so that the gaze must wander around the face (where the eye is directed is strictly a matter of cultural conditioning). Fifteen-degree clear vision covers the upper or lower face, while 180-degree peripheral vision takes in the hands and the whole body of a seated person. Movement of the hands is detected, but fingers can't be counted. The voice level is moderate. No body heat is perceptible. While olfaction is not normally present for Americans, it is for a great many other people who use colognes to create an olfactory bubble. Breath odor can sometimes be detected at this distance, but Americans are generally trained to direct the breath away from others.

Social Distance

The boundary line between the far phase of personal distance and the close phase of social distance marks, in the words of one subject, the "limit of domination." Intimate visual detail in the face is not perceived, and nobody touches or expects to touch another person unless there is some special effort. Voice level is normal for Americans. There is little change between the far and close phases, and conversations can be overheard at a distance of up to twenty feet.

Social Distance-Close Phase
(Distance: four to seven feet)

Head size is perceived as normal; as one moves away from the subject, the foveal area of the eye can take in an ever increasing amount of the person. At four feet, a one-degree visual angle covers an area of a little more than one eye. At seven feet the area of sharp focus extends to the nose and parts of both eyes; or the whole mouth, one eye, and the nose are sharply seen. Many Americans shift their gaze back and forth from eye to eye or from eyes to mouth.

Details of skin texture and hair are clearly perceived. At a 60-degree visual angle, the head, shoulders, and upper trunk are seen at a distance of four feet; while the same sweep includes the whole figure at seven feet.

Impersonal business occurs at this distance, and in the close phase there is more involvement than in the distant phase. People who work together tend to use close social distance. It is also a very common distance for people who are attending a casual social gathering. To stand and look down at a person at this distance has a domineering effect, as when a man talks to his secretary or receptionist.

Social Distance-Far Phase
(Distance: seven to twelve feet)

This is the distance to which people move when someone says, "Stand away so I can look at you." Business and social discourse conducted at the far end of social distance has a more formal character than if it occurs inside the close phase. Desks in the offices of important people are large enough to hold visitors at the far phase of social distance. Even in an office with standard-size desks, the chair opposite is eight or nine feet away from the man behind the desk. At the far phase of social distance, the finest details of the face, such as the capillaries in the eyes, are lost. Otherwise, skin texture, hair, condition of teeth and condition of clothes are all readily visible. None of my subjects mentioned heat or odor from another person's body as detectable at this distance. The full figure-with a good deal of space around it-is encompassed in a 60 degree glance. Also, at around twelve feet, feedback from the eye muscles used to hold the eye inward on a single spot falls off rapidly. The eyes and the mouth of the other person are seen in the area of sharpest vision. Hence, it is not necessary to shift the eyes to take in the whole face. During conversation of any significant length it is more important to maintain visual contact at this distance than it is at closer distance.

Proxemic behavior of this sort is culturally conditioned and entirely arbitrary. It is also binding on all concerned. To fail to hold the other person's eye is to shut him out and bring conversation to a halt, which is why people who are conversing at this distance can be observed craning their necks and leaning from side to side to avoid intervening obstacles. Similarly, when one person is seated and the other is standing, prolonged visual contact at less than ten or twelve feet tires the neck muscles and is generally avoided by subordinates who are sensitive to their employer's comfort. If, however, the status of the two parties is reversed so that the subordinate is seated, the other party may often come closer.

At this distance phase, the voice level is noticeably louder than for the close phase, and it can usually be heard easily in an adjoining room, if the door is open. Raising

the voice or shouting can have the effect of reducing social distance to personal distance.

A proxemic feature of social distance (far phase) is that it can be used to insulate or screen people from each other. This distance makes it possible for them to continue to work in the presence of another person without appearing to be rude. Receptionists in offices are particularly vulnerable as most employers expect double duty: answering questions, being polite to callers, as well as typing. If the receptionist is less than ten feet from another person, even a stranger, she will be sufficiently involved to be virtually compelled to converse. If she has more space, however, she can work quite freely without having to talk.

Public Distance

Several important sensory shifts occur in the transition from the personal and social distances to public distance, which is well outside the circle of involvement.

