THE USE OF PERSONALITY MEASURES AND PROXIMITY FOR THE PREDICTION OF SOCIAL BEHAVIOR

by

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B. S. C., State University of Iowa, 1958

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Psychology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1968

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ACKNOWLEDGMENTS

The writer would like to express appreciation to all members of her committee for their helpful suggestions and critical review of the methods and writing of this study.

Special acknowledgment is given to Dr. E. Robert Sinnett for his assistance in developing the initial research ideas as well as for his guidance throughout the entire study, and to Dr. Leon Rappoport for his assistance with the proxemic data.

INTRODUCTION

In recent decades increased usage of the term "interpersonal relations" in professional literature is indicative of the shift in emphasis in the study of human behavior from the individual to the individual-in-relation-to-others. There is a growing concern with the reciprocal influence between the individual and society. Leary (1957) says that what an individual does influences how others respond. Concurrent with this notion, psychologists have made many attempts to predict social behavior from personality measures. For the most part, the results have been disappointing and have engendered much criticism. Some of the criticisms are as follows:

1. The measures and methods used are often oriented toward establishing empirical relations without being related to a theoretical approach.

2. Personality measures at one level of awareness or consciousness are frequently used to predict social behavior at another level.

3. They have often failed to specify situational variables, i.e., the type of behavior and the situation in which it may occur.

4. The use of criterion judgments is based on a limited amount of observation.

5. Criterion judgments or ratings are subjectively based on observer's value judgments and agreement even among experts is poor.

6. Criteria are often treated as if they were unidimensional, e.g., adjustment-maladjustment.

7. Criteria may be vaguely defined, e.g., "success" in a vocation, or "improvement" in psychotherapy.

This study attempts to overcome these shortcomings by using a predictor measure which has been defined and validated against group behavior and a criterion measure of natural social behavior in an established living situation. Criterion measures were based on a large sample of behavior over time. Neither measure involves subjective observer ratings. The major focus of this study is upon the use of a personality measure as a predictor of being selected by others as a friend or helper. Another aim is to ascertain the relationship between proximity[1] and these measures of social behavior.

Background and Theory: Review of Literature

Sociometry, in its broadest sense, entails all types of measurement significant to the understanding of human behavior with emphasis upon the social analysis of interpersonal relations. Because there is such a vast array of literature on sociometric measures, the review herein is limited to a few selected studies primarily concerned with the attraction patterns of individuals toward one another.

Moreno (1934) was one of the first to systematically investigate group structure and the individual's place in it. In his study of the New York State Training School for Girls at Hudson, New York, he developed methods for studying the likes and dislikes of persons for one another. To these methods he assigned the term "sociometry", which he defines as, ".....the mathematical study of psychological properties of populations, the experimental technique of and the results obtained by

[1]Proximity, also referred to as propinquity, is defined as the physical distance between objects or persons.

application of quantitative methods." He defined the sociometric test as an instrument to measure the amount of organization shown by social groups, an instrument which required the individual to choose his associates within a group. Sociometric measures have a unique property in that Ss are given research status; they are the participants and the evaluators. He argues that two conditions must be met if the results of sociometric measures are to be meaningful. First of all, he says one person does not like another in all settings, therefore, the setting must be specified. Secondly, the researcher must have the power to put the results into effect, i.e., the Ss must believe that their answers make a difference. At Hudson, Moreno had the power to assign girls that indicated a liking for one another to the same house.

Jenning's (1950) analysis of the choice process, the process within the individual which underlies his choices and rejections of others, was based on Moreno's 1934 study. Her analysis indicates that the individual possesses a rather stable range of responses, whether one is accepted or rejected, throughout a long period of institutional life. The study was also aimed at giving a picture of how and why each individual earns a specific place or choice-status in the sociometric pattern within a given group. The group population is described as "an equilibrium in flux". Movements which continually take place are compensatory movements which do not disturb the total structure of the group. Shifts upward and downward in the choice-status of individuals inevitably occur since interaction cannot be static, yet even though changes do occur for individuals, the total structure of the group does not differ significantly.

In the Hudson community, both isolation and leadership status were found to be products of interpersonal interaction and not of attributes within the persons placed in the respective choice-status by other members. The reciprocal interaction between the individual and others in the community and constituting the individual's personality as viewed by others, appeared to be the underlying basic explanation of her choice-status. Personality, insofar as it is reflected in social structure, is the capacity for interaction with other personalities, for responding to others and being responded to by others in the field in which the individuals are in common. The important factor is the reaction to and the interpretation given to the respective behaviors exhibited by the individuals and the latter's characteristic manner of reacting to and interpreting the behaviors of fellow-members. Personality is redefined from situation to situation and is reflected in the choice-status given the individual from time to time. The study indicates that environmental factors are significant in relation to individual characteristics. The choice-status of a given individual is seen to result from the interaction of his individual characteristics and the enviornmental factors, or the individual characteristics of those about him. On the other hand, the extent of the individual's emotional expansiveness toward others is seen to be his individual characteristic, a characteristic which finds consistent expression without relevance to the environmental factors which may exert pressure for or against its fulfillment.

Another finding of interest in Jenning's analysis was that the total positive choices significantly surpassed negative choices. The Ss

were reluctant to name those whom they would reject, especially prior to the time they were given assurance by the researcher that their choices and rejections would be kept confidential. There seemed to be a great deal of guilt feeling associated with naming those whom they would reject.

Homans (1950) set out to establish some general statements about human behavior that could be used to form more general sociological theories. His work is referred to as "the theory of dynamic interrelationships in human behavior". His study of five very diverse small groups was more observational than experimental. Though the groups differed in many ways, their behavior showed fundamental similarities or social uniformities. Three elements of behavior were scrutinized: "activity", what members of a group do as members of it; "interaction", the relationship which the activity of one member of the group has to that of another; and "sentiment", the sum of interior feeling, whether physical or mental, that a group member has in relation to what the group does. To these elements, he added the concept of the "norm", the group's code of behavior; the "external system", the relationship between the group and its environment, and the "internal system", the feelings or attitudes of the group members toward one another as may effect its behavior. In all five groups, the forces which affected behavior were in a constant state of mutual dependence, one force depending upon another. Homans points out that we cannot simply look for cause and effect of responses of the group but must look instead at the complexes of interacting forces. A system of hypotheses may be developed about groups, but each hypothesis sets limits upon the others. For example, the more frequent the interaction between people, the stronger

in general is their liking for one another. On the other hand, we know that the external system may effect some control and set limits on interaction where one person is the supervisor of another, consequently, the two hypotheses or forces may work in opposition to one another. He points out that any given system of hypotheses alone cannot account for all behavior; we must be able to assign values to the elements entering into the hypotheses. Often we can only compare groups on the elements because we cannot assign absolute values to the elements. Groups may be alike in respect to the elements, but they differ in the value of the elements. The values are first of all determined by the given set of circumstances in which the group is placed, most important being the social and physical environment. Many other factors enter in such as the size of the group and its composition in age and sex. Homans did not set out to discover new hypotheses about group interaction, but he watched how a change in the value of one of the elements effected changes in the values of others.

One of the major contributors to the study of social behavior has been Newcomb (1961) with his exploratory research on the acquaintance process. He suggests that social-psychological propositions published in the literature are often based upon groups whose acquaintance history is very short or upon those whose history is long but relatively unstudied. He says, "Perhaps longitudinal studies....., which begin at the point of first acquaintance but do not end there, can be of service in sorting out those propositions which are dependent upon given stages of acquaintance." He studied the development of various kinds of relationships among seventeen male students who were complete strangers to

one another when they came to live in his special project at the University of Michigan. The project extended over two school years, with a new set of seventeen Ss each year. The basic data for the identification of structural units within the groups he studied was the degree of attraction expressed by individuals for one another. Attraction is defined as the orientation of one person toward some other person. The sociometric, or attraction measures, used in Year I and Year II of the study differed somewhat. In the first year, he was interested in obtaining an index of general, undifferentiated, personal attraction of each S toward every other S. This was done by having each S sort the names of all other Ss into three categories, "prefer" (defined as liking), "do not prefer" (defined as disliking), and "undecided" (defined as neutral), then rank order the Ss in terms of how much they liked each of them. Rankings were made once each week. In the second year, instructions were phrased in terms of "favorableness of feelings" toward others rather than liking for them. This terminology permitted the inclusion of interpersonal feelings such as admiration as well as personal liking. In addition, absolute ratings were obtained in order to detect any large differences between adjacent ranks. The scale, ranged from zero to one-hundred, the lower end of the scale being designated as "most unfavorable", the middle, "indifferent", and the upper limit, "most favorable". Ratings were made each of the sixteen weeks except one.

Data were obtained on only five personality variables and were used in a purely exploratory manner. Newcomb remarked that as a matter of hindsight, he felt that the personality data should have been more

complete. Measures of attitudes, values, and biographical data were also employed in the study.

