NATURAL GROUPS AMONG COLLEGE WOMEN: AN INVESTIGATION OF GROUPNESS

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CHAPTER I

INTRODUCTION

The purpose of this study was to investigate several of the dimensions of groupness: specifically the importance of the group to its members, the generality of established group norms, and the relationship(s) of specified dimensions of groupness to the power of specific members. The effect of the degree of groupness of each social unit studied was a highly important variable under consideration.

Groups

This paper examines the concept of groups. Sherif and Sherif (1969) define groups in a general way, encompassing both large and small groups and either formal or informal organizational structures:

> A group is a social unit consisting of a number of individuals who stand in role and status relationships to one another, stabilized in some degree at the time, and who possess a set of values or norms of their own regulating their behavior, at least in matters of consequence to the group. (p. 131)

For the purposes of this research, the groups studied were, specifically, small informal (natural) groups, in which no more than twelve people engaged frequently in fact-to-face interaction, doing so voluntarily for the purpose of attaining goals of consequence to the members. The groups utilized in this study met the criteria of Sherif and Sherif's definition, but with the stated additional qualifications.

Although Sherif and Sherif do not so state in their definition of groups, they do assume elsewhere that status and role relations are not independent of group norms. In expanding on their definition, for example, they state

> when alternative courses for decision and action are vague or numerous, / group members / create a host of catchwords, slogans, rules, standardized views of each other and of outsiders, modes of procedure, and conceptions of proper and improper ways of behaving. "Social norm" is a generic term referring to such products of interaction. (Sherif & Sherif, 1969, p. 141, italics added)

The only exceptions to group norms as determinants of behavior of group members, given the salience of the group, are in the area of affect, where idiosyncratic feelings of individual group members regarding other individuals in the group may not be determined by group norms. Even in the area of affect, however, norms frequently play an important role. Group norms tell group members whom they are supposed to dislike, whom they are supposed to revere, etc. Therefore, norms, particularly group norms, will be the primary focus of this paper.

A norm is a common or standardized way of seeing or doing things (MacNeil, 1967). It can be considered a psychological scale that defines a range of tolerable behavior in relation to a given set of stimuli (Pollis & Pollis, 1970; Sherif & Sherif, 1969). A group, or social, norm is a composite of the individual reference scales of the members of the group which reflects the members' individual norms as they persist and change during the course of interpersonal interaction among the members in regard to matters of concern to the group. The greater the similarity of the scales of the individuals, i.e., the more the norms of the members agree initially or converge during

interaction, the more homogeneous is the social norm (Hopkins, 1964; Sherif & Sherif, 1969). Group norms develop during interaction among group members (Jones & Gerard, 1967; Sherif & Sherif, 1969). "The group norm essentially defines what is the natural or appropriate position for the person to take" (Jones & Gerard, 1967, p. 328).

As mentioned earlier, status and role relationships in a group are normatively determined through repeated interaction among group members (Sherif & Sherif, 1969). Hopkins (1964), a sociologist, says that membership in a group includes "the morally binding expectations / norms / that define what members should think, feel, and value" (p. 19).

Groupness

The concepts of cohesiveness, solidarity, stability, and integration tend to overlap, and they overlap differently according to the particular writings under consideration. The literature in regard to the concept of groupness is both confusing and incomplete. There is a lack of general agreement among investigators as to the uses of the constituent terms and likewise little agreement as to what factors should be considered and defined. Therefore, the present writer wishes to subsume all of these facets of the concept under the general term "groupness."

The affect component of groupness is definitely a dimension of groupness. Cohesiveness is defined by Festinger, Schachter, and Back (1950) as the total forces acting on group members to remain in the group, i.e., the attraction of the group to the members. This view of cohesiveness is widely held by social psychologists, but operational

measures of cohesiveness are not so generally agreed upon. Such measures vary from sociometric indices (e.g., Festinger et al., 1950) to direct questions regarding average attractiveness of the group to its members (Eisman, 1959). Two measures of cohesiveness originated by Eisman (1959) were the "average number of reasons given for group belonging, and number of same reasons given by a majority of group members" (p. 184).

Cohesiveness is, in fact, the primary dimension used by many investigators to define the degree of groupness of a particular group. In their textbook on social psychology, for example, Secord and Backman (1964) do not discuss any other dimension of groupness. For these authors, groupness equals cohesiveness. They cite many studies that explore the relationship, if any, between cohesiveness (generally measured in terms of attractiveness of the group to its members) and other variables such as degree of conformity and group productivity. In his 1934 publication Moreno's only criterion for selection of group members by use of sociometric techniques was that of interpersonal attractiveness.

Though Sherif and Sherif (1969) use the terms solidarity and cohesiveness interchangeably, they do not use "cohesiveness" synonymously with interpersonal attraction. They state that though interpersonal attraction is an important dimension in groups,

> attraction alone is not adequate to indicate role and status relations, much less the solidarity of the structure. Neither is interpersonal attraction the most essential condition for the emergence of other group properties, including its norms. Circumstances do arise that place individuals into the same boat, whether they like it or not. Life is full of such circumstances. (p. 182)

MacNeil (1967) differentiates among groups in terms of what he calls solidarity. (Sherif & Sherif, 1969, p. 167, in citing this study relabels solidarity as stability.) His, MacNeil's, measures of solidarity include "(1) the reliability of the reciprocal expectancies of group members in differing situations, and (2) the relative linearity of the hierarchical status structure" (1967, p. 29). These are purely functional measures, and do not include indices of affect.

Feldman divides integration into three subcategories: interpersonal, normative, and functional integration. Interpersonal integration is the affective dimension of group relations, i.e., the reciprocal liking of group members. The degree of normative integration in a given group is operationally defined as the degree of consensus among group members concerning specific group-related (relevant) activities. Feldman defines "function" as "regularly performed specialized activities which serve one or more requirements of a group" (Feldman, 1968, p. 407). He then delineates three functions under the category of functionsl integration: (1) goal attainment, (2) pattern maintenance and tension management (integrating relations), and (3) external (intergroup) relations. Feldman's investigation of the three aspects of normative, interpersonal, and functional integration shows that these three indicators of integration, or groupness, correlate differentially and thus are different dimensions of group relationships.

In each informal group, a certain degree of groupness (including qualities of cohesiveness, stability, etc.) emerges through interaction over time. The degree of groupness is dependent not only on the importance of the group to its members in regard to specific goals and the satisfaction of specific needs but also upon the generality of

the group's importance across the individuals' psychological fields. In other words, the degree to which group norms encompass a wide variety of activities, ideas, beliefs, values, and specifies correct behavior across a range of situations, also is a factor in groupness. A group may be of some importance to college students in satisfying everyday needs for companionship and to furnish a means for recreational activity but for members of a street gang their group may be their whole social world. Degree of groupness seems to be roughly analogous to Feldman's (1968, 1969) concept of group integration. Because of differences in emphasis and some operational discrepancies, however, the present author prefers to use "groupness" rather than "integration" as a label for this concept.

Hopkins (1964) states that "the criteria used to decide whether a particular set of people constitutes a group entails matters of degree" (p. 11). Sherif and Sherif (1969) agree with this evaluation and they go farther:

> Specifically, a collection of persons forms a group to the degree (1) that its organization (role and status relationships) are stable and (2) that its particular set of values and norms for behavior are shared by the membership and binding for them . . . . (p. 132)

Since the study of natural (informal) groups is so costly and time-consuming, it is not surprising that most studies of so-called groups are actually studies of an aggregate of strangers brought together by the investigator and labeled "group." In order to study the concept of groupness, however, it is useful to identify clusters of people who are to some degree important to each other, people who

spend much of their time together, and who share common goals and norms.

Individuals who, for one reason or another, not necessarily of their own choosing, are in close contact with one another through job assignment, institutionally imposed proximity, or other reasons, may interact for the purpose of obtaining goals of their own which are quite outside the goals and purposes of the organization, institution, or the other original reason for the individuals' being together. Many, probably most, formal organizations such as industry, the military, social clubs, and universities have a multitude of small informal groups within their formal structures. To the degree that the goals, interaction, and structure of the group are not imposed from external sources the group is an informal (natural) group (MacNeil, 1967; Sherif & Sherif, 1969). Thus, while the typical informal group is composed of people who choose each other from a larger population, as long as the other requirements for an informal group are met an informal group may well exist among individuals who are forced together by circumstance.

Female Groups

The psychological processes involved in the formation of reciprocal expectancies among individuals and the individual's satisfaction of needs for social anchorages through interaction with peers are not logically limited by the sexual characteristics of the persons involved. The preponderance of studies, however, deals with groups of adolescent males.

The reasons for the dearth of studies of female groups are principally, it is hoped, methodological rather than resulting from the idea that female social behavior is based on different psychological premises and processes from those of the male. To provide evidence that the theoretical premises on which this study is based apply to humans in general rather than being specific to males it was decided in the present study to use natural (informal) groups of college women, preferably freshmen women.

"Groups are man's natural habitat . . ." (Sherif & Sherif, 1969, p. 133). They are also, increasingly, woman's. Groups form to attain goals of consequence to the members and/or for social structure. When first arriving in a college setting, these young people are frequently away from home for the first time with few reality checks regarding what college life is all about. Their ideas regarding what is expected of them are inevitably distorted to some degree.

As Sherif and Sherif (1969) point out in speaking of adolescent reference groups, when individuals find themselves in a situation that is for them one of instability and uncertainty, they "typically search actively for stable guideposts, for some certainty, and for some way out of the conflict" (p. 440). This search frequently ends in the formation of a group among the individual's peers, in this case other college students.

CHAPTER II

PROBLEM AND HYPOTHESES

The problem was to devise a combination of methods appropriate for the study of some of the normative properties of groupness in natural (informal) groups. In order to study factors implicit in the concept of groupness, it was necessary to bring under close observation, in somewhat controlled conditions, social units which do in fact meet to some degree the definition of "group." In other words, to study groupness, it is essential to look at the behavior of individuals who stand at the time of study in definite status and role relationships to one another and who posses (other) norms which to some degree determine their behavior in matters of consequence to them.