Public Distance-Close Phase
(Distance: Twelve to twenty-five feet)

At twelve feet an alert subject can take evasive or defensive action if threatened. The distance may even cue a vestigial but subliminal form of flight reaction. The voice is loud but not full volume.
Linguists have observed that a careful choice of words and phrasing of sentences as well as grammatical or syntactic shifts occur at this distance. Martin Joo's choice of term "formal style" is approximately descriptive: "formal texts . . . demand advance planning . . . the speaker is correctly said to think on his feet." The angle of sharpest vision (one degree) covers the whole face. Fine details of the skin and eyes are no longer visible. At sixteen feet, the body begins to lose its roundness and to look flat. The color of the eyes begins to be imperceivable; only the white of the eyes is visible. Head size is perceived as considerably under life-size. The 15-degree lozenge-shaped area of clear vision covers the faces of two people at twelve feet, while 60-degree scanning includes the whole body with a little space around it. Other persons presence can be seen peripherally.

Public Distance-Far Phase
(Distance: twenty-five feet or more)

Subtle shades of meaning conveyed by the normal voice are lost as are the details of facial expression and movement at this distance. Not only the voice but everything else must be exaggerated or amplified. Much of the nonverbal part of the communication shifts to gestures and body stance. In addition the tempo of the voice drops, words are enunciated more clearly, and there are stylistic changes as well."

APPENDIX C

General Opinion Survey

This is a questionnaire to determine the attitudes and beliefs of different people on a variety of statements. Please answer the statements by giving as true a picture of your own beliefs as possible. Be sure to read each item carefully and show your beliefs by marking the appropriate letter on your answer sheet.

If you strongly agree with an item, fill in the space numbered 1. Mark the space numbered 2 if you mildly agree with the item. That is, mark number 2 if you think the item is generally more true than untrue according to your beliefs. Fill in the space numbered 3 if you feel the item is about equally true as untrue. Fill in the space numbered 4 if you mildly disagree with the item. That is, mark number 4 if you feel the item is more untrue than true. If you strongly disagree with an item, fill in the space numbered 5.

1 - Strongly agree
2 - Mildly agree
3 - Agree and disagree equally
4 - Mildly disagree
5 - Strongly disagree

Please be sure to fill in the spaces completely and to erase completely any marks to be changed. Make no extra marks on either the answer sheet or the questionnaire.

1. Most people would rather live in a climate that is mild all year around than in one in which winters are cold.

2. Hypocrisy is on the increase in our society.

3. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.

4. This country has a dark future unless we can attract better people into politics.

5. Fear of social disgrace or punishment rather than conscience prevents most people from breaking the law.

6. Parents usually can be relied upon to keep their promises.

7. The advice of elders is often poor because the older person doesn't recognize how times have changed.

8. Using the Honor System of not having a teacher present during exams would probably result in increased cheating.

9. The United Nations will never be an effective force in keeping world peace.

10. Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear.

11. Most people can be counted on to do what they say they will do.

12. As evidenced by recent books and movies morality seems on the downgrade in this country.

13. The judiciary is a place where we can all get unbiased treatment.

14. It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare.

15. The future seems very promising.

16. Most people would be horrified if they knew how much news the public hears and sees is distorted.

17. Seeking advice from several people is more likely to confuse than it is to help one.

18. Most elected public officials are really sincere in their campaign promises.

19. There is no simple way of deciding who is telling the truth.

20. This country has progressed to the point where we can reduce the amount of competitiveness encouraged by schools and parents.

21. Even though we have reports in newspapers, radio and television, it is hard to get objective accounts of public events.

22. It is more important that people achieve happiness than that they achieve greatness.

23. Most experts can be relied upon to tell the truth about the limits of their knowledge.

24. Most parents can be relied upon to carry out their threats of punishment.

25. One should not attack the political beliefs of other people.

26. In these competitive times one has to be alert or someone is likely to take advantage of you.

27. Children need to be given more guidance by teachers and parents than they now typically get.

28. Most rumors usually have a strong element of truth.

29. Many major national sport contests are fixed in one way or another.

30. A good leader molds the opinions of the group he is leading rather than merely following the wishes of the majority.

31. Most idealists are sincere and usually practice what they preach.

32. Most salesmen are honest in describing their products.

33. Education in this country is not really preparing young men and women to deal with the problems of the future.

34. Most students in school would <u>not</u> cheat even if they were sure of getting away with it.

35. The hordes of students now going to college are going to find it more difficult to find good jobs when they graduate than did the college graduates of the past.