The two major hypotheses of Newcomb's study were: 1) that individual systems tend to remain in balance at all times, and 2) that tendency toward balance increases with acquaintance. The key principle of individual balance postulates a psychological force upon the individual to maintain a minimal perceived discrepancy between his own orientations and what he perceives another's orientations to be. He says, ".....Individual orientations are the elemental components of systems, both individual and collective", thus changes in either kind of system are described in terms of individual orientations. The principle of increasing balance with acquaintance is an extension of the principle of individual balance; as individuals become better acquainted, they process subsequent information about each other resulting in changing attraction preferences and changing perceptions of each other's attitudes, simultaneously maintaining individual balance. Individual's attitudes or attractions may also change as a result of new information about objects or individuals or from the necessity to overcome strain where there is high attraction toward another whose attitudes or attractions are dissimilar. In other words, changes in attitude or attraction may also come about in balance-maintaining ways. The data of his study supported the above hypotheses.

Newcomb's data showed little or no change in attitudes that were systematically related to attraction. He suggests that it is possible that their sample of attitudes was too limited, or that the period of time was too short for much change to take place, and, the attitudes

measured may have been those which were quite stable before the Ss came together. The S's attractions toward each other, however, changed considerably from the beginning to the end, and their perceptions of each other's orientations became more accurate. It should be noted that if balance-maintaining changes in either attractions or perceived orientations of others takes place, changes in attitudes are not necessary for the maintenance of balance in the individual system. Over time they found that there were formed increasing numbers of larger and more stable high-attraction subgroups. This can be attributed to the general principle of balance; pairs of Ss who are highly attracted toward the same person(s) tend to become attracted toward each other, thus triads form around pairs. They found that this group structuring was determined not only by balance-maintaining changes in attraction but also by pre-acquaintance value, and by interaction between these sources of change and the personal characteristics of members. There was evidence that structuring was determined not so much by personal characteristics as by balance-maintaining influences, perhaps due more to changes in perceptions of personal characteristics than actual changes in characteristics.

Another major contribution to the study of interpersonal relations has been The Interpersonal System of Personality (The Leary System) (Leary, 1957). The Leary System is a standard combination of personality assessment instruments for the prediction of social behavior at four levels. Its formulation began with the interests of the Kaiser Foundation Psychology Research Department in the study of process in psychotherapy. The Foundation felt there was a need for a systematic

way of viewing the personality structure before therapy in order to predict what would happen in therapy and to measure change in personality structure during and after therapy. In developing the system, Leary drew heavily upon the concepts of socially oriented personality theorists such as Horney, Fromm, Sullivan, and the classification of interpersonal behavior also bears the mark of Erik H. Erikson's theory of personality development. For these theorists, the avoidance of anxiety is the motivating force of personality. Anxiety is an interpersonal phenomenon; human beings are under nearly constant tension from the fear of being rejected by others (or by themselves), hence the motivating principle of behavior is seen as the avoidance of anxiety. In accordance with these theorists and the emphasis in recent decades on the study of interpersonal relations, the interpersonal dimension of personality was taken as a starting point for the development of the system. The first working principle is that, "Personality is the multilevel pattern of interpersonal responses (overt, conscious, or private) expressed by the individual.....". These are defined as Levels I, II, and III of the system. Level I, a measure of public (overt) interpersonal behavior, is of particular relevance to the present study and will be described more fully in a later section.

The entire classification system was constructed by inductively classifying into broad categories thousands of interpersonal interactions of scores of individuals--males and females, neurotics, psychosomatics, normals, etc.--brought into interpersonal relationships in small groups. These interpersonal interactions were sorted into sixteen categories, or interpersonal variables, on a continuum implying a

systematic relationship among them. The classification scheme is laid out on a circumplex (see Figure 1) composed of two orthogonal, interpersonal factors which comprise a two-dimensional space. The two bipolar factors are dominance-submission (Dom) and love-hate (Lov). The adjectives within the center ring indicate the type of behavior that this interpersonal variable tends to pull from the "other", illustrating what the individual does and how others respond. The outer circle illustrates the extreme, rigid behavior. In the perimeter of the circle the sixteen categories are subdivided into sectors (octants) having a moderate (adaptive) and an extreme (pathological) intensity, e.g., Managerial-Autocratic. The sixteen categories are coded A to P counterclockwise on the circumplex, AP-HI and LM-DE being the reference axes for Dom and Lov respectively. Each S's scores are computed and converted into T-scores (after Guilford, 1956, p. 494) on the Dom and Lov dimensions. The mean for both dimensions is located at the center of the circumplex and an individual's scores are summarized and plotted in terms of distance and direction from the center.

Leary's two bipolar factors of Dom and Lov suggest a circular continuum which has been validated by LaForge and Suczek (1954). Foa (1961) reviewed the attempts by a number of researchers to develop categories for the observation and analysis of interpersonal behavior. Even though the researchers had different theoretical viewpoints and were studying different populations, their thinking and the results of their work were quite similar; namely, there is a tendency toward simple ordered structures such as Leary's two dimensional organization of interpersonal behavior. Carter (1954) and a number of other

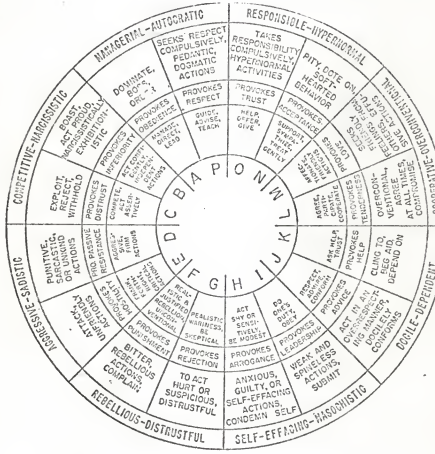

Figure 1. Leary's (1956) classification of interpersonal behavior into sixteen categories or interpersonal variables. Categories coded AP-HI and LM-DE are reference axes for the bipolar factors of dominance-submission (Dom) and love-hate (Lov).

investigators found three main factors. Borgotta, Cottrell, and Mann (1958) came out with two main factors and three minor ones, factor ordered into a segment of a circumplex. Schaefer, Bell, and Bayley (1959) came up with two dimensions, Autonomy-Control and Love-Hostility, also factor ordered into a segment of a circumplex. All of the above factors are basically identical to those of The Leary System.

Van Dyne (1940) tested the relationship between personality factors, measured by the Bernreuter Personality Inventory, and sociometric choices. Correlational findings indicated that individuals tended to choose as friends others who were similar to them in dominance and stability. Bonney (1944), using the California Test of Personality, found the total adjustment score of the inventory correlated .49 with sociometric status. A later study by Bonney (1946) showed little association between friends in their scores on the California Test of Personality. Grossmann and Wrighter (1948) found that sixth grade students, who were very high in sociometric status, secured much higher total adjustment scores on the California Test of Personality than did students with very low sociometric status.

Marks, Stauffacher, and Lyle (1963) attempted to predict outcome for schizophrenics leaving a veteran's hospital. Measures of psychopathology, social assets, and demographic variables were their predictors. These included all standard validity and K-corrected clinical scales of the Minnesota Multiphasic Personality Inventory, the IPAT (Institute for Personality and Ability Testing) Sixteen Personality Factor Questionnaire, a specially devised Sentence Completion Test, the Rotter Level of Aspiration Test, post-hospital interview ratings by two

psychologists, behavior ratings by observers on the MACC Behavioral Adjustment Scale (Ellsworth and Clayton, 1959), demographic data extracted from hospital clinical records, and field observations by a psychiatric Social worker one month after the patient's departure from the hospital. The simplest criterion measure was whether or not the patient had returned to a hospital within one year after his initial departure. For those who did stay out a full year, other criteria were two scores given by a visiting social worker on the Average Adjustment Score and the MACC Test Adjustment.

They failed to find any predictors distinguishing those who are most likely to stay out. For those staying out the year, only 35 of 111 predictors correlated significantly with at least one of two year-end adjustment criteria. The highest correlations between predictors and year-end adjustment were with the F and Sc scales of the MMPI, the two scales most indicative of bizzare symptomatology. Also significantly correlated were the Pa scale of the MMPI, interview ratings of withdrawal, bizarreness of movement, and apathy, and, the demographic measures. The results suggest that failure to predict an ex-patient's return to the hospital may be because it depends not only upon how adequately he is able to respond but also upon the demands of the social situation to which he returns. Sinnett, Stimpert, and Straight (1965) found that a personality variable, the Ego Strength scale of the MMPI, and sociometric measures of VA patient's peer relationships failed to predict post-hospital adjustment.

Sinnett and Hanford (1962) studied the relationship of VA patient's choices and rejections by their peers and ward physicians to the type of

treatment program they received. Sociometric choices and rejections were not related to diagnosis and prognosis, however, these measures were significantly related to whether or not a patient received individual psychotherapy. Those who were most liked by their peers and ward physicians were most likely to receive individual psychotherapy.

Forsyth and Fairweather (1961) studied the relationships among the MMPI, the Holland Vocational Personality Inventory, and other devices for assessing community adjustment of patients leaving a VA hospital. They found these personality inventories were not generally related to such social behavior.