Description of Problem

Specifically, the degree of groupness of each group in this study was determined by five separate measurements: (1) an analysis of activity records kept by group members for a seven day period, (2) an analysis of the amount of time required for consensual agreement during similar periods of experimental interaction, (3) the degree of agreement among members, on a sociometric scale, regarding functional contributions of individual members toward group goals, (4) a measure of affect for the group, (5) a count of the number of nongroup members

listed in an hypothetical ideal group. In addition the relative power of group members of specified status positions in experimental norm formation situations (psychophysical-social) was studied in relation to the degree of groupness determined as above.

Group Selection

Most of the present techniques for locating and determining the structure and status rankings of natural groups require a great deal of time and money. The standard procedure of using field observers appears to be the most reliable (MacNeil, 1967; Sherif & Sherif, 1964; Whyte, 1943), but this method requires trained observers and a minimum of three to six months' observation per group. Nonparticipant observation requires that the observer be not unlike the subjects which he or she is observing in any important respect. The observer tries to reach and assume the role of a nonauthoritarian big brother (sister) while avoiding becoming a member of the group or otherwise interfering with the activities, norms, and status and role relationships within the group. In an institutional setting, observation of informal groups which occur naturally within the formal setting is sometimes feasible over shorter time periods, but in a more open population the task is more difficult.

Sociometry is a technique sometimes used for locating or defining natural groups. Sociometric measures, in the strictest definition, identify people who are attracted to one another (Moreno, 1934). Moreno, the originator, further delineated several other criteria that must be satisfied to meet the requirements of a sociometric test: (1) the limits of the population must be made clear to Ss, (2) Ss

should have an unlimited number of choices and rejections, (3) criteria for acceptance or rejection by Ss should be clear, (4) results should be used to change the environment of Ss, (5) Ss should make choices and rejections privately, and (6) questions should be written so that Ss can understand them (Lindzey & Berne, 1968). All other measurement techniques used in selecting people are called quasi-sociometric measures (Lindzey & Borgotta, 1954).

Many recent investigators and authors, however, have abandoned the limitations above that were put on sociometry as a selection technique (e.g., McDavid & Harari, 1974; Sahakian, 1974; Secord & Backman, 1964). Secord and Backman, for example, list only two criteria for sociometric measure: "(1) a prescribed procedure for making choices, and (2) a criterion by which choices are made" (p. 239).

Given the more liberal definition, sociometric tests can be used to determine functional relations as well as affective relations. The classic study by Jennings (1950) showed that varying choice criteria (choosing people to spend leisure time with versus people to work with) had an effect on the selection of group members.

> Choices made according to the criterion of living or working together appeared to be based on the person's group role, her contributions to the smooth function of the group, her conformity to group standards, etc. (Second & Backman, 1964, p. 265)

On the other hand, leisure time choices appeared to be made primarily on the basis of social-emotional needs.

A highly disguised sociogram, called the Disaster Emergency Planning (DEP) Questionnaire (Appendix A) was developed by M. K. MacNeil and D. J. Pace at the Center for Social Psychological Studies (Pace & Davis, 1969). This paper-and-pencil questionnaire was given the approval of the state civil defense agency. The questionnaire was ostensibly

for selection of "disaster units," teams of boys who would work together in case of an emergency such as a tornado, flood, or atomic attack. For the present study the DEP Questionnaire was modified for use with college women, pretested, and modified to a final form called Form F (Appendix B).

In Form F of the DEP Questionnaire, a cover page, similar in content to the original form designed for males, states the rationale:

> Many kinds of disasters might strike towns around this area. Tornadoes, floods, fires, even governmental collapse. When disaster hits a city or town, the people living there are disorganized, many are injured, and the best help comes from places outside the damaged area.
>
> Police, National Guard, and other agencies have many people in their services. There is, however, a largely unused source of emergency manpower -- college women.
>
> This questionnaire is to find out what emergency units might be available in this area if college women were used.
>
> Please answer all questions carefully. No one will ever see your answers except the disaster planning director. It will not be seen by college administrators or anyone else.

Eighteen of the 26 questions in the questionnaire were designed to lend authenticity to the "cover story" and to lead subjects to the sociogramming questions gently without arousing suspicion. For example, the first three questions were:

1. Would you be willing to help if you were needed in an emergency?
2. Do you have a driver's license?
3. If so, what types of vehicles have you driven (tractors, trucks, cars, motorcycles, heavy machinery, planes, boats, etc.)?

Other examples include:

8. Do you know how to swim?
9. Do you hold any of the Red Cross lifesaving certificates?
10. Have you had Red Cross training in first aid?

The remaining eight questions are directly or indirectly related to identifying and determining status structure among young women who

filled out the queationnaire. These questions were designed to tap primarily the dimension of groupness Feldman (1969) calls "functional integration" (p. 407). The questions included for this purpose were:

16. Could you survive off the land, supplying your own food, water, and shelter?
17. a. Had you rather do so alone or with a group of college girlfriends?
    b. Which friends? List them in the order you would choose them.
21. If the disaster were caused by weakening of the government, who among your friends would you pick to work with you as a task unit? List them in the order you would choose them.
22. Who among your friends get your plans and activities started and see that things get done?
23. Are there any of the women you run around with that you would <u>not</u> like to have in the task unit with you? If so, list them.
24. Who would you pick to be the leader of the small group of half a dozen or so women you'd be with?
25. Would she choose you if she picked two women to help her with the planning?
26. In a situation of extreme secrecy, who would you trust among your friends? List them in the order of the most trusted first, the next one second, etc.

The DEP Questionnaire for males (Form M) had been administered to a closed population of teenage boys at a boarding school and analysed by a sociometric computer program (Shoemaker & Pace, 1968). The Fortran IV program that had been used for the analysis, however, proved both expensive and cumbersome, and by the time data was collected using Form F, a new computer had been installed, making it highly desirable to modify the program to a WATFIV format (Appendix C). This was done; even so the program remained costly.

Activity Records

In many informal groups, especially some of those composed of adolescents, it is at least unwise for an investigator to inquire

overtly into the private interactions of the group members (Rafferty, 1965; Sherif & Sherif, 1969). To ask members of a group of teenagers what they do together is to invite evasion, if not downright deception, from individuals who are rightfully leery of exposing too much of themselves to public scrutiny. In almost every informal group of adolescent males yet observed, directly or indirectly, by the investigator, there has been at least one set of norms involving at least slightly illegal activities. One informal group of 14-16 year old youngsters, who were also all members of a formal church organization, regularly siphoned gas out of cars in the church parking lot on Wednesday nights to keep their own cars running. Only over time and through much interaction can an observer of such a group hope to acquire enough acceptance to learn of such activities first-hand.

In some informal groups, however, behavior that is considered socially unacceptable, if not illegal, is of less importance to the group, and given (a) a willingness to cooperate and (b) a belief held by the group members in the "worth of science," it may be possible to inquire overtly about group activities. A form has been developed by the investigator to explore the day-to-day activities of individuals. The form, called an Activity Record, is a structured diary in which the subject records, in chronological order, what activity he/she engaged in, who suggested the activity, where it took place, with whom, and over what period of time (Appendix D).

Such self-reports must be understood to be fraught at best with distortions and at worst with slanders. Given this basic premise, however, it was thought that some valuable information might be revealed about the amount of time spent by group members in various group-related activities.

Normative Consensus

Individuals form social norms through interaction with one another ragarding matters of consequence to them. This interaction occurs over time, though it is not time per se that is important; the intensity of the interaction can decrease the amount of time required for norm formation. An observer might be capable of selecting and recording behavior from which degree of intensity of interaction might be inferred. In the field an individual who had continual access to the group members could be trained to record behavior pertinent to group norms; however, the observer might have to wait a long time to be in a position to observe such behavior. Informal groups do not generally "post rules" (norms), and may not in fact be consciously aware that the norms exist. In a controlled environment such as the laboratory, a recording of the interaction may give clues toward eventual quantification of such a dimension in interaction.

There have been many category-systems for classifying interaction between two or more people, in a controlled, or closed, environment. Weick, in the Handbook of social psychology (1968), for example, lists and discusses in some detail four such systems that are topic-free and can be applied to "a variety of social interactions . . ." (p. 396). The systems discussed by Weick include two methods by Borgatta, the Interaction Process Scores method and the Behavior Scores System, a technique by Mann called Member-Leader Analysis, and Bales' Interaction Process Analysis (IPA). Because it is the best known and most widely used category system, Bales" IPA method was chosen for this research.

Bales' (1970) Interaction Process Analysis (IPA) purports to classify any interaction into one of 12 all-encompassing categories (Appendix E). These categories Bales subdivides into four parts: (1) positive (and mixed) actions, (2) negative (and mixed) actions, (3) questions, and (4) attempted answers. Each of the 12 categories has a reciprocal, or opposite, category, e.g., the reciprocal of "seems friendly" is "seems unfriendly." Categories that fall within the first two subdivisions (positive, negative and mixed actions) are considered to be in the social-emotional area, while categories in the latter two subdivisions (questions and attempted answers) are considered to be task-related. Every item of behavior, verbal or nonverbal, is, or can be, classified into a category. For each behavior, the observer, or judge, indicates who is interacting with whom and classifies the interaction into one of twelve categories.

Status, Power, and Interaction

The status relations of a group define, according to Sherif and Sherif (1969), the power dimension. The power of an individual group member to introduce, maintain, or change group norms is in turn determined in part by group norms regarding the reciprocal expectancies of the group regarding its members. The concept of reciprocal expectancies implies that, over time, members come to expect certain kinds of behavior from other members and from themselves. These expectations include the anticipation that certain members will be "right" or "wrong" in their judgments. To the extent that an individual is anticipated to be correct in evaluating any particular situation, he possesses power within the group, and suggestions (or decisions) made by that group member are

likely to be carried out. Conversely, if the group as a whole has experienced repeated failure when following suggestions made by specific group members, or if they perceive them to be patently poor suggestions, suggestions from these members are likely to carry less weight in group decisions (MacNeil, 1967).