36. Most repairmen will not overcharge even if they think you are ignorant of their specialty.

37. A large share of accident claims filed against insurance companies are phony.

38. One should not attack the religious beliefs of other people.

39. Most people answer public opinion polls honestly.

40. If we really knew what was going on in international politics, the public would have more reason to be frightened than they now seem to be.

The following statements are True and False answers. Read each statement and decide whether it is True as applied to you or False as applied to you.

If a statement is True or Mostly True as applied to you fill in the space numbered 1. If a statement is False or not usually True, as applied to you, fill in the space numbered 2. If a statement does not apply to you or if it is something that you don't know about, make no mark on the answer sheet. But try to give some answer to every statement.

Make your marks heavy and black. Erase completely any answer you wish to change.

41. I have a good appetite.

42. I have diarrhea once a month or more.

43. At times I have fits of laughing and crying that I cannot control.

44. I find it hard to keep my mind on a task or job.

45. I have had very peculiar and strange experiences.

46. I have a cough most of the time.

47. I seldom worry about my health.

48. My sleep is fitful and disturbed.

49. When I am with people I am bothered by hearing very queer things.

50. I am in just as good physical health as most of my friends.

51. Everything is turning out just like the prophets of the Bible said it would.

52. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."

53. I am easily downed in an argument.

54. I do many things which I regret afterwards (I regret things more or more often than others seem to).

55. I go to church almost every week.

56. I have met problems so full of possibilities that I have been unable to make up my mind about them.

57. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.

58. I like collecting flowers or growing house plants.

59. I like to cook.

60. During the past few years I have been well most of the time.

61. I have never had a fainting spell.

62. When I get bored I like to stir up some excitement.

63. My hands have not become clumsy or awkward.

64. I feel weak all over much of the time.

65. I have had no difficulty in keeping my balance in walking.

66. I like to flirt.

67. I believe my sins are unpardonable.

68. I frequently find myself worrying about something.

69. I like science.

70. I like to talk about sex.

71. I get mad easily and then get over it soon.

72. I brood a great deal.

73. I dream frequently about things that are best kept to myself.

74. My way of doing things is apt to be misunderstood by others.

75. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.

76. I can be friendly with people who do things which I consider wrong.

77. If I were an artist I would like to draw flowers.

78. When I leave home I do not worry about whether the door is locked and the windows closed.

79. At times I hear so well it bothers me.

80. Often I cross the street in order not to meet someone I see.

81. I have strange and peculiar thoughts.

82. Sometimes I enjoy hurting persons I love.

83. Sometimes some unimportant thought will run through my mind and bother me for days.

84. I am not afraid of fire.

85. I do not like to see women smoke.

86. When someone says silly or ignorant things about something I know about, I try to set him right.

87. I feel unable to tell anyone all about myself.

88. My plans have frequently seemed so full of difficulties that I have had to give them up.

89. I would certainly enjoy beating a crook at his own game.

90. I have had some very unusual religious experiences.

91. One or more members of my family is very nervous.

92. I am attracted by members of the opposite sex.

93. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me.

94. Christ performed miracles such as changing water into wine.

95. I pray several times every week.

96. I feel sympathetic towards people who tend to hang on to their griefs and troubles.

97. I am afraid of finding myself in a closet or small closed place.

98. Dirt frightens or disgusts me.

99. I think Lincoln was greater than Washington.

100. In my home we have always had the ordinary necessities (such as enough food, clothing, etc.).

101. I am made nervous by certain animals.

102. My skin seems to be unusually sensitive to touch.

103. I feel tired a good deal of the time.

104. Sometimes I have the same dream over and over.

105. If I were an artist I would like to draw children.

106. I sometimes feel that I am about to go to pieces.

107. I have often been frightened in the middle of the night.

108. I very much like horseback riding.

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