Proximity or propinquity, both defined as physical distance or spacing, has often been studied as a communication factor effecting interpersonal relationships. In The Silent Language, Hall (1959), an anthropologist, discusses space as a dimension of communication. He gives numerous illustrations of space or physical distance being the basis of many of our relationships in the United States. There is ample evidence that we set physical and psychological boundaries on nearly everything in our environment. Hall and others have found that Americans become uncomfortable and tend to move away when someone sits or stands too closely, especially when conversing, while many foreigners communicate at a much shorter distance and are even insulted when the person with whom they are speaking moves away. Spatial changes give a tone to communication, accent it, and at times override the spoken word. Not only is the vocal message qualified by distance but the content of a conversation often demands special handling of space; there are certain things difficult to talk about unless one is within the proper conver-

sational zone. Another example of the impact of spatial arrangement is that a neighbor is someone who lives relatively close to us in physical distance. Being a neighbor endows one with certain rights and privileges as well as responsibilities. Generally speaking, people share more intimately with their close neighbors than with people living on the other side of town, but they also expect the close neighbor to help them out in certain times of need. For these reasons, Americans often try to choose their neighbors carefully, knowing that they will be thrown into intimate contact with them. These are but a few examples of how greatly space can effect the interrelationships among people.

Newcomb (op.cit.) proposed that, "Other things equal, people are most likely to be attracted toward those in closest contact with them." He supported this with examples such as the frequency with which parents and children are most strongly attracted to each other even though neither has the opportunity to select the other as parent or child, or with the monotonic relationship between residential proximity and the probability of selecting one another as marriage partners. "Interaction" is defined as behavior on the part of one person that is observed and responded to by another. Homans (op. cit.) also hypothesized that, "If the frequency of interaction between two or more persons increases, the degree of their liking for one another will increase." Newcomb says this can be accounted for, in part, by the theoretical principles of reward and reinforcement, generalization, and reciprocal reward. If we assume that the reward-punishment ratio is such as to be more often reinforcing than extinguishing and that the rewards of interaction are most apt to be obtained from those with whom one interacts most

frequently, then it is likely that rewards from interaction will vary with the opportunity for interaction. The principle of generalization is based on the notion that people in similar environments tend to develop similar characteristics. There is an increased probability that the threshold for interaction with persons of similar characteristics is lower than for others. Finally, the principle of reciprocal reward is that the likelihood of continuing reward by a given person varies with the frequency with which that person is rewarded. Supposedly, the greater the opportunity for contact, the greater the probability of reciprocal reward.

Even though it is assumed that proximity promotes communication among individuals because of the opportunity to discover one another's common interests and attitudes, whether or not such discovery leads to high attraction or low attraction, depends in part upon what attitudes and interests they have in common. On this assumption, Newcomb (op. cit.) hypothesized that high attraction is not related to proximity as defined by residence of Ss on the same floor. The hypothesis was supported in that after the earliest weeks of each year of the study, acquaintance did not vary with residence on the same floor. A second set of assumptions was that roommates will become more rapidly acquainted with each other than with others; this favors but does not in itself guarantee high attraction. Roommates, however, more than other pairs are likely to share trust-engendering intimacies and insofar as they do each is likely to assume the other's attitudes toward himself are similar to his own attitudes toward himself. On this assumption, it was predicted that throughout the entire period of the project, the

attraction level between roommates would be higher than for other pairs. This was supported by Year II data, but not by Year I. If was found throughout the study that the two populations differed somewhat in several other respects which might help to account for the differences in roommate attractions. One of these clues was that there was greater homogeneity in ordering the attractiveness of all Ss in the population in Year II than in Year I. Another possibility stemmed from the fact that in Year I more of the very unpopular Ss happened to be involved in more roommate pairings than in Year II. It was noted that it was in common relationships to other Ss that the pairs of roommates in the population differed most.

Festinger, Schachter and Back (1950) studied the conditions for establishing friendships and group formations within two communities of married veteran students at the Massachussetts Institute of Technology. Most striking among the findings was the degree of dependence of friendship formation upon the physical arrangements of living quarters. People who lived close to one another more frequently became friends than those who lived far apart. However, they found that if two people did not like each other they did not become friends no matter how close they lived to each other. In addition to physical distance, another ecological factor found to be a major determinant of sociometric choices was positional relationship and design, referred to as functional distance. Although physical distance is a major factor, traffic patterns can greatly alter their effects.

Tagiuri (1951) postulated that the analysis of any interpersonal relationship must consider two components; the nature of the responses

of each person to the other, and the perception that each person has of the other's response toward him. The choices and rejections of a group could be better comprehended if in addition to simply knowing the number of choices and rejections by a S, we also knew how that S perceived his social world. For example, one who receives many positive choices and makes few choices himself may not be aware of his attraction and may perceive himself as highly rejected while a S who receives few choices and makes many may perceive himself as being highly accepted. Tagiuri developed a method in which Ss were required to guess who would choose or reject them in addition to making the usual sociometric choices. This method, termed "relational analysis", permits an objective description of a great variety of types of relationships.

Lundberg, Hertzler, and Dickson (1949) did a study to test the generality of findings regarding choice patterns in an earlier study (1948) which was conducted in a small college. The followup study, which was conducted in four women's residence halls of a large university, confirmed the findings of the earlier one that Ss tend to be attracted most to their own in-group as regards common domicile, college class, major scholastic interests, and socioeconomic status. The findings indicated that propinquity is a dominant factor not only in the "like" selections but also in the "dislike" selections, and that our interpersonal relations are in essence in-group relations.

Barnlund and Harland (1963) studied the communication patterns of interaction among sorority women on a mid-western campus. The factors studied were the effects of physical distance and the effect of social distance, or prestige upon the frequency of communication channels

among eighteen sororities. The sororities were located in two adjacent eight-sorority quadrangles and two separately located sororities. Results indicated both support for and contradiction of the propinquity hypothesis. Although the combined distribution of communications based on propinquity departed significantly from that expected by chance, this result was traceable to one of the quadrangles which communicated much more frequently within its own court than did the others. The sororities seemed to have an established, and apparently well-known, prestige on the campus. This factor related significantly to the frequency of communication among living units studied. Their conclusion was that the physical setting in which people interact may set limits upon and determine the frequency of contact in the early stages of interpersonal relations but the psychological factors may emerge and alter or even reverse the effects of the physical setting.

Maisonneve, et al. (1952) surveyed two classes of a large educational institution in Paris, France to determine some of the factors involved in selective choices among students of the classes. They found a significant linkage between common educational background (length of time in school) and reciprocal choices, and that propinquity was significantly linked with the choice of likings. Further, the latter finding held even among two Ss coming to the institution from different schools and having within their class some former classmates. In other words, propinquity within the institution seemed to overcome pregroup propinquity. Another striking finding was that though Ss had a choice of seats within several rows, isolated Ss, who were seldom if ever chosen, were on a corner of the fringe of a row. They attribute this phenomenon

to intercausality of a personality factor and propinquity; that is to say, those Ss chose seats on the fringe because they were solitary and they remained solitary because of the location of their seats.

Byrne and Buehler (1955) studied 33 freshmen in a psychology class over a twelve-week period. They hypothesized that students in neighboring seats would be more likely to become acquainted than classmates in general. The percentages of possible classroom acquaintanceships rose from 8 percent to 21 percent in twelve weeks while for seat neighbors, the choices rose from 3 percent to 74 percent.

The literature abounds with sociometric studies using proxemic measures as the predictor. The majority of these studies support the notion that physical distance or spatial arrangements do effect sociometric choices in a complex manner and subject to the influence of other factors. For the most part, studies utilizing various personality measures have found little support for their use as predictors of sociometric choices and rejections.

The Hypotheses

The primary purpose of this study was to test the hypothesis that specific interpersonal relationships can be predicted from Minnesota Multiphasic Personality Inventory scores converted to indices of Dom and Lov on Level I of The Leary System. The criterion measures of interpersonal relationships were of specific overt behavior, sociometric friendship and helping choices among residents of a normal living unit. Level I of The Leary System was devised specifically for the purpose of predicting public (overt) interpersonal relationships. The relationship

implied by the Lov variable is that individuals who are more loving than hateful will receive more friendship and helping choices, and those who are somewhat dominant or have leadership qualities will be sought as friendship and helping choices.

A recent finding by Sinnett and Wiesner (1967) served as a pilot study for this investigation. From their intercorrelations of social-psychological data collected from a group of seven client and ten volunteer Ss from a small experimental rehabilitation living unit in a university dormitory, they found that the Lov scale predicted the sociometric criteria with correlations of about .50 and the Dom scale predicted friendship and helping choices with correlations ranging around .30. Although the correlations with Dom failed to reach statistical significance, they were in the predicted direction, and a cross-validation study of both sets of findings is in progress. Such a finding may be of utility in predicting behavior in a social setting if evidence can be found to support the hypothesis that MMPI scores correlate significantly with sociometric choices for members of a larger, normal living group.

A second hypothesis investigated in this study was that there is an inverse relationship between proximity of room location and friendship and helping choices among residents of the unit. In this study, proximity is defined as actual physical distance of individual's rooms from one another. The assumption is that the closer S's rooms are to one another, the more likely they are to choose each other as friends or helpers. If this hypothesis holds, roommates would choose each other most frequently, those individuals in adjacent rooms next most

frequently, and those at the longest distance would choose each other least.