It has been suggested (Sherif, Harvey, White, Hood, & Sherif, 1961) that low status members of groups engaged in intergroup conflict may be very aggressive toward outgroup members, apparently in the course of their efforts to demonstrate that they are loyal group members and by this means to attempt to raise their status in the eyes of fellow group members. In the Robbers Cave study this prediction was tested, and it was found that low status members did suggest many such aggressive acts, although group action followed only when the suggestion was taken by a high status member as his own or approved by the leader (Sherif et al., 1961).

An extrapolation might be made from intergroup to intragroup behavior in a relatively novel situation such as the "consensual agreement" group discussion period in the present study. It might be predicted that the lower the status of a group member, the greater the effort she would exert in a discussion of group norms. In other words, an inverse linear relation might be hypothesized between status and amount of interaction, with the lower status members "trying harder."

When we look at the basis for defining group status, however, as the relative amount of effective initiative contributed by each member during intragroup interaction, the implication is that a low status member would be a rather less active participant. Status defined in

terms of effective initiative implies that the ideas, suggestions, and other input by the low status members had been rejected and disregarded during the period in which the status placements had been forming. After such consistent "put downs," it would be expected that the low status member would be very hesitant to express his opinions on current matters. On the other hand, the high status member is likely to receive credit for effective initiative even though the original idea derived from members lower in status.

It is the middle status members who would be expected to be most active in a group discussion such as the one found in this study. Middle status members would have had some of their ideas accepted by the group--even though reinterpreted and modified in the process. This intermittent reinforcement should result in their continuing to express themselves, i.e., demonstrate initiative even though the level of acceptance of their ideas, their effective initiative, would be per individual lower than that of the high status members.

Laboratory Norm Formation

Once a group has formed, it is difficult to isolate and study group norms and to determine how these norms were formed. Even individuals who want to help an investigator determine the source of a norm (who suggested it) are frequently unable to remember accurately the norm's introduction of a new behavior or way of thinking to the group. Asking group members to record and report the inception of new norms is equally unrewarding, because their awareness of the process is likely to change the behavior of the members, thus distorting normal group interaction (Webb, Campbell, Schwartz, & Sechrest, 1966). In addition,

norms that form and change in everyday life are apt to be quite complex in origin and difficult, if not impossible, to compare across groups.

Norms that are unique and may be quantified can be introduced, in a laboratory setting, to members of natural groups. The status of the group member who introduces the norm may be varied by subject selection, and the resulting degree of acceptance or rejection of the norm by group members may be measured by means of psychophysical-social laboratory situations.

To study norm formation in the laboratory, a psychophysical-social situation must be developed that is relatively low in structure (is relatively ambiguous). Ideally the situation should be quantifiable and comparable to other such situations. Sherif's (1935) study of norm formation using autokinesis is the classic example of such a situation. In this situation a small point of light in an otherwise totally darkened room is presented to subjects a number of times, with each presentation of a specified duration. The subject's task is to estimate the total distance of the illusory movement of the light each time it appears.

An analogous situation, developed by MacNeil in the Center for Social Psychological Studies, is the hex situation (MacNeil & Gregory, 1969). The apparatus consists of two overlapping hexagons with lights at each corner and a single light in the center. Pairs of the lights, always equidistant, appear in random order, and at various angles, making a total of 24 pairs of lights, each pair presented in contingent presentations at a different angle. The subject's task in this situation is to estimate the distance between lights each time a pair is presented. The different angles take advantage of the horizontal-

vertical illusion, in which two lines of the same length appear to be different in length if they are in different positions (Kunnapas, 1955, 1959). In both the autokinetic and the hex situations, with the stimuli presented in total darkness, there are no distance cues or references against which to make relative judgments.

A third situation recently developed in the Center for Social Psychological Studies is the jukebox situation. The stimuli in this situation are auditory rather than visual. A standard jukebox plays records selected by the subjects, and embedded in the background of the music are a number of clusters of "beeps," or impulses, presented at a rate beyond the auditory subitizing limit (Miller, 1956: Sherif & Sherif, 1969). The subject's task is to estimate the total number of individual impulses presented in a segment of music (Teddy & MacNeil, 1970).

A social norm, whether formed in the laboratory or in "real life," is defined not as a point but as a range of acceptable behavior. This is true whether the norm is in regard to acceptable wearing apparel or the distance of perceived autokinetic movement. In either case there will be a focus that is perceived to be most appropriate, but judgments somewhat beyond that focus in either direction will also be seen as acceptable. In each of the laboratory judgment situations described above, subjects who make a series of judgments in regard to the stimuli presented will, over time, form a norm regarding the stimuli in question.

With no interference by the investigator these subjects would form a natural norm, one that is realistic for the situation. Because the situations are unstructured, however, it is relatively easy to

manipulate the external social factors in the situation so that the subjects form an arbitrary norm, one that is relatively unrealistic for the situation, i.e., distinctly different from the natural norm.

Because there are no reliable external physical anchors to which the subject might relate his judgments, there is a strong tendency for a naive subject (one with no prior experience in the judgment situation) to be influenced by external social factors such as the judgments made by other subjects also present in the situation. If the "other subjects" are in fact confederates endowed by the experimenter with expertise, and if they are giving judgments that do not correspond with the natural norm, the naive subject is likely to perceive the arbitrary norm as the "correct" one for the situation, whether the norm be in regard to the number of inches of perceived movement (autokinesis), the distance, in inches, between two lights (the hex), or the number of beeps embedded in the music of a jukebox.

Operationalizing the Concepts

So that the hypotheses might be handled succinctly, a summary of operational definitions of the terms used in the hypotheses are given below. The underlined words and phrases are those found in the hypotheses.

Measures of Groupness

For each group, five measures of groupness were calculated: (1) the amount of time spent together by group members with other group members over a seven day period; (2) the amount of time required in a laboratory session to reach agreement regarding group norms (consensual agreement);

(3) the amount of variability displayed by members in ranking of group members according to the degree of perceived effective initiative in group activities (variability in ranking); (4) self-reported degree of affect for the group by group members; and (5) the average number of non-group members in an hypothetical ideal group (nongroup members of ideal group).

Time spent together. "Activity sheets" (Appendix D) were distributed to each group member, with instructions to keep a daily record, for seven days, of her activities. A weighted calculation was made of time spent by each member with other group members, with greater weight being given to time spent with more than one other member of the group. Each group member's total time spent together was differentially summed so that she received proportionately more credit for time spent with more members of her group. In order for a group member to receive full credit for a particular interaction period, all members had to be present. In a four member group, each additional member's participation counted one-third, in a five member group participation of a single additional member counted one-fourth, and each additional member's participation counted one-sixth in a seven member group. Greater groupness was assumed to be indicated by more time spent together.

Consensual agreement. In a laboratory session set up to measure degree of consensual agreement, group members were asked to decide which of seven (of fifteen) topics they felt they could agree upon (Appendix F) and then to reach consensus on the questions relating to the seven topisc they had selected (Appendix G). Two measures of consensual agreement were tabulated for each group; (1) the amount of

time in minutes, elapsed while choosing the seven topics ("choosing topics"), and (2) the total amount of time, in minutes, required for consensual agreement to the answers to the seven questions ("discussing topics"). It was assumed that a greater degree of groupness would result in less time consumed both in choosing the topics and in answering the questions.

Variability in ranking. A paper-and-pencil form was completed by each member of each group. This form included a question regarding the relative amount of effective initiative of each group member, i.e.,the relative number of suggestions made by each member and carried out by the group. A continuum line 22 centimeters in length (a "contributions line") was presented, and the subject's task was to indicate the relative amount of effective initiative of each group member by placing an appropriately located shash mark across the continuum for each group member. A measure of variability in ranking of each member was made for the members of a group with an average variance computed for the entire group. Variability in rankings was assumed to be less with greater degrees of groupness.

Affect. The paper-and-pencil form mentioned above contained a question regarding how well each member liked her group. Each subject was asked to place a slach mark across a 22 centimeter continuum line ("affect line") to indicate her degree of affect for the group, i.e., how well she liked the group. The measure of degree of affect was the point, in centimeters, at which the subject's slash mark broke the continuum line. No significant correlation was assumed with this measure in relation to any of the other measures of groupness.

Nongroup members of ideal group. The form which contained the "contributions line" and the "affect line" also had a question regarding an "ideal group." Group members were asked to list, again along a continuum line, members of an hypothetical ideal group. For each group member a count was made of the number of people listed who were not members of the group under consideration, and these numbers were averaged to give a measure of nongroup members of ideal group. It was assumed that greater groupness would result in fewer nongroup members in the listings of the ideal group.

Measures of Status

The status of group members was determined in two ways. The first measure was through observer's rankings. Before the groups were selected for participation in the study, a nonparticipant observer of each group ranked the highest and the lowest status members in terms of her (the observer's) perceptions of relative effective initiative. These observers, who were not highly trained, were less certain regarding the rankings of the middle status members, and no such rankings were expected by the experimenter or made by the observers.

The second measure of group status was made from the paper-and-pencil form in which members of a group ranked all group members along a dimension of relative contribution toward group activities (effective initiative). Using slash marks along a 22 centimeter continuum (the "contributions line") each person ranked the members of her group, including herself, in terms of the relative number of suggestions made by that group member and carried out by the group (Appendix H). The members' rankings, or status, of each group member was determined by

averaging her scores on the "contributions line."

Power

Given the initial rankings, by observers, of the highest and lowest status members of each group, these individuals plus one middle status member, randomly selected from remaining group members, were selected for implantation with a moderately arbitrary norm in either the autokinetic, the hex, or the jukebox judgment situation. This was done to measure the relative power of these individuals in experimental norm formation. Each selected member of a particular group was implanted in a different situation.

Following implantation by the three members of a group, all group members participated in the three situations. The power of the implanted member was measured in terms of the resulting norm of the non-implanted (for that situation) group members. This norm was represented by the median of the judgments made and the percentage of judgments within and above the arbitrary norm made by non-implanted group members.