The primary hypothesis that MMPI scores, converted to indices of Dom and Lov on Level I of The Leary System, can predict sociometric friendship and helping choices in a normal living unit was subdivided for testing as follows:

I. Ho: Dom scores will be positively related to friendship choices.

II. Ho: Dom scores will be positively related to helping choices.

III. Ho: Lov scores will be positively related to friendship choices.

IV. Ho: Lov scores will be positively related to helping choices.

The second hypothesis, that there is an inverse relationship between proximity of room location and friendship and helping choices, was subdivided for testing as follows:

V. Ho: Proximity of rooms will be positively related to friendship choices.

VI. Ho: Proximity of rooms will be positively related to helping choices.

METHODOLOGY

This chapter describes the sampling procedure, the measuring instruments, the data collection procedures, and the statistical methods used to test the basic hypotheses.

The Sampling Procedure

Subjects. The subjects were 63 Kansas State University students who volunteered to participate in the study. Thirty-two were men from one corridor of a dormitory and 31 were women from one corridor of another dormitory. The women, ranging in age from 18 to 21, were predominantly 18 and 19 year-old freshmen and sophomores majoring in Education, Home Economics, and Arts and Sciences. The men, ranging in age from 18 to 23, were predominantly 18 through 20 year-old freshmen and sophomores majoring in Arts and Sciences, Agriculture, and Engineering. The distribution of Ss by age, curriculum, and year in college is shown in Table 1.

Sampling procedure. A complete pattern of sociometric choices could be obtained only if all members participated in the study. In an attempt to meet this requirement and still obtain Ss on a voluntary basis, it was decided that they would be paid $2.00 for approximately two hours of testing time. Even though only one corridor could be selected from each dormitory, it was necessary and in keeping with university policies to offer all corridors the opportunity to participate. Copies of a letter breifly outlining the purpose and proposed data collection procedures were sent to the dormitory directors and resident or staff assistants to read at floor meetings and post in each

Table 1

Distribution of Subjects
by Age, Year in College, and Curriculum

		Males		Females		Totals	
		Number in class	Percent in class	Number in class	Percent in class	Number in class	Percent in class
Age	18	7	21.9	15	48.4	22	34.9
	19	10	31.3	12	38.7	22	34.9
	20	9	28.1	2	6.5	11	17.5
	21	2	6.3	1	3.2	3	4.8
	22	3	9.4	1	3.2	4	6.3
	23	1	3.1	0	0.0	1	1.6
Year in College	Fr.	12	37.5	23	74.2	35	55.6
	So.	10	31.3	7	22.6	17	27.0
	Jr.	5	15.6	0	0.0	5	7.9
	Sr.	3	9.4	0	0.0	3	4.8
	Gr.	2	6.3	1	3.2	3	4.8
Curriculum	Agric.	8	25.0	0	0.0	8	12.7
	Arch.	2	6.3	0	0.0	2	3.2
	Arts & Sci.	11	34.4	8	25.8	19	30.2
	Commerce	2	6.3	4	12.9	6	9.5
	Education	2	6.3	10	32.3	12	19.0
	Engineering	6	18.8	0	0.0	6	9.5
	Home Econ.	0	0.0	9	29.0	9	14.3
	Vet. Med.	1	3.1	0	0.0	1	1.6

of the corridors (see Appendix A). A sign-up list was also posted in each corridor along with a notice that all lists would be collected in one week and the corridor with the nearest to one hundred percent voluntary signup would be selected; in the case of ties, the "winner" would be drawn from among them.

Ecology. The two dormitories from which the sample was taken, are adjacent to one another, identical in size, and nearly identical in

floor plan. The structural similarity of the two halls made possible the selection of corridors containing approximately equal numbers of male and female Ss and provided control for variance in social interaction due to physical differences between the two corridors. The men's corridor which was selected is on the second floor of the South wing of the dormitory, and 35 men were housed in its 18 rooms. The women's corridor is on the third floor of the East wing of the dormitory and housed 30 women in its 15 rooms.[1] Each dormitory housed approximately 600 students. The floor plan for the men's corridor is shown in Figure 2, and for the women's corridor in Figure 3. The basic living unit for all corridors is a two-person room. Every room within the women's corridor was occupied by two people whereas several rooms in the men's corridor were occupied by only one person or participant.[2]

The main entry and exit for both corridors was off the lounge of the floor on which it was located. Both corridors are also accessible from back stairways. It was not possible to measure the flow of traffic to and from or through the corridors from the back stairways, but reports by the dormitory directors and residents indicated more "backdoor" traffic through the men's corridor than the women's. The toilets and showers are centrally located in each corridor. An additional difference between the corridors was that a resident assistant (RA), a fourth-

[1]The staff assistant (SA) for the floor on which the corridor was located lived in a room by herself just outside the corridor; she also participated in the study.

[2]Two of the thirty-five men, who signed up for the study, failed to show up for testing. A third man took all of the tests but quite obviously made a farce of it, therefore, his test data were not included in the results.

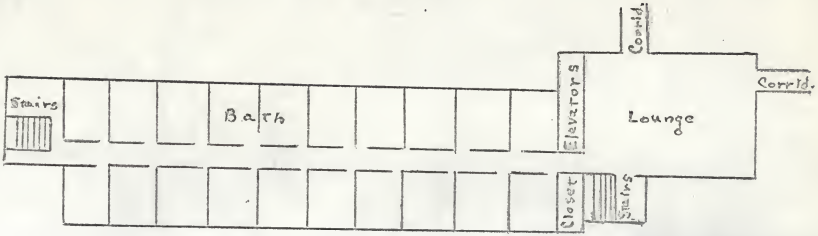

Figure 2. Floor plan of men's corridor.

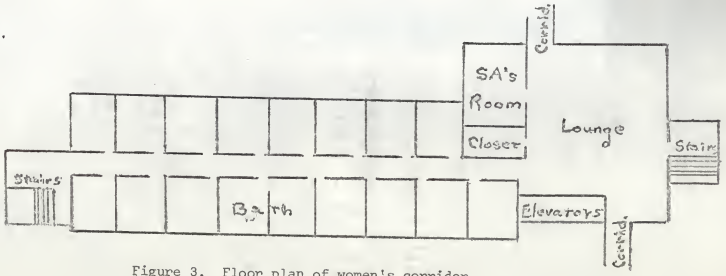

Figure 3. Floor plan of women's corridor.

year student, lived within the male corridor whereas his counterpart in the women's corridor was the SA, a graduate student living in a single room just outside the corridor.

Measuring Instruments

Personality measures. The Minnesota Multiphasic Personality Inventory is made up of 566 items for the assessment of important personality characteristics based on psychiatric symptomatology. The items were selected on the basis of empirical separations between "normal" subjects and various nosological groups (Dahlstrom and Welsh, 1960). The psychiatric cases studied were patients in the neuropsychiatric division of the University of Minnesota Hospitals. The main group of normal subjects was made up of men and women accompanying patients or visiting friends or relatives at the hospital. A second group were high school and college students seeking precollege guidance at the Testing Bureau of the University. A third group was composed of workers in various local WPA projects. Detailed discussions of the construction of items and derivation of the scales may be seen in a series of papers (Hathaway and McKinley, 1940a, 1942; McKinley and Hathaway, 1940, 1942, 1944; McKinley, Hathaway, and Meehl, 1948; Welsh and Dahlstrom, 1956; and, Drake, 1946). Table 2 of this study denotes and briefly defines each of the scales of the MMPI. Standard scores on each of the basic scales were utilized in this study and eight of them were converted to Level I of The Leary System.

Level I of The Leary System is a measure of public (overt) interpersonal behavior based on responses to the MMPI, converted to indices

Table 2

A Brief Description of MMPI Scales
(Dahlstrom and Welsh, 1960 and Welsh and Dahlstrom, 1960)

Scale	Description
L*	Involves aggressive feelings, bad thoughts, temptations, and lack of control or conformity. These are clear, unambiguous, and generally socially unfavorable attributes.
F*	The items deal with peculiar thoughts and beliefs, apathy, lack of interest in things, or denial of social ties. Many items deal with family relationships and childhood experiences, a few with religion, attitudes toward the law, and lack of comfortable control over impulses.
K*	This scale was developed as a measure of test-taking attitudes, the items appearing as personal defensiveness or as an exhibition of personal defects and troubles.
Hs	A measure of the personality characteristics related to the neurotic pattern of hypochondriasis. Items show an abnormal concern with bodily functions.
D	Measures the degree or depth of depression, characterized by a pessimistic outlook on life and the future, feelings of hopelessness or worthlessness, slowing of thought and action, and preoccupation with death or suicide.
Hy	A measure of neurotic defenses of the conversion form of hysteria. Physical symptoms may appear as a means of solving difficult conflicts or avoiding mature responsibilities.
Pd	To measure personality characteristics of the amoral and asocial subgroup with psychopathic personality disorders.
Mf	To identify features of the disorder of male sexual inversion. Feminism appears in their values, attitudes and interests, and styles of expression and speech as well as in sexual relationships.
Pa	A diagnostic evaluation of paranoia. Includes delusional beliefs, frequently including delusions of reference, influence, and grandeur.

(Continued)

Table 2 (continued)

Scale	Description
Pt	To evaluate the neurotic pattern of psychasthenia, or the obsessive-compulsive syndrome. Show some forms of abnormal fear, worrying, difficulty in concentrating, guilt feelings, and excessive vacillation in making decisions.
Sc	To detect the psychotic pattern of schizophrenia. Contains many contradictory behavioral features. These persons may be cold, constrained, apathetic, or indifferent. Some may appear remote and inaccessible, often seemingly sufficient unto themselves. May show hallucinations, delusions, and some disorientation. May be inactive and withdrawn.
Ma	The affective disorder hypomania. Characterized by overactivity, emotional excitement, and flight of ideas.
Si	A measure of introversion. Describes a person's uneasiness in social situations or in dealings with others and covers a variety of special sensitivities, impulses, temptations, and mental aberrations, or may show a strong self-depreciatory trend.
Es	Refers to the pervasive characteristic of personality which provides the individual with strength and control over temptation, control over conflicting impulses to action, and stability under stress. It accounts for individual differences in tolerance and integration.

*Validity scales

of the two dimensions of interpersonal behavior, Dom and Lov (described in Chapter I). Intensive research devoted to making clinical predictions of MMPI profiles and their relation to The Leary System, suggested the use of eight MMPI scales for the prediction of social behavior (Leary, 1957). The scales Ma, D, Hs, and Pt are related to dominant-submissive behavior; scales Hy, Sc, K, and F are related to friendly-hostile behavior. The MMPI is administered and scored in the standard

manner. The raw scores for each scale are plotted on the special profile sheet on which T (standard) scores are listed parallel to raw scores. The T scores are then converted into raw index scores of the Dom and Lov dimensions as follows:

$$\text{Dom} = (\text{Ma-D}) + (\text{Hs-Pt})$$
$$\text{Lov} = (\text{K-F}) + (\text{Hy-Sc})$$

Each S's Dom and Lov scores are treated in terms of the mean of his norm group. The mean is at the center of the circumplex and the scores are summarized and may be plotted in terms of distance and direction from the center. The norm group for this study is a sample of 153 undergraduate psychology students at Kansas State University.

The sociometric questionnaire. The sociometric questionnaire used in this study (see Appendix B) required that Ss list whom they would and would not choose as friends or helpers from among the entire group of Ss on their corridor, among the university staff, and others. This procedure made it possible to determine the number of choices and rejections each S received and made in each category as well as the number of mutual choices and rejections.

The proxemic measure. For this study, the actual physical distance was measured from the front of the doorway of every room to the front of the doorway of every other room on the corridor. These distances were added to yield a sum of distances for each S or pair of roommates on the corridor. It was then possible to use the sums of distances or the rank order of distances for statistical analysis.

Biographical data. The biographical data questionnaire was included for exploratory purposes. A copy of the questionnaire may be seen in

Appendix C. Information was also obtained from dormitory staff as to which members belonged to sororities or fraternities, as to the moves made into and out of the corridors within the entire year, and the form of government on the floor and corridor.

Statistical Procedures

Each of the six hypotheses set forth in this study was tested by Pearson product-moment correlation coefficients (r). For each of the hypotheses, the relationship between the predictor and the criterion data of time one (t_1) was tested for the two groups, males and females, independently and for the group as a whole. This combination of tests was repeated for the time two (t_2) data. Since the sociometric measures yield markedly skewed distributions, the Chi-square test (χ^2) was also used.

For evaluating the proxemic hypotheses, sums of distances and the number of choices for each individual were rank ordered and dichotomized or trichotomized whichever was most appropriate to the distribution of sociometric choices for the particular variable being tested. It was mentioned in a previous section that three of the males moved just prior to the collection of t_2 data. Since the correlations between proxemics and sociometric choices were done by computer and the sums of distances for these three Ss were not the same at t_1 and t_2, these three Ss were not included in these particular tests.

In addition to the above tests of the proxemic hypotheses, Chi-square tests were done to determine whether or not roommates, as opposed to non-roommates, chose or rejected each other as friends or helpers

with greater than chance frequency. The Chi-square test for evaluating whether roommates had more mutual choices than non-roommates was conducted as follows: the number of possible pairs for a corridor was determined and used as N. It is recognized that this is an inflated N since it exceeds the number of Ss and, therefore, there is interdependence rather than independence of events. A Chi-square test using N as the number of Ss does not appear to be feasible. Contingency tables (2x2) were formed for roommates versus non-roommates and mutual choices versus non-mutual choices, and Chi-square values were computed.

Data Collection

Time one data were collected the eighth week of the second semester. This data consisted of the MMPI, the sociometric questionnaire, and the biographical data sheet. All Ss met with the researcher in the lounge just outside the corridor. Standard instructions were given to all for taking the MMPI and filling out the other two instruments. They were asked not to discuss the test materials while working on them. Each S was given a large manilla envelope containing all of the necessary materials and was instructed to return them to the researcher as soon as he or she had completed them. Time two data were collected in the same manner during the fourteenth week of the semester. This consisted only of a repeat sociometric questionnaire. Subjects were paid immediately following completion of this task. A flow chart of the data collection procedures is shown in Table 3.

Table 3

Flow Chart of Data Collection Procedures

Date	Procedure
March 27	Letter to dormitories
March 31	Picked up signup lists and announced selections
April 4	Administered MMPI, t_1 sociometric, biographical data to women's corridor
April 5	Administered MMPI, t_1 sociometric, biographical data to men's corridor
May 16	Administered t_2 sociometric and payed Ss in women's corridor
May 18	Administered t_2 sociometric and payed Ss in men's corridor

RESULTS

The results of statistical analyses and data relevant to each of the hypotheses are presented as set forth in Chapter I. For each hypothesis, the results of t_1 and t_2 data are presented for the female subgroup first, the male subgroup next, followed by results for the combined groups.

Relationships of the Dom and Lov dimensions to friendship choices received (FCR) and helping choices received (HCR) were determined by use of Pearson product-moment correlation coefficients.

I. Ho: Dom scores will be positively related to friendship choices.

The correlations for the individual and combined groups, both at t_1 and t_2, indicate negative relationships which are non-significant. These relationships are in the direction opposite to that predicted. Therefore, Hypothesis I is not supported.

II. Ho: Dom scores will be positively related to helping choices.

All correlations failed to meet a one-tailed test of significance. Hypothesis II is not supported.

III. Ho: Lov scores will be positively related to friendship choices.

All correlations failed to meet a one-tailed test of significance. Hypothesis III is not supported.

IV. Ho: Lov scores will be positively related to helping choices.

All correlations are positive and in the predicted direction, however, they are non-significant. Hypothesis IV is not supported. Correlations for the four hypotheses may be seen in Table 3.

Table 3

Correlations of Dom and Lov Scores with Friendship and Helping Choices Received

Sociometric Variables	Females		Males		Combined Groups	
	Dom	Lov	Dom	Lov	Dom	Lov
FCR, t_1	-.14	-.10	-.37	-.09	-.26	-.09
FCR, t_2	.20	-.13	-.18	.14	-.19	.05
HCR, t_1	.10	.14	-.31	.04	.01	.09
HCR, t_2	.00	.17	-.13	.04	.03	.10

Because the distributions were skewed, Chi-square (χ^2) tests were also computed to test the above hypotheses. The results, which also failed to support any of the four hypotheses, may be seen in Table 4.

V. Ho: Proximity of rooms will be positively related to friendship choices.

To evaluate Hypothesis V, three operational definitions of proximity were employed: 1) actual physical distance between each room and every other room on the corridor, 2) residing in the same room versus residing in any other room, and 3) actual physical distance between rooms in which Ss made reciprocal choices versus physical distance between all rooms. To test the first of these approaches, Pearson product-moment correlations were used to determine the relationships between proximity of all rooms and friendship choices received (FCR). Three of the six

Table 4

Chi-square Tests of the Relationships Between Dom and Lov Scores and Friendship and Helping Choices Received

Sociometric Variables	Females			Males			Combined Groups		
	χ^2	df	P	χ^2	df	P	χ^2	df	P
FCR, t_1 with Dom	4.06	2	N.S.	.16	1	N.S.	3.19	4	N.S.
FCR, t_2 with Dom	1.37	2	N.S.	.12	1	N.S.	4.56	2	N.S.
HCR, t_1 with Dom	.29	1	N.S.	4.63	1	$<.05$	3.82	4	N.S.
HCR, t_2 with Dom	.04	1	N.S.	4.25	2	N.S.	3.24	2	N.S.
FCR, t_1 with Lov	.75	2	N.S.	.50	1	N.S.	.41	2	N.S.
FCR, t_2 with Lov	3.75	2	N.S.	.12	1	N.S.	1.19	1	N.S.
HCR, t_1 with Lov	.78	1	N.S.	.19	1	N.S.	.30	2	N.S.
HCR, t_2 with Lov	.31	1	N.S.	.18	1	N.S.	.09	1	N.S.

correlations are in a direction opposite to that predicted and none of the correlations are statistically reliable (see Table 5).

Table 5

Correlations of Proxemics with Friendship and Helping Choices Received

Sociometrics	Females	Males	Combined Groups
FCR, t_1	-.01	-.03	.00
FCR, t_2	-.05	.13	.10
HCR, t_1	.16	.07	-.05
HCR, t_2	.06	.05	-.15

Distributions of the choices appeared to be quite skewed, therefore, Chi-square tests were also computed to determine the relationships between the proximity of all rooms and choices received, as well as choices made (FCM), rejections received (FRR), and rejections made (FRM).