Hypotheses

On the basis of phenomenological and empirical evidence briefly cited above and given the operational definitions just presented, the following hypotheses were advanced:

1. Hypotheses regarding measurement of groupness:

    1a. There is a direct relationship among (1) the time required for consensual agreement, (2) the amount of variability in ranking, and (3) the number of nongroup members listed in an "ideal group."

1b. There is an inverse relationship between the amount of time spent together and (1) the time required for consensual agreement, (2) the amount of variability in ranking, and (3) the number of nongroup members listed in an ideal group.

1c. There is no relation between the degree of affect of members of a group for the group and the other four measures of groupness.

2. During consensual agreement sessions, there is a curvilinear relationship between the number of acts initiated (as defined by Bales , 1970) by group members and the status of those group members; high and low status members initiate fewer acts, while middle status members initiate more.

3. The more nearly direct the relationship between the status position of the implanted group member and her power to influence emergent experimental norms, the higher the measures of groupness (excluding affect) of the group.

CHAPTER III

METHOD

Form F of the Disaster Emergency Planning Questionnaire (Appendix B) was administered to the females attending seven intorudctory English classes. After questionnaires from married students had been eliminated, there were 122 usable questionnaires. Coding the responses yielded a total sample of 812 identifiable names of college students. The computer analysis developed initially by Shoemaker and Pace (1968) was modified to conform to a WATFIV format (Appendix C) and used to analyze the data resulting from the four key questions. For each question the program yielded weighted rankings of clusters of individuals in the following manner: an individual who had listed one or more names on the question under consideration would serve as starting point for a "group" or cluster of individuals. S's first choice would be given a weight of four points, her second choice a weight of three points, third choice a weight of two points, and all other choices one point each. If any of S's choices had also completed a questionnaire and had responded to the question under consideration, those choices would also be weighted and added to the "group" formed. Label cards included names, and where possible, addresses of all individuals who completed the questionnaire or were named by those respondents.

Because of the extremely large population (all females in the university community) and the relatively small sample of respondents (122), it was found that results were largely inadequate for more than drawing inferences about the existence of groups. Inspection of the print-outs revealed a number of clusters of individuals, but little could be ascertained regarding the openness or closedness of these clusters because generally only one member of a cluster had completed the questionnaire.

Certain living units, however, appeared to be well represented by clusters of girls. Therefore, the co-experimenters contacted two residence hall assistants and confirmed the existence of five of the groups ultimately used in the study. The sixth group was selected entirely on the basis of reports from a nonparticipant observer and was the only group that was not limited to freshmen women.

The study was divided into four sessions spread over a two or three day period. Each S in each group spent approximately eight hours in the laboratory (Table 1).

Session I was an Orientation Session, in which a rationale for the series of sessions was given, activity sheets (structured diary forms; see Appendix D) were handed out to each group member, and time schedules were agreed upon for the other sessions.

Session II was the Implantation Session, during which each of three selected group members were implanted with moderately arbitrary experimental norms in one of the judgment situations. In addition, the remaining group members engaged, as a unit, in natural norm formation in a fourth judgment situation.

Table 1

Flow Chart for Research Design

Time Period	Session	Participants
I	Orientation	All members of a group
II	Implantation	
	A. AK	One selected group member + 4 confederates
	B. JB	One selected group member + 4 confederates
	C. HX	One selected group member + 4 confederates
	D. SG	Remaining group members and extra confederates
III	Group	
	A. AK	All members of a group
	B. JB	All members of a group
	C. HX	All members of a group
	D. PB	All members of a group
IV	Sociogramming	
	A. Consensus	All members of a group
	B. Questionnaires	All members of a group

Note. AK = autokinetic situation; JB = jukebox situation; HX = hex situation.

Session III, the Group Session, was scheduled approximately 24 hours after Session II. During this session, the entire group participated in the three judgment situations in each of which a different group member had previously been implanted with an arbitrary norm.

Finally, during Session IV, the Sociogramming Session, the time required for the group to reach a consensus was determined and group members filled out paper-and-pencil sociograms. Ss returned their activity sheets and received payment for their participation.

Session I: Orientation

After a group had been selected for inclusion in the study, members were approached and informed that they had been chosen to participate in a study for which they would be paid. A time for a one hour meeting was agreed upon for an initial session with the group, the Orientation Session.

The experimenters, E1 and E2, met with the group at the appointed time. After introductions had been made, E2 read the following statement:

> We are representing the Disaster Planning Committee at Oklahoma State University. Our group is interested in, some day, developing emergency units to help in national disasters such as floods, fires, etc., using a previously untapped source of manpower--college females. Have any of you filled out the Disaster Planning Questionnaire? / If yes, say "That's probably how you were chosen." If no, say, "You were probably chosen by word of mouth." /
> Therefore, the committee needs information on how people who are friends work together. They have contacted Dr. Mark MacNeil, who in turn contacted us, to aid in gathering this information.

Next E1 said:

> Some of the things we will be asking you to do may not make much sense to you, but they will give us a great amount of the type of information we need. First

of all, you will be asked to keep what we call an "Activity Record" (Appendix D) for the next seven days. / File folders for each group member containing "Activity Sheets" will be passed out./ The Activity Record will tell us what types of activities college women engage in and where they can be reached if an emergency should occur. Each day, we want you to fill in the activities you engaged in such as "ate breakfast" or "went to class," who suggested it, who you did it with, when you did it, and where you did it. We'd like you to turn this in at the end of the seven days. Are there any questions? / E1 paraphrased above if necessary. /

We are also asking you to come in for three or four more sessions. Sometimes you will be with one or more of your friends and other times we will need to see you separately. In one session each of you will sign up for a time to participate in a situation alone. / This refers to alone sessions utilizing individuals in the groups in a separate study unrelated to the present study./ In a second session you will be randomly selected to participate in two other sessions, involving several tasks, together.

It is extremely important that you make it to all scheduled appointments, either those scheduled for you alone or those scheduled for all of you together. If all of you don't show up it will not only mess up our project design but, in addition, we are not allowed to pay any of the team for the team sessions unless everyone of you participate in every session.

Finally E2 stated:

After you've been in all the sessions and have turned in your activity sheets we pay your team $_____ / from $150 to $275, depending on the size of the group /. Remember that everyone must come to all sessions and must turn in all completed activity sheets in order for anyone to get their share of the $_____.

The amount of money offered each group varied, according to the size of the group, from $150.00 to $275.00, but the actual amount of reimbursement to each S was approximately $38.00.

The co-experimenters then suggested times during the following two to three days and let the group decide when, during those times they would be willing to participate in the experiment. The times that were agreed upon were written down by Ss on the file folders provided for each member's activity sheets.

Session II: Implantation

General

During Implantation confederates presented prescribed arbitrary norms for the three judgment situations. These arbitrary norms were above and contingent to the natural norm for each situation. For each twenty judgments, each confederate gave a randomized presentation of the judgments according to the following frequency distribution:

Frequency (per 20 judgments)	Autokinetic (in inches)	Jukebox (in beeps)	Hex (in inches)
1	12	65	30
2	13	70	32
4	14	75	34
6	15	80	36
4	16	85	38
2	17	90	40
1	18	95	42

All group members and confederates (experimenter collaborators) were brought together initially for a general briefing. (From this point on, both group members and confederates are referred to as Ss unless clarification is necessary.)

Ss were then escorted to the "briefing room," which also served as a dark adaptation room for the autokinetic (AK) and the hex (HX) situations. E1 and E2 seated the Ss on chairs around a large table. The names of Ss were checked from a list; E3 at that time casually remarked that the confederates had participated before and had done well.

At this point, E3 gave, from memory, the following general information to the assembled Ss:

> Let me tell you what we are doing here, and about the situations you will be participating in this morning (afternoon)--the games we will be playing--and why we are doing this. Computers, I'm sure you know, do many complicated problems very quickly. Computers really depend on the information, the data, put into them and the program--that is, instructions on how to handle, what to do with, the data. Well, computers were, and are, designed to do the same things people do to solve problems. We know, because we built them, a great deal about how computers solve problems--but, in a way, we know a great deal less about how the model we designed the computers on--the human mind--does the same things.
>
> For example, take a ten to twelve year old boy--a Little League baseball player, maybe your kid brother, a neighbor's kid, or yourself a few years back. Anyway, you know what I mean. This youngster is playing in the outfield. A batter hits a high fly sort of in his general direction and sometimes he catches it. He may not hang onto the ball but usually he manages to get pretty close to it.
>
> Now, let's look at the problem this kid has solved. The trajectory of the ball, its flight path, depends on a number of factors: the speed and spin of the thrown ball, the angle at which the bat hits it, where on the bat it hits, the winds aloft, and a few other ballistic factors. Out fielder looks at the ball with his naked eyeball, no radar, no plotting board, and plots the data concerning the flight path, without consciously following any problem solving formula, determines the intercept point, moves himself to the vicinity of that point, and maybe, what?, five, seven, or eight times out of ten? snags the ball. He does as well, on the basis of a minimal amount of data, as our most complex radar tracking computer-linked missle intercept systems do.
>
> We feel that the human mind can solve problems on the basis of very little information very well--when we give it a chance. That is, when we don't try to do, consciously, mental arithmetic to estimate distances, how many objects there are, how fast things are moving, and the like.
>
> These experiments are to try to find out how well the mind can do on the basis of minimal information. Not that every estimate you make will be one-humdred percent accurate; they won't be. But we want to find out what percentages of the time you are accurate--what the probability of error is and how great the average error tends to be.
>
> Why, you're probably thinking, do they want to know this? Well, aside from just plain scientific curiosity, there are some practical reasons. You probably remember that the question came up on recent space flights, whether or not to abandon the mission when electronic gadgetry went out of whack. You probably also recall that there was some

> delay before the decision was reached. Decisions of this kind are made, usually, on the basis of the probability of success with the human pilots taking over the functions of the electronic components, including computers.
>
> We need a great deal more information on the probabilities of human accuracy and the probable size of errors than we currently have. To obtain this information, research projects such as the one you are participating in are being conducted across a wide range of subjects, teenagers, college age people, older people--and of course both sexes. They are being conducted in different regions of the country--Pennsylvania, Texas, Nevada, Oklahoma, and other places.
>
> Some of the situations we will be in are games, some are strictly laboratroy situations. Again this is to give us a wide range of different types of problem solving situations--also the games help, when we use teenaged subjects, to keep them interested.