The Chi-square values are all non-significant at the five percent level, although friendship choices received at t_1 are very close to that level. The Chi-square values may be seen in Table 6.

Table 6

Chi-square Tests of the Relationships Between Proximity and Sociometric Variables

Sociometric Variables	Females			Males			Combined Groups		
	χ^2	df	P	χ^2	df	P	χ^2	df	P
FCR, t_1	7.20	4	N.S.	8.23	4	N.S.	15.43	8	N.S.
FCR, t_2	1.97	4	N.S.	2.54	4	N.S.	4.51	8	N.S.
HCR, t_1	3.88	1	N.S.	.16	1	N.S.	4.05	2	N.S.
HCR, t_2	2.64	1	N.S.	.01	1	N.S.	2.65	2	N.S.
FRR, t_1	.04	1	N.S.	.66	1	N.S.	.20	2	N.S.
FRR, t_2	.88	1	N.S.	.12	1	N.S.	1.00	2	N.S.
HRR, t_1	4.15	4	N.S.	.00	1	N.S.	*		
HRR, t_2	6.30	4	N.S.	2.05	1	N.S.	*		
FRM, t_1	.99	1	N.S.	1.52	1	N.S.	2.51	2	N.S.
FRM, t_2	.83	1	N.S.	3.12	1	N.S.	3.95	2	N.S.
HRM, t_1	.29	1	N.S.	2.67	1	N.S.	2.96	2	N.S.
HRM, t_2	.04	1	N.S.	.12	1	N.S.	.16	2	N.S.
FCM, t_1	6.14	4	N.S.	1.26	4	N.S.	7.50	8	N.S.
FCM, t_2	5.30	4	N.S.	2.42	4	N.S.	7.72	8	N.S.
HCM, t_1	2.90	4	N.S.	4.41	4	N.S.	6.23	8	N.S.
HCM, t_2	1.55	1	N.S.	3.86	4	N.S.	*		

*Differing degrees of freedom were used for the two groups, therefore, they are not additive.

For the second approach, Chi-square tests were utilized to determine whether or not roommates mutually chose (MFC) or rejected (MFR) each other as friends significantly more often than non-roommates. Mutual friendship choices of both female and male roommates at t_1 and t_2 were significantly greater than those of non-roommates. The probability

was beyond the .001 level. Mutual friendship rejections were all non-significant. The results of these Chi-square tests may be seen in Table 7.

Table 7

Chi-square Tests of the Relationships Between Roommate and Non-roommate Choices and Rejections as Friends and Helpers

Sociometric Variables	Females			Males		
	X^2	df	P	X^2	df	P
MFC, t_1	129.62	1	.001	81.16	1	.001
MFC, t_2	83.82	1	.001	41.59	1	.001
MHC, t_1	83.35	1	.001	67.35	1	.001
MHC, t_2	24.57	1	.001	90.54	1	.001
MFR, t_1	.00	1	N.S.	.00	1	N.S.
MFR, t_2	.00	1	N.S.	.00	1	N.S.
MHR, t_1	6.08	1	.025	.00	1	N.S.
MHR, t_2	.22	1	N.S.	.00	1	N.S.

To evaluate the third approach and determine the relationship between proximity of rooms and mutual friendship choices, t-tests were done where the number of choices was greater than ten and an exact test, based on the expansion of the binomial, was used in cases where they were less than ten. The results of all t-tests and exact tests are significant and support the hypothesis that a significantly large number of the mutual choices would be made between Ss whose rooms were less far apart than the average distance for all rooms. The results are shown in Table 8.

Thus, Hypothesis V is partially supported. It was not supported where proximity was defined as the actual physical distance between

Table 8

T-tests or Exact Tests of Relationships
Between Proximity and Mutual Friendship and Helping Choices

Sociometric Variables	Females t	Females P	Males t	Males P
MFC, t_1	4.21	.001	3.14	.005
MFC, t_2	5.44	.001	2.50	.025
MHC, t_1	4.04	.001		.001
MHC, t_2	4.26	.001		.001

each room and every other room, but it was supported by the two approaches in which reciprocal choices were used rather than the number of choices received or made.

VI. Ho: Proximity of rooms will be positively related to helping choices.

To evaluate Hypothesis VI, the proximity data were treated in the same manner as for evaluating Hypothesis V. Four of the six correlations between proximity of all rooms and helping choices received (HCR) are in the direction predicted; two are not. All six are non-significant. These correlations may be seen in Table 5. The Chi-square values for helping choices received or made and helping rejections received or made are also all non-significant. The Chi-square values may be seen in Table 6.

In the second approach, the results of Chi-square tests show that roommates mutually chose each other as helpers significantly more often than non-roommates. Mutual rejections were all non-significant except for females at t_1. In this case, the probability was less than .025 of

getting a χ^2=6.08, 1 df, and the cells show that this was due to only one pair out of a possible fifteen pairs mutually rejecting each other. The results of these Chi-square tests may be seen in Table 7.

By the third approach, testing the relationship between proximity of rooms and mutual helping choices, the results of all t-tests and exact tests are significant. Hypothesis VI is partially supported using operational definitions analagous to those employed for evaluating Hypothesis V.

Sign tests on the direction of changes were done to determine whether or not choices and rejections differed significantly between t_1 and t_2. The variables tested were friendship and helping choices received, rejections received, choices made, mutual choices, and mutual rejections. All tests, except two, indicated there were no significant differences. For females, an increase in the number of helping rejections received at t_2 over t_1 was significant at the .05 level. For males, an increase in the number of mutual friendship choices at t_2 over t_1 was also significant at the .05 level. Results of the sign tests are given in Table 9. The median number of mutual friendship choices for males was one at t_1 and two at t_2. The median was two for females at both t_1 and t_2. At both periods, the median number of mutual helping choices was zero for males and two for females. The median number of mutual friendship and helping rejections was zero on all cases.

Correlations between t_1 and t_2 data on the above variables are shown in Table 10. All correlations but four are significant at the .05 level or better indicating stability of choices over the time interval studied. For females, the correlation for helping rejections made was

Table 9

Sign Tests to Determine if Numbers of
Sociometric Choices and Rejections Differ Significantly
from t_1 to t_2

Sociometric Variables	Probability	
	Females	Males
Friendship choices received	N.S.	N.S.
Helping choices received	N.S.	N.S.
Friendship rejections received	N.S.	N.S.
Helping rejections received	$<.05$	N.S.
Friendship rejections made	N.S.	N.S.
Helping rejections made	N.S.	N.S.
Friendship choices made	N.S.	N.S.
Helping choices made	N.S.	N.S.
Mutual friendship choices	N.S.	$<.05$
Mutual helping choices	N.S.	N.S.
Mutual friendship rejections	N.S.	N.S.
Mutual helping rejections	N.S.	N.S.

Table 10

Correlations Between t_1 and t_2
Choices and Rejections

Sociometric Variables	Females	Males	Combined Groups
Friendship choices received	.86	.80	.82
Helping choices received	.88	.87	.90
Friendship rejections received	.90	.83	.88
Helping rejections received	.77	.92	.83
Friendship rejections made	.81	.38	.77
Helping rejections made	-.05	.42	.12
Friendship choices made	.76	.86	.83
Helping choices made	.71	.57	.73
Mutual friendship choices	.67	.77	.70
Mutual helping choices	.75	.40	.71
Mutual friendship rejections	.86	.00	.86
Mutual helping rejections	.76	.00	.78

-.05. The number of rejections increased from 56 at t_1 to 81 at t_2 and this can all be attributed to one S who made no rejections at t_1 but made 25 at t_2. This may also account for the low correlation of .12 on the same variable for the combined groups. The correlations of .00, indicating no relationship, for men on both mutual friendship and mutual helping rejections is due to the fact that there were no entries in either category. In general, the correlations and the sign test findings show that the sociometric measures are stable over time.

Correlations among the K and Hy scales of the MMPI (both of which are components of the Lov scale) versus the criterion variables of friendship and helping choices received were computed and found to be non-significant.

Since the findings by Sinnett and Wiesner (op. cit.) served as a pilot study for this investigation, a number of the findings of the two studies were compared and statistical analyses were done to test for differences between the two groups of Ss. These groups will be referred to hereafter as the rehabilitation group and the normal group. In order to compare the findings of the two studies, a joint matrix of these correlations is shown in Table 11. The majority of correlations for the two groups are quite dissimilar except for those among the criterion variables, friendship and helping choices at t_1 and t_2. For this subset of six intercorrelations (variables 3, 4, 5 and 6) each was ranked in order of magnitude for each study and rho was computed between the sets of ranks. A rank order correlation of .94 for these six variables suggests that the pattern of relationships among these sociometric variables is very similar.

Table 11

Comparison of Correlations* Among Dom, Lov, K, and Hy Scores and Criteria for the Rehabilitation Group and the Normal Group**

Variables	1	2	3	4	5	6	7	8
1. Lov		44 (22)	58 (-09)	56 (05)	44 (09)	43 (10)	72 (67)	05 (40)
2. Dom			33 (-26)	39 (-19)	24 (01)	26 (03)	32 (21)	17 (09)
3. FCR, t_1				74 (82)	59 (56)	52 (58)	37 (-08)	37 (17)
4. FCR, t_2					54 (62)	48 (61)	53 (00)	48 (11)
5. HCR, t_1						83 (90)	50 (01)	30 (29)
6. HCR, t_2							61 (01)	46 (22)
7. K								02 (18)
8. Hy								

*Decimals have been omitted.