Following the general briefing, Ss who were scheduled for the first judgment situation remained in the briefing room. All other Ss were told when to return for their praticipation in the judgment situation to which they had been assigned. The order of presentation of the judgment situations during both the Implantation Session and the Group Session was systematically randomized across groups.

Autokinetic Situation

A five minute dark-adaptation period took place in the same room as that used for the general briefing. The only room illumination was from two 15 watt red light bulbs in hooded table lamps. Following dark-adaptation, E3 led the four confederates and one naive S (with two confederates on either side of the naive S) into the AK laboratory (Figure 1) and seated them in chairs behind a table. In the laboratory E3 followed the technique and specific instructions developed and used by Sherif (1935) and MacNeil (1964, 1967). Standing in front of the Ss, E3 gave the following instructions:

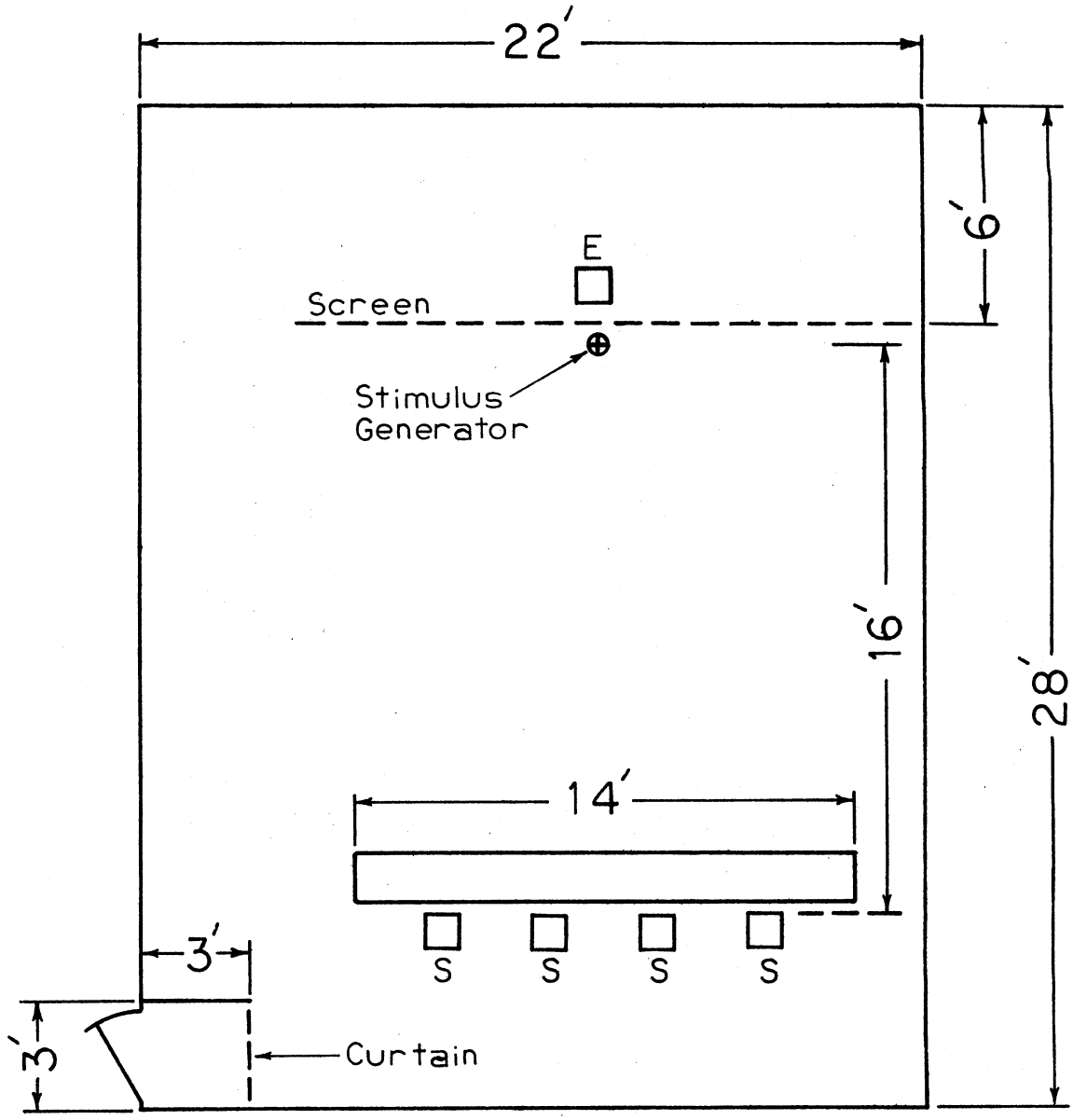

Figure 1. Dimensions of laboratory used for both the autokinetic (AK) and the hex (HX) situations. S: subject; E: experimenter.

> The task in this situation is to judge the distance of movement of a point of light. We will do it this way.. I will give you a signal, "ready," and show you a small point of light. As soon as the light appears, it will begin to move. In a few seconds the light will disappear. As soon as it disappears, give the most accurate estimate you can, to the nearest inch, of the total distance of movement from where the light first appeared to where it finally stops. If the light swerves or turns, give the estimate from the point where it started to the point where it finally stopped. Now you will give the estimates in order from your left to your right; in other words, the first person will give her first name and then give her estimate, and the second person will give her name and then her estimate, and so on right down the line. We are not interested at this time in the direction of movement or the type of movement. All we are interested in is the total distance from where the light starts to where it finally stops. Let me go through it again now. I will show you a point of light. As soon as the light appears, it will begin to move. In a little while the light will go off. As soon as the light goes off, give me your best estimate, to the nearest inch, of the total distance, only the total distance, of the movement of the light. Are there any questions?

E3 left the table where the Ss were seated and moved toward the autokinetic stimulus generator, remarking as he moved toward, and then turned on, the stimulus apparatus:

> These distances are all programmed in the machine and the machine is set to come around at a set interval. You'll have plenty of time to give your judgments, but you should give your judgments immediately after the light goes out so that the time will be sufficient. We will do it a couple of times for practice first. I will now show you the point of light. Does everybody see the point of light?

Sixty judgments were made aloud, in turn, by each of the Ss. The data were recorded by E3 as given by Ss.

Hex Situation

A five minute dark-adaptation period, with red light illumination, took place in the same room as that used for the general briefing and for dark adaptation for the AK. (When the design made the AK and HX

situations contingent, Ss who were scheduled to participate in the second but not the first situation entered the dark-adaptation room before the end of the first judgment situation. When Ss and E3 emerged from the dark room laboratory a five minute break took place in the dark-adaptation room under red illumination.) The task for Ss in the hex situation was to judge the distance between pairs of lights (Figures 1 and 2).

Following the dark-adaptation, Ss were led by E3 into the hex laboratory and seated behind the table. In the laboratory, E3 stood in front of the table at which Ss were seated and gave the following instructions:

> Your task for this situation is to give the most accurate estimate possible of the distance between two points of light which will appear in the area in front of you. These points of light will appear at various angles and distances apart, and you should give your estimate to the nearest even inch. These distances are programmed into the machine, and the machine, to test your alertness, occasionally may show you just one light or no light. Immediately after the two lights disappear, you should give in order, from your left to your right, the most accurate estimate you can of the total distance between the lights. Give your first name first and then your estimate. You will have ample time between the presentation of the pairs of lights to give your estimates. Don't hurry, but give it quickly and promptly, immediately after they go out, in order from your left to your right, giving your first name first before your estimate. /E2 then moves to the front of the room toward the hex stimulus generator, saying as he does/: You will have plenty of time to give your judgment between the light presentations. We will do it a couple of times for practice before we start in. I will now show you a pair of lights.

Sixty judgments were made aloud, in turn, by each of the Ss. The data were recorded by E3 as given by Ss.

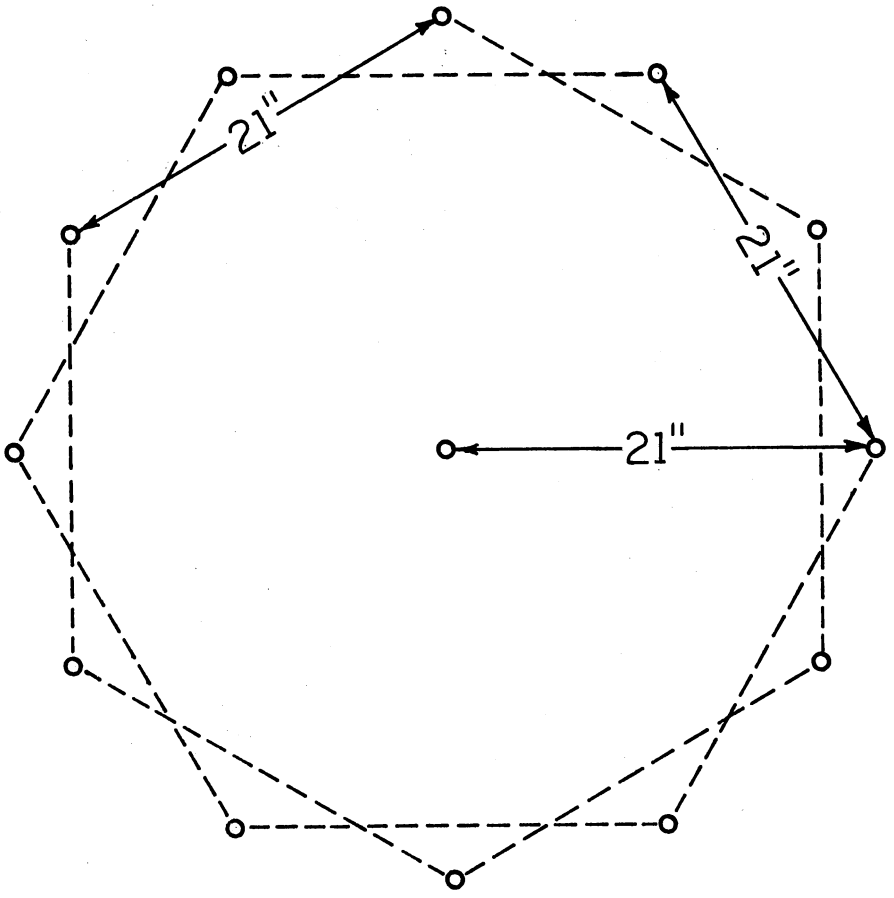

Figure 2. Position of lights on the hex apparatus. Twenty-four stimulus light pairs with the lights of each pair 21 inches apart.

Jukebox Situation

A standard jukebox has been modified so that a tape played under the music presents, at random, clusters of "beeps." The clusters themselves contain differing numbers of "beeps," but the sum of the beeps is held constant over a 45 second interval. The Ss' task is to estimate the total number of beeps that are presented during a 45 second interval of music. The selected record plays for 45 seconds, then there is silence of 45 seconds, so that Ss can make their judgments. These judgments are then followed by 45 seconds more of music and embedded beeps. Ss then have time to give their judgments before the next record begins to play.

Ss were escorted into the jukebox laboratory and seated by E1 in a semicircle on chairs approximately five feet in front of the jukebox. E1 sat in a "tablet arm" chair beside the jukebox, and stated:

> This is a standard jukebox, except that, first of all, it's sort of old, secondly, some of the music is kind of strange, third, it doesn't cost anything to play, and finally, embedded in the background of the music are several series of "beeps." You will take turns choosing records to play, and when you choose one, tell me which one you picked so that I can write it down. Then everyone should listen to the music as it plays, and your task will be to estimate the total number of individual impulses while the music was playing--not how many series there were, but individual impulses. Don't try to count them; they will be too fast for you to do that anyway, and we are interested in how well you can estimate without really attending to the music. The record will play for a while, then stop for you to make your judgments. Then it will start again for a while, and again you will give me your best estimate of the total number of beeps on that segment, to the nearest five beeps. Give your first name before you give each estimate. Are there any questions? /E1 answers any questions by paraphrasing the above./ Okay, first give me your names in the order you want to give your estimates.

Ss took turns selecting records. After each 45 second period of music, E1 recorded, as given, the Ss' judgments of the total number

of beeps. A total of 30 records were selected and 60 judgments were made aloud, in turn, by each S.

Shotgun Situation

Ss normally have two tasks in the shotgun target judgment situation. First, the Ss take turns shooting a gun at moving targets, which are rabbit silhouettes. Second, they judge the total number of holes made in each of the targets as the targets are projected tachistoscopically on a screen. The targets which are judged are actually slides with different patterns of "holes" to simulate real targets, and each mock target has the same number of holes (75).

In this study the initial task (shooting the gun) was deleted, with Ss only giving judgments of the number of shotholes in what E1 described to Ss as "photographic slides of targets that have been shot previously."

This judgment situation was included for two reasons: first, to equalize in the minds of Ss the amount of time spent by each of them in experimental sessions, and second, to reduce any suspicion on Ss' part regarding deception during the Implantation Session. Confederates were used as Ss in the shotgun situation but they had been instructed to give their best estimates of the number of shotholes in the slides presented. No arbitrary norm was presented.

Sixty slides were presented and judgments were made aloud, in trun, by Ss of the number of shotholes in each. Data were recorded by one of the experimenter assistants as given aloud by Ss.

Session III: Group Norms

On the day following the Implantation Session, the group members returned as previously scheduled and all members participated in the autokinetic, the hex, and the jukebox situations, i.e., those situations in which selected members of the group had been implanted with arbitrary norms. Instructions were the same for this session as for the Implantation Session, with the initial briefing deleted. Forty judgments were made by each S in each situation. For each group, the order of the judgment situations was the same for the Group Session as it had been for the Implantation Session.

Session IV: Sociogramming

The Sociogramming Session was the last session, never conducted before the Implantation and Group Sessions, so that any inference of the importance of status and role relations would not be imparted to Ss.

Consensus Unit

Ss assembled with the other members of their own group in what had been the "briefing" room, for the four- and five- member groups and a larger interaction room for the larger, seven-member, group. E1 and two assistants were present in the room, with one assistant (Timer) to keep and record time and the other assistant to run the video tape equipment.

Upon arrival, group members were seated in a semicircle on "tablet arm" chairs, facing a microphone and stationary camera mounted

on a tripod. When everyone was in place, E1 gave to each member a sheet of paper containing a list of 15 general topics (Appendix F). Then E1 read the following instructions:

> Each of you has a sheet of paper with a list of topics. What we want you, as a group, to do together, is to choose seven topics that you feel you can come to an agreement on. After you've discussed and chosen your topics, I'll ask you one question on each topic. For example, if "amnesty" were one of the topics on your list, and you chose amnesty, your question might be, "Under what circumstances, if any, should amnesty be granted to draft evaders and deserters?"
>
> We're not so much interested in what you think about amnesty as we are in the decision-making process. That's why we have the microphone and the camera, and that's why we'll be taking notes as we go along. That's also why we're giving you a choice of what topics you may choose that you as a group feel that you would like to talk about.
>
> One other thing that you will have to do is to choose someone to tell us what topics you have selected. When you're ready, have the person say, "We have chosen our topics," and then tell us what they are by number.
>
> Do you have any questions? / E answers any question by restating the instructions. / First state your names so that the camera can record them....Okay, you may begin.

When E1 had completed these instructions and said, "Okay, you may begin," the Timer started timing the interaction. He or she interrupted the timing when one of the group members said, "We have selected our topics." The Timer recorded the elapsed time, in minutes and seconds, on a preprepared data sheet (Appendix G). E1 recorded the number of the topics on a black board. Then E1 stated:

> Now that you've selected your topics, we're going to hand out to each of you copies of the seven questions, one at a time. This is what we'll do: I'll read out the first question and you can discuss it. You may make your decisions any way you like, but we hope you will be able to agree on one answer for your decision. However, if you should reach a stalemate, and agree not to agree, submit that as your decision. Come to a conclusion as soon as you can but be sure that all of you agree on your decision.

> When you've reached a decision, choose someone to summarize your conclusions, speaking directly into the microphone so that it will be recorded accurately. She should tell us, "We have reached a decision," and then she should report your conclusions. Remember that our main interest here is the decision-making process. Do you have any questions? / E answered any questions by repeating the appropriate instructions. / Okay, here is your first question.

E1 read the question corresponding to the first topic selected (Appendix H) as she passed out copies of the question typed on index cards. The Timer timed the interaction from the time the first question was read to the time a group member said, "We have reached a decision." Then E1 collected the cards containing the first question, and distributed and read alout the question matching the second topic chosen by the group, and so on. Videotapes were used for further analysis, using Bales' Interaction Process Analysis.

Questionnaires Unit

Following the Consensus Unit, Ss went to the Social Perception Laboratory. This room was selected for use during the Questionnaires Unit because it contained individual booths that were enclosed on three sides; each member of the group being tested sat at a desk in a separate booth, so that she would feel less constrained in her responses to the questionnaires.

Two paper-and-pencil sociograms were administered. First, the Disaster Emergency Planning Questionnaire (DEP Questionnaire, Form F) was administered (Appendix B). The rationnale for Ss to complete this form was that even those who had already filled out the questionnaire may have changed some since the original was given. Ss were seated in individual cubicles, to assure privacy for Ss filling out the forms. After Ss were seated, E1 stated:

> As we told you during out first session, this research is being directed by the Disaster Planning Committee. This committee has prepared a questionnaire which was given to a number of people late last fall. We would like you to fill out a form today whether or not you completed one before. Completing this form does not mean that you will be committing yourself to become a unit for the Disaster Planning Committee, but that you will be helping in gathering information to be used when units are really formed.

After E1 and E2 had handed out pencils and copies of the DEP Questionnaire, E1 read the cover sheet of the questionnaire aloud to Ss.

After the DEP Questionnaires had been completed and returned, a final set of questions were handed out, in packets, to each S. There were four questions (Appendix I). The first three questions related specifically to the group present for the experiment, and the last was a question relating to an "ideal group" and could include anyone. The instructions were read by E1 as follows:

> On the pages you will be given are four questions which we would like you to answer. In answering these questions you will be asked to perform rankings on a scale. On the sort of scale that we are using, both the order of the rankings and the distances between them are important. It is very much like a thermometer where we need to know not only that one temperature is hotter or colder than another but also by how much. You will indicate your rankings by putting slash marks across the line at appropriate points. /_E2 demonstrates temperature example on blackboard._/ For example, if we were to ask you what is the ideal temperature for swimming you might put a slash mark, like that, across the line. Then if we asked you, using the same line, to indicate the temperature outside now, you would put a slash mark that was lower /_or higher_/ than the swimming slash.
>
> The first question that you will answer is concerned with ranking the people who are here with you, in terms of making suggestions that are carried out by all of you. The second question is concerned with ranking the people who are here with you as to the amount of work that they put in, in your group's various activities. Please remember to include yourself in both of these rankings. In the third question, you will simply be asked to indicate on the scale how much you like the group that is here with you. In the last question,

you'll be asked to create and rank an ideal group. In this group you may include those you are with today and also any other girls if you wish.

Please answer each of the four questions as quickly as possible, using your first impressions--research has shown that more accurate and useful information can be obtained this way. Keep in mind that each scale is concerned with ranking a specific aspect, so your rankings will not necessarily reflect your overall feelings about the people concerned. Your finished scales will be used by the Disaster Planning Committee only, and none of the other people here with you today, or anybody else, will ever see them.

As you finish each question, please indicate this to me and I will pick up that question. Then you can go on to the next one.

Are there any questions? /E1 answers any questions by paraphrasing the above instructions./ Okay, here are your forms.

After the packets were passed out, E2 pointed out that on three of the four questions, Ss were required to put one person's name at the top of the slash line and another at the bottom. The questions were picked up by E1 and E2 as Ss completed them, so that there would be no opportunity to compare responses on already completed questions.