**Correlations for the normal group are in parenthesis.

To determine if there were significant differences between groups on the distribution of Dom, Lov, Hy, and K scores, t-tests were done. For Dom, t=2.34, 78 df, P ≤ .025. The mean was 52.9 for the rehabilitation group and 47.2 for normals. By inspection, it has been found that the high mean of Dom scores for the rehabilitation group can be attributed to its volunteer members, who entered the living unit as helpers, as opposed to clients, who enter to be helped. The results of t-tests between the normal and rehabilitation groups for other comparisons (Lov, K, and Hy scores) were non-significant. These results may be seen in Table 12.

Table 12

Summary of T-tests of Differences Between the Rehabilitation Group and the Normal Group on Four MMPI Variables

Variable	t	df	P
Dom	2.34	78	.025
Lov	.88	78	N.S.
K	.60	78	N.S.
Hy	.87	78	N.S.

Chi-square tests were used to test the differences between groups on the distributions of friendship and helping choices at t_1 and t_2. The X^2 values, shown in Table 13, are all non-significant suggesting there are no major differences.

Table 13

Chi-square Tests of Differences Between the Rehabilitation Group and the Normal Group on Friendship and Helping Choices Received

Variable	X^2	df	P
FCR, t_1	1.99	1	N.S.
FCR, t_2	1.50	1	N.S.
HCR, t_1	.43	1	N.S.
HCR, t_2	.64	1	N.S.

There were 24 sociometric variables and 16 personality variables included in this study. For exploratory purposes, all of these variables were intercorrelated. The correlations of particular interest have been presented above.

DISCUSSION

The major purpose of this study was to determine whether or not social behavior can be predicted from personality measures. With respect to four hypotheses based upon this purpose, the results may be summarized as follows:

I. Ho: Dom scores will be positively related to friendship choices.

Hypothesis I was not supported.

II. Ho: Dom scores will be positively related to helping choices.

Hypothesis II was not supported.

III. Ho: Lov scores will be positively related to friendship choices.

Hypothesis III was not supported.

IV. Ho: Lov scores will be positively related to helping choices.

Hypothesis IV was not supported. The conclusion is, therefore, that personality measures employed in this study are not reliable predictors of sociometric behavior.

Several questions arise out of these findings. First, why did these measures predict for the rehabilitation living unit studied by Sinnett and Wiesner yet fail to predict for the normal living unit? One interpretation is that the results of this study simply represent a failure in cross-validation. The sociometric measures are highly intercorrelated, and results of the Sinnett and Wiesner study may have been a product of chance. The question also arises as to whether the difference

in findings might be attributable to differing populations studied. Although both groups were college students living in dormitories, the rehabilitation group was located in a much smaller dormitory in which they seemed to be identified as distinct from the rest of the unit. Furthermore, members entered the rehabilitation unit with some expectations for interacting with other members who are like themselves in that they also have emotional problems. Moreover, they were brought together in scheduled weekly meetings which were generally emotionally tense and revealing. A cross-validation study in progress by Sinnett and Wiesner on subsequent samples of the same population, however, has also failed to support the findings of the original study. The correlations were uniformly low and at times in a direction opposite to those in the original sample. It is therefore reasonable to conclude that the personality measures used in this study do not predict social behavior in either the normal subjects or the students in the rehabilitation unit.

There are some findings of value to future research which come from these studies. One of the most interesting is that the sociometric measures seem to have the same operating characteristics in both populations. Both groups made approximately the same numbers of choices per member, both made many more friendship choices than helping choices, and neither group made many rejections. In both groups the friendship and helping measures are significantly correlated with one another and are quite stable over time. A notable exception is that mutual friendship and helping rejections appear to be rather meaningless because of their low absolute values, the medians being zero. Also, the two groups did not differ significantly on the major personality variables, except for

Dom scores. The mean of Dom scores was somewhat higher for the rehabilitation group than for the normal group.

If Leary's theory is correct that what an individual does influences how others respond to him, then why do these personality measures not predict sociometric behavior? There are numerous phenomena which could account for some of the discrepancy. Personality factors may be vital, but other situational and ecological forces may be operating which also effect social behavior. For example, the results of this study suggest that in some settings proximity factors may be more influential than personality factors. Jennings (op. cit.), Goffman (1959), and others have pointed out that social behavior is a product of situational factors as well as personality. In Jenning's analyses of Moreno's study, she found that the choice-status of a given individual seemed to result from the interaction of his individual characteristics and the environmental factors, or the individual characteristics of those about him. Homans (op. cit.) also pointed out that we cannot look for a simple cause and effect of responses, but must look instead at the complexes of interacting forces. Barker (1963), in his ecological studies has stated that one must know the setting where an individual is before his behavior can be predicted, that he behaves differently in different settings. Moreno (op. cit.) has also stated that one person does not like another in all settings, therefore, the setting must be specified. Within one group, a person who is rather dominant may receive many choices because of his leadership qualities while in another group he may receive very few, depending upon the nature and purpose of the groups. Another speculation, suggested by the Sinnett, Stimpert, and Straight (op. cit.) study

is that persons whose personality scores may indicate good social relationships, but do not receive many friendship and helping choices, may have meaningful ties outside the group, consequently, they may invest little in relationships with their peers in the group. Four of the female and two male Ss of this study belonged to sororities and fraternities respectively. Choices and rejections of the four women did not deviate far from the means for the group while those for the two males did. These two men, who shared the same room, did not receive any choices or rejections from other members. However, this is not sufficient evidence to support the notion that membership in a fraternity is an important factor. One of these men had the highest Dom score of anyone who participated in the study, and the other failed to take the testing. The second man, who failed to participate, received no choices and a very high number of rejections. Another, who participated but made a farce of the personality inventory by marking extreme categories of behavior in answer to most of the questions, received approximately average numbers of choices but rejections far above the averages. Sinnett and Hanford (op. cit.) found that Ss who failed to respond to the sociometric questionnaire received significantly fewer choices from their peers, however, they were not differentiated from respondents by the number of rejections received.

In regard to the sociometric measures, another finding of interest comes from this study. That is, mutual friendship choices among all possible pairs increased significantly from t_1 to t_2 for males but not for females. Also, although neither the sign test nor correlations show them to be significant, the number of friendship choices made by males

increased more from t_1 to t_2 than for females. It may be that these are simply chance differences. On the other hand, this may be a balance-maintaining and stabilizing process such as that suggested by Newcomb and supported by his study in which he found that there were formed over time an increasing number of larger and more stable high-attraction subgroups. In this study, there is some evidence that the female subgroup as a whole may have been further along in the acquaintance process than were the males. From the beginning of the year until the t_1 data were collected, only two new people had moved into the female corridor, one from another floor and one from another school. The male corridor had at least five men from another floor and one from another dormitory move into the corridor at the beginning of the second semester. For the females, there were five room or roommate changes prior to collection of t_1 data; the males had thirteen room or roommate changes to that time.

A second aim of this study was to determine whether or not social behavior can be predicted from proxemic measures. The two basic hypotheses were as follows:

V. Ho: Proximity of rooms will be positively related to friendship choices.

VI. Ho: Proximity of rooms will be positively related to helping choices.

These hypotheses were partially supported. Three approaches, utilizing different operational definitions of proximity, were employed in evaluating them. The hypotheses were not supported by findings of the first approach, in which proximity was defined as the actual physical distance between each room and every other room on the corridor. Several post hoc

explanations can be offered to account for the failure of proxemic relations to predict social interaction for the corridor as a unit. The total physical distance of the corridor may be so small as to have little effect on psychological distance. Further, proximity has its functional aspects in addition to the physical. Within each corridor, there is one central location for the toilets and showers and any member of the corridor may meet any other there frequently. The main flow of traffic is another functional aspect; there are doors at both ends of the corridors, however, the main flow of traffic is to and from the door to the lobby. There are frequent corridor or floor meetings as well as other activities which afford opportunities for getting acquainted. Thus, physical distance among rooms in the static way used here does not take into account the dynamic character of social distance in a residence hall corridor. Perhaps physical distance is a superior index in a setting such as apartment dwellings where there are fewer shared facilities and planned group activities.

Both hypotheses were supported by findings of the second approach in which proximity was defined as residing in the same room versus residing in any other room. Roommates mutually chose each other as friends or helpers much more frequently than could be expected by chance. Further, roommates mutual rejections of each other were much less than could be expected by chance except for females at t_1. An examination of the observed values, however, shows that in the latter case there was only one pair out of fifteen possible pairs of roommates who mutually rejected each other. This finding suggests that the room is the most significant proxemic unit within the high-rise dormitories. Newcomb also

found that high attraction was not related to proximity as defined by residence on the same floor. He also found that in Year II the attraction level was higher for roommates than for other pairs. The latter was not supported in Year I, however, there were other events believed to account for the counteraction of this tendency in Year I.

Both hypotheses were also supported by the finding of a third approach in which proximity was taken as the actual physical distance between all rooms in which Ss made reciprocal choices versus the physical distance between all rooms on the corridor. A significantly large numbert of all mutual choices were made between Ss whose rooms were less far apart than the average distance for all rooms on their respective corridors.