After the forms had all been completed and turned in, plans were made, informally, about when, at the end of seven days from the Orientation Session, Ss could turn in their "activity sheets" and pick up their money. When these arrangements had been made, E1 and E2 thanked Ss for their participation and dismissed them.

CHAPTER IV

RESULTS

Prior to the laboratory phase of the study, the revised form of the Disaster Emergency Planning (DEP) Questionnaire (Form F) was administered to students in seven Introductory English classes. From the sociometric data obtained from the questionnaire and from information gathered from observers located in the women's dormitories, six informal groups of college women were selected.

Each of the six groups participated, separately, in four laboratory sessions, Table 1 indicates the order of the sessions for each group. Three experimenters, E1, E2, and E3, participated in various phases of the study, with additional, non-speaking, assistants, e.g., the "Timer" in Session IV, being employed where necessary.

The selected groups ranged in size from four to seven and each group was assigned a two digit code number determined by the order in which the group participated in the study and the size of the group. Thus Group 14 was the first group in the study and it contained four members. Group 25, the second group to participate, had 5 members. The reamining groups had the following code numbers: 37, 45, 54, and 65. Individual Ss were given letters to identify them, with the highest status member (according to members' rankings) in each group being assigned the letter "a," the next highest the letter "b," and so on. Thus, the highest status member in Group 37 was identified as S 37a, while the

lowest status member was 37g.

Measures of Groupness

Direct Relationships

1a. There is a direct relationship among (1) the time required for consensual agreement, (2) the amount of variability in ranking, and (3) the number of nongroup members listed in an "ideal group."

Consensual agreement. During the Consensus Unit of the fourth and final session, group members reached consensus regarding (1) the seven of fifteen topics about which they felt they could come to agreement and (2) the answers to each of the questions corresponding to the seven topics they had selected. The time required to select the topics ("time choosing") and the total time required to come to agreement on the seven questions ("time discussing") were the two measures used to indicate the relative amount of time required for consensual agreement of group norms. Both measures were calculated for each group in terms of number of minutes (Appendix J).

Variability in ranking. On the 22 centimeter "contributions line" completed by all Ss in Session IV, status rankings of group members were determined by totalling the time given to each group member by all members. The amount of variability in ranking each group member was measured by calculating the standard deviation of the rankings for that member and these standard deviations were averaged to create an index number for comparison across groups (Darlington, 1974). Thus, the measure of variability in rankings across individuals was the standard deviation of rankings for each individual and the measure across groups

was the average of the standard deviations for individuals within the group.

Nongroup members. The hypothetical "ideal group" composed by each S during Session IV could contain the names of any female in the university community. The number of individuals listed by S who were not members of her group (the group with whom she was participating in the study) was used as that S's measure of nongroup members. Within each group the average of individual numbers of nongroup members was taken as the group's measure of nongroup members.

Analysis of the hypothesis. Pearson product-moment correlation coefficients were computed, both across individuals and across groups, for the two consensual agreement measures, the amount of variability in ranking, and the number of nongroup members listed in the ideal group (Tables 2 and 3). Across individuals, the correlation between the two indicants of consensual agreement ($r = .49503$, $p = .003$) and the correlation between "time choosing" and the number of "nongroup members" in the ideal group ($r = .320112$, $p = .043$) were significant. The relation between "rank variability" and "nongroup members" ($r = -.375181$) was opposite from the direction predicted. Across groups, the only relationship that approached significance was that between "time choosing" and "nongroup members" ($r = .499605$, $p = .157$). All probabilities are one-tailed, i.e., directional.

Inverse Relationships

1b. There is an inverse relationship between the amount of time spent together and (1) the time required for consensual agreement, (2) the amount of variability in

ranking, and (3) the number of nongroup members listed in an ideal group.

Table 2

Pearson Product-Moment Correlation Coefficients Across Individuals for Three Measures of Groupness: Consensual Agreement, Rank Variability, and Nongroup Members of Ideal Group

	Consensual Agreement		Rank	Nongroup
	Time Choosing	Time Discussing	Variability	Members
Time Choosing		.49503**	.088177	.320112*
Time Discussing			.106986	.174466
Rank Variability				-.375181

Note: N = 30
*p = .043, one-tailed
**p = .003, one tailed

Time together. The amount of time group members spent together during the seven day period covered by the activity sheets was calculated. This was done by computing first the amount of time each member of a group spent with one or more other group members, and then assigning proportionately greater weight to time spent with more than one other group member. Thus, in a four-member group, one-third of the total time spent by a particular S with any one other group member was counted. By the same token, two-thirds "credit" was given for time

spent with any two members, and full "credit" was given for time spent with all three of the other members. In the five-member groups, the time was proportioned by fourths, and in the seven-member group by sixths. Appendices J and K summarize the resulting values, in terms of proportional number of minutes spent during the seven day period, for each member of each group, as well as the mean for each group. Appendix L details the data generated by the self-reports.

Table 3

Pearson Product-Moment Correlation Coefficients Across Groups for Three Measures of Groupness: Consensual Agreement, Rank Variability, and Nongroup Members of Ideal Group

	Consensual Agreement		Rank	Nongroup
	Time Choosing	Time Discussing	Variability	Members
Time Choosing		.44625	.095947	.499605
Time Discussing			.100733	.168749
Rank Variability				-.001528

Note: N = 6
*p = .157, one-tailed

Analysis of the hypothesis. Hypothesis 1b predicts an inverse relationship between time spent together and the three measures of groupness detailed in Hypothesis 1a (note: these latter measures were

expected to relate inversely with degree of groupness). Table 4 summarizes the results of calculating Pearson product-moment correlation coefficients between "time together" and each of the other three measures of groupness. Inspection of the table reveals that none of the correlation coefficients approached significance. The correlation coefficients between "time together" and "time choosing" across both individuals ($r = .448216$) and groups ($r = .745148$) were strong but opposite the predicted direction. The correlation coefficients for "time discussing" ($r = -.122981$) and "rank variability" ($r = .110383$) across individuals and those for "time discussing" ($r = -.070375$) and "nongroup members" ($r = .008726$) across groups were in the predicted direction but were nonsignificant.

Table 4

Pearson Product-Moment Correlation Coefficients Across Individuals and Across Groups for the Time Spent Together Versus Three Other Measures of Groupness

Time Together versus	Across Individuals[a]	Across Groups[b]
Consensual Agreement		
Time Choosing	.448216	.745148
Time Discussing	-.122891	-.070375
Rank Variability	-.110383	.185136
Nongroup Members	.108823	-.008726

[a] $n = 30$
[b] $n = 6$

No Relationships

1c. There is no relation between the degree of affect of members of a group for the group and the other four measures of groupness.

Affect. The affect dimension of groupness was measured by responses to a question on the paper-and-pencil form filled out by all Ss during Session IV. Each group member was asked to place a slash mark across a 22 centimeter line at the point which indicated the degree of liking, or affect, for her group. The line was marked "not at all" at the lower end and "very, very much" at the upper end. A measurement was taken to the nearest .5 centimeter to the point at which the slash mark crossed the "affect line." The larger the value, up to 22 centimeters, the greater the degree of affect for the group. An average was taken across group members to determine the level of affect for each group.

Analysis of the hypothesis. Pearson product-moment correlation coefficients were computed for affect against each of the other measures of groupness. Table 5 summarizes the results. Inspection of the data reveals that no correlation between affect and any of the other measures of groupness approached significance. The strongest correlation across individuals was between affect and "time discussing," one of the measures of consensual agreement ($r = .268475$). The strongest correlation across groups was between affect and time together ($r = -.629058$). Both of these correlations were in the opposite direction from what might be expected. In fact, the only correlations that were in the direction that might have been expected were the correlation, across groups with "time choosing" ($r = -.080938$, $p = .436$) and both correlations with "rank variability" ($r = -.025336$, $p = .444$; $r = -.038868$, $p = .470$).

Thus Hypothesis 1c was supported by the data.

Table 5

Pearson Product-Moment Correlation Coefficients Across Individuals and Across Groups for Affect Versus Four Other Measures of Groupness

Affect versus	Across Individuals[a]	Across Groups[b]
Consensual Agreement		
Time Choosing	.040417	-.080938
Time Discussing	.268475	.549146
Time Together	-.196112	-.629058
Rank Variability	-.025336	-.038868
Nongroup Members	.108207	.466967

[a] $n = 30$
[b] $n = 6$

Status and Acts Initiated

2. During consensual agreement sessions, there is a curvilinear relationship between the number of acts initiated (as defined by Bales, 1970) by group members and the status of those group members; high and low status members initiate fewer acts, while middle status members initiate more.

Acts Initiated

Video tapes were made of the interaction that occurred among members during the Consensus Unit of Session IV. Later, two judges, who were unaware of status rankings made either by members or by nonparticipant observers of the groups, coded the interaction according to the techniques of Bales' (1970) Interaction Process Analysis (IPA).

Due to audio failures during the taping of Group 14's Consensus Unit, IPA coding could not be completed for that group. The quality of video tapes was adequate for the remaining five groups. The basic task for an IPA judge is to indicate, for each separable act, (1) who initiated the act, (2) to whom the act was addressed, and (3) into what category (of twelve) the act fell. For the purpose of evaluating Hypothesis 2, the data of interest were the total number of acts initiated by each individual member of the group.

Status Categories

The members of each group were divided into three categories: the highest status member was placed in the Highest Status category, the lowest status member in the Lowest Status category, and all other members in Middle Status category. Thus, after combining all the groups, five individuals had been categorized as Highest Status, 16 as Middle Status, and the remaining five as Lowest Status.

Analysis of the Hypothesis

To check for reliability of codings between judges, the rank order of number of acts initiated by individuals within a group was determined for each group, and Spearman rank correlation coefficients were calculated. The correlation between judges for Group 25 was .80, and for all other groups coded by the judges the correlation was 1.00, giving an average reliability measure of .96.