Finally, by inspection it was found that both males and females chose more friends from within their respective corridors than total others they named. This too suggests that physical distance, and perhaps layout, is an important determinant of friendship choices. It is interesting to note that although a few more helping choices were also made from within the corridor than outside, there was a tendency to choose a greater percentage of helping choices than friendship choices from the outside.

The findings of this study suggest that in the high-rise residence halls, rooms are the most significant units of social interaction and corridors are next most important. An investigation of whether or not the pattern of sociometric choices extends in like manner to the floor on which a corridor is located and then to the dormitory as a whole could be of value in determining the psychologically meaningful units of

interaction. There is an urgent need for research into the effects of physical distance, size, and other structural properties of high-rise dormitories on the social behavior and emotional well-being of students. Students utilizing the services of the Student Counseling Center frequently complain of their discomfort from living in these large residence halls where they feel lonely and isolated yet quite lacking in privacy. The majority of midwestern students come from rural areas or small towns where they have learned social behaviors in settings in which there is more living space per person and, consequently, more opportunity for privacy than is afforded in the large dormitories. Furthermore, they have lived in small family units in which each person is important to every other person in the unit. In our culture, most children are taught that the more personal intimacies are properly shared only with those who are close to them, such as family or very close friends. When they arrive at college, they may be randomly assigned to a room or roommate. Not only must they share their room with a stranger, but they must share a bathroom with 30 or more strangers, and they dine with hundreds of others. It may be that roommates declare each other as friends or helpers so frequently because it makes the necessary sharing of intimacies less anxiety arousing.

In order to meet the housing needs of a rapidly expanding college population, more and more high-rise dormitories are being built each year on campuses across the nation. Such large, permanent structures are costly and must be utilized for many years to come, therefore, it is of vital importance that thorough research be done at once to determine the psychological effects such housing has upon students. How do such

dormitories effect the academic efficiency as well as the personal development of students?

Future research of a similar nature may profitably take into consideration some methodological changes. For example, the sociometric measures may be more meaningful if such data were collected at three or more time periods extending over a longer period of time than in this study, perhaps taken near the beginning, middle, and end of the first semester of a school year. Such a schedule could provide more useful information about the acquaintance process and the stability of sociometric choices. The findings of this study also suggest the addition to the sociometric questionnaires of two categories of groups within which choices could be named, i.e., the floor on which the corridor is located and the dormitory as a whole.

Future studies of sociometric behavior within residence halls could utilize measures of attitudes, values, and interests. Such measures would be most meaningful if also taken quite early in the acquaintance process. Some descriptive data may also be useful. One might interview a number of students with respect to ascertaining the psychologically meaningful units in which social behavior takes place. For example, at what point does it become intrusive to go into someone elses' room, or how does entering a room across the hall seem different from entering one further down the hall? Finally, in studying the psychological effects of high-rise dormitories, or other behavior settings, it would be important to compare groups of different sizes, i.e., study two or more different sized dormitories or corridors.

Social scientists are becoming increasingly concerned about space and its effect on human behavior (Journal of Social Issues, October, 1966). Some basic research on meaningful units, behavior settings, and utilization of space is needed. Mere physical distance, although useful, is much too simple to describe and account for complex phenomena of social interaction.

SUMMARY

The major purpose of this study was to determine whether or not social behavior can be predicted from personality measures. MMPI scores converted to indices of the dominance-submission and love-hate dimensions on Level I of The Leary System were the personality measures used as predictors. The criterion measures of social behavior were the sociometric friendship and helping choices and rejections among residents of a normal living unit. Thirty-two men from one corridor of a dormitory and thirty-one women from one corridor of another dormitory at Kansas State University participated in this study.

The findings indicate that personality measures are not reliable predictors of social behavior. This does not suggest, however, that the personality measures are not valid nor that interpersonal relationships are little influenced by individual's personality traits. A more logical assumption is that multiple forces are operating simultaneously. The search for such relevant factors and the complex interrelations among them is a problem for future research.

The second hypothesis investigated was that there is an inverse relationship between proximity of room location and sociometric choices and rejections. Findings for each of the corridors as a unit did not support this hypothesis. However, it was found that in both corridors roommates chose each other more and rejected each other less than could be expected by chance. There were, however, more choices and rejections made by Ss within their respective corridors than from among all others. These findings suggest that in the high-rise dormitories rooms are the

most important units of social interaction, with corridors the next most important.

Many researchers have found that proximity predicted social interaction in various populations. Several post hoc explanations can be offered as to why it failed in the dormitory corridors. Most significant perhaps is the failure to take into account the opportunities for social interaction provided in a dormitory setting as opposed to such as an apartment dwelling or classroom situation.

There is an urgent need for research into the influences of physical distance and structure as well as other factors which effect social interaction in dormitories specifically. In order to attend to the housing needs of the rapidly increasing college population, more and more high-rise dormitories are being built on campuses across the nation. These permanent structures are costly and must be utilized for many decades to come, thus it is imperative that careful consideration be given now to the psychological effects such housing has upon students.

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APPENDIX A

March 27, 1967

To: All Residents and RAs
of Goodnow and Marlatt

From: Mrs. Joy Cadiz, Student Counseling Center

The purpose of this letter is to elicit your assistance in obtaining participants for a research study. As a part of my Master's thesis, I propose a study of social behavior in residence halls. The members of one corridor from your dormitory and one corridor of another dormitory are needed as participants.

The two dormitories have necessarily been preselected, however, since participants are to be paid for their time, all corridors will be given equal opportunity to be the selected one. This can be accomplished if each corridor RA will pass on to all members of his or her corridor the information contained in this letter; have each resident, who wishes to participate voluntarily sign the accompanying sheet. Completed sign-up sheets will be returned to the dormitory director not later than Friday, 31 March. Since as nearly 100% participation as possible is needed, the corridor having the greatest number sign up will be selected. If more than one corridor ties for the greatest percentage, the final selection will be made by drawing.

What participation involves: During the week of April 3-8, the major part of the data will be collected. This will consist of a personality inventory and two very brief questionnaires, all of which is estimated to take an hour and forty-five minutes or less total time. Finally, the week of May 15 or 22, all participants will be contacted to fill out another brief questionnaire, which should take less than ten minutes, and will then be paid $2.00 for his or her total participation.

Individual data will be treated with utmost confidentiality. Upon completion of the thesis, a brief resume of the research findings will be made available to those participants who are interested.

Your cooperation will be greatly appreciated.

Sincerely,

Mrs. Joy Cadiz
Graduate Research Assistant
Student Counseling Center

JC:hf

APPENDIX B

Name: _____ Date: _____

Instructions: We are interested in finding out the resources you turn to when troubled or in need of help, and also in the friendship structure of the corridor. Those you cite as friends may or may not be the same people you cite as helping resources. In each question, list the people by their correct name (if you know it--if you don't know it, mention this to the interviewer) and list them under the correct category. Place the questionnaire in the envelope you have been provided, and return it to the interviewer. The information you provide will be kept confidential. If you find you need additional space, use the back of the sheet, but be sure to put down the number of the item you are answering.

1. Whom do you turn to for help when you have personal troubles?
   Students in corridor: University Staff: Other:

2. Whom would you not turn to when you have personal troubles?
   Students in corridor: University Staff: Other:

3. Who are your close friends?
   Students in corridor: University Staff: Other:

4. Whom would you not want for a friend?
   Students in corridor: University Staff: Other:

APPENDIX C

BIOGRAPHICAL DATA

Name_____ Date_____

Age_____ Sex_____ Hometown_____ Religion_____

Curriculum_____ Year in College_____

Did you ask for the roommate you now have?____ Did you choose your room or was it randomly assigned to you?_____ Did you know your roommate before you came to college?_____ Have you made any room or roommate changes within the 1966-67 school year?_____ If so, please explain briefly_____

_____

THE USE OF PERSONALITY MEASURES AND PROXIMITY FOR THE PREDICTION OF SOCIAL BEHAVIOR

by

JOY MAXINE CADIZ

B. S. C., State University of Iowa, 1958

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Psychology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1968

ABSTRACT

The major purpose of this study was to determine whether or not social behavior can be predicted from personality measures. MMPI scores converted to indices of the dominance-submission and love-hate dimensions on Level I of The Leary System were the personality measures used as predictors. The criterion measures of social behavior were the sociometric friendship and helping choices and rejections among residents of a normal living unit. Thirty-two men from one corridor of a dormitory and thirty-one women from one corridor of another dormitory at Kansas State University participated in this study.

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The second hypothesis investigated was that there is an inverse relationship between proximity of room location and sociometric choices and rejections. Findings for each of the corridors as a unit did not support this hypothesis. However, it was found that in both corridors roommates chose each other more and rejected each other less than could be expected by chance. There were, however, more choices and rejections made by Ss within their respective corridors than from among all others. These findings suggest that in the high-rise residence hall rooms are

the most important units of social interaction, with corridors next most important.

Many researchers have found that proximity predicted social interaction in various populations. Several post hoc explanations can be offered as to why it failed for dormitory corridors as a whole. Most significant perhaps is the failure to take into account the opportunities for social interaction provided in a dormitory setting as opposed to such as an apartment dwelling or classroom situation.

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