The dependent measure for each group member was the total number of acts initiated by her toward other group members (Appendix M). To measure the tendency for the data to represent a curvilinear relationship, a correlation ratio, eta squared, (Hays, 1963), was computed. Analysis yielded a value of .06 ($F = .734$, $df = 2, 23$) which was not significant.

Groupness and Power

3. The more nearly direct the relationship between the status position of the implanted group member and her power to influence emergent experimental norms, the higher the measures of groupness (excluding affect) of the group.

Status Position

Members occupying highest and lowest status positions according to a criterion of effective initiative, within each group, as determined by the evaluations of nonparticipant observers, agreed with later member-reports, filled out during Session IV by group members, in four of the six groups. The two indicants of status did not agree with one another for Group 14, where three observers placed Member 14c as

highest status, while members placed her third in status. The lowest status member, 14d, was placed lowest by both indicants. Group 25 also had a discrepancy, with the lowest status member (as placed by an observer) given a rank of four rather than five by fellow group members. The highest status member of Group 25 was placed the same according to the two status indicants.

Transformation of Judgment Data

Judgments in the hex and jukebox judgment situations were transformed to correspond with the judgments in the autokinetic situation. It was assumed that arbitrary norms in each of the three judgment situations were comparable, since in each situation the prescribed arbitrary norm was above and contingent to the natural norm (Pace, 1972; Pace & MacNeil, 1974). Thus a judgment of 12 inches in the autokinetic situation (the lowest judgment within the arbitrary norm) was assumed to be equivalent to 30 inches in the hex situation and 65 beeps in the jukebox situation.

In the hex and jukebox situations, a constant was subtracted from each judgment. The constant subtracted was the difference between 12, the lowest judgment in the arbitrary range of the autokinetic situation, and the lowest judgment in the arbitrary range of the situation in question. In the hex situation, six was subtracted from each judgment because the lowest judgment in the arbitrary range was six units from the lowest judgment in the arbitrary range in the autokinetic situation. For the same reason, five was subtracted from each judgment in the jukebox situation.

Following subtracting of the appropriate constant, judgments in the hex situation were divided by two because judgments are given in

units of two, i.e., to the nearest even inch. Judgments in the jukebox situation were divided by five because judgments are made by Ss in the jukebox situation in units of five.

The comparative relationships thus derived are shown by the formula

$$AK = \frac{HX - 6}{2} = \frac{JB - 5}{5}$$

where

AK = number of inches of perceived movement in the autokinetic situation

HX = number of inches estimated between lights in the hex situation

JB = number of beeps estimated in the jukebox situation.

Implantation

From each group three members were selected for implantation with a prescribed arbitrary norm. Each selected member in a group participated, along with four confederates, in either the autokinetic, the hex, or the jukebox judgment situations. Table 6 shows the degree of implantation that occurred, giving the transformed judgment medians and percent of judgments within or above the arbitrary norm during implantation. In fourteen cases, the implanted S's total judgments were greater than 93% within or above the prescribed norm.

Since power could be measured only when implantation had previously occurred, the situations in which a member had not been successfully implanted were eliminated from further consideration. These included the jukebox situation for Groups 25, 37, and 45, and the hex situation for Group 37. In addition, since only one judgment situation remained in which a member of Group 37 had been adequately implanted, data from the entire group was dropped from further analysis.

Table 6

Transformed Medians and Percent of Judgments Within or Above Prescribed Arbitrary Range During Implantation in Three Judgment Situations

Group	Judgment Situation[a]	Status Implanted[b]	% w/in, above Arbitrary
14	JB	3 (1)[c]	100.0
	AK	1	100.0
	HX	4 (4)	100.0
25	HX	1 (1)	93.3
	JB	3	55.0
	AK	4 (5)	93.3
37	JB	1 (1)	63.3
	AK	5	95.0
	HX	7 (7)	28.3
45	AK	1 (1)	96.7
	JB	3	25.0
	HX	5 (5)	96.7
54	JB	1 (1)	95.0
	HX	2	100.0
	AK	4 (4)	98.3
65	AK	1 (1)	98.3
	JB	3	98.3
	HX	5 (5)	100.0

Table 6 (Continued)

[a]JB = jukebox; AK = autokinetic; HX = hex situations

[b]The highest status member is ranked #1, next highest #2, etc.

[c]Status according to observer rankings

Power of Implanted Members. Approximately 24 hours following implantation, all group members participated in each of the three situations. The transformed medians and percentage of judgments within or above the arbitrary norm of the nonimplanted group members (those who had not been previously implanted in that situation) are quantitative measures of the relative power of the implanted group member to shape an emerging norm (Appendix N).

Analysis of the hypothesis. Except for Group 37, analysis was performed on the judgment data from each group using each situation in which a group member had undergone successful implantation. Following transformation of the judgments made in the hex and jukebox situations, medians of the judgments and the percent of judgments below, within, and above the arbitrary norm were calculated for the nonimplanted members of the group. Table 7 summarizes the results of this analysis and indicates the status of the implanted member in each situation. Inspection of the table shows that two of the groups (Group 25 and Group 54) showed a reversal of power, with the lowest status member shifting her group into the arbitrary range more than the highest status member. In Group 45 and Group 65, relative power was directly related to the status of the implanted member.

Table 7

Transformed Medians and Percentages Within or Above the Arbitrary Range, of Nonimplanted Group Members Across Judgment Situations

Group	Judgment Situation[a]	Status Implanted[b]	Nonimplanted Transformed Median[d]	Nonimplanted % w/in, above Arbitrary[d]
14	JB	3 (1)[c]	12.7	86.67
	AK	1	8.1	21.67
	HX	4 (4)	9.3	30.83
25	HX	1 (1)	9.8	37.50
	AK	4 (5)	12.4	63.13
45	AK	1 (1)	17.7	88.76
	HX	5 (5)	12.9	67.50
54	JB	1 (1)	11.3	45.83
	HX	2	7.6	5.00
	AK	4 (4)	13.1	63.33
65	AK	1 (1)	14.7	81.25
	JB	3	11.6	51.88
	HX	5 (5)	10.6	32.50

[a] JB = jukebox; AK = autokinetic; HX = hex situations

[b] The highest status member is ranked #1, next highest #2, etc.

[c] Status according to observer rankings

[d] Transformed arbitrary range = 12-18 units

In Group 14 the power was reversed if status is measured according to members' rankings of status, but it was more nearly direct when observer rankings are used. The median of judgments made by non-implanted members was slightly higher in the autokinetic situation (with the nonranked--and therefore, of intermediate status--member of the group implanted) than in the hex situation (with low status member implanted). Looking at the percentage of judgments within or above the arbitrary range, however, the relationship between observer status rankings and power in the judgment situations in Group 14 becomes direct. Since the variability across group members was highest in Group 14 (with a mean standard deviation of 7.43), member rankings were discarded for this group.

The five groups were dichotomized into two classifications, with Groups 14, 45, and 65 in a Status-Power Direct category and with Groups 25 and 54 in a Status-Power Inverse category. Mann-Whitney U tests for two imdependent samples (Siegel, 1956) were carried out for each of the measures of groupness: (1) time together, (2) consensual agreement, (3) rank variability, (4) nongroup members in an ideal group, and (5) affect. In all measures except those for consensual agreement the test was conducted both across individuals and across groups. The two measures of consensual agreement had only group-related data, so the test was not used across individuals.

Table 8 summarizes the results of the analyses. The measures of groupness which discriminated between the groups that were classified as Status-Power Direct versus Status-Power Inverse across individuals were those of rank variability ($U = 20$, $p = .01$) and the number of nongroup members selected in an ideal group ($U = 34.5$, $p < .05$).

Table 8

Mann-Whitney Analyses Across Individuals and Across Groups for Measures of Groupness, with Groups Categorized Either as Status-Power Direct or Status-Power Inverse

Measures of Groupness	Mann-Whitney U Across Individuals $n_1 = 9, n_2 = 14$	Across Groups $n_1 = 2, n_3 = 3$
Consensual Agreement		
Time Choosing	---	2.0
Time Discussing	---	0.0[a]
Time Together	51.0	4.0
Rank Variability	20.0**	4.0
Nongroup Members	34.5*	0.0[a]
Affect	41.5	2.0

[a] $p = .10$
*$p < .05$
**$p = .01$

The direction of degree of rank variability was reversed from that predicted in Hypothesis 1a. Across groups, the number of nongroup members chosen also differed significantly between the two categories of Status-Power ($U = 0$, $p = .10$). The amount of time spent discussing topics discriminated significantly ($U = 0$, $p = .10$) but was opposite from the direction predicted in Hypothesis 1a. As expected, the dimension of affect did not discriminate between the two categories.

CHAPTER V

DISCUSSION AND SUMMARY

An exploration into the concept of groupness requires that at some point the behavior of members of real (natural) groups be investigated. Since the principle components of groupness appear to operate beneath the awareness of the people involved, the more superficial devices do not seem viable. Additionally, introspection by analogy, such as may be found in role playing, may be a useful tool for determining potentially appropriate measurement techniques, but at best such pretesting can never completely prepare a researcher for the surprises that befall him when the same measurement techniques are employed using subjects who come into the research setting--whether it be in a laboratory or in the field--with previously established social relationships.

Discussion

Disaster Emergency Planning Questionnaire

The Disaster Emergency Planning Questionnaire was inadequate as it was employed, not because the design of the instrument was unsatisfactory, but because of the size of the sample relative to the population tapped. With such a large population (all women in the university community) it was natural that there was seldom more than one member from any one group sampled. Therefore, it was impossible to verify the existence of highly grouped groups by using the questionnaire

alone, and only general inferences could be made about the possibility of groups. A smaller population, e.g., a Job Corps Center or a boarding school, would provide a more reasonable population for such an instrument. Otherwise, future use of the DEP Questionnaire must encompass a much larger sample of the population.

Measures of Groupness

Excepting the measure of affect, the measures of groupness used were all innovative to the extent that they have not traditionally been used as measures of the dimension. Feldman (1968, 1969), for example, discussed normative consensus in relation to the generality of norms across activities. He does not, however, predict that more groupness should result in less time required to reach consensus regarding these group norms.

The extent to which the measures of consensual agreement regarding group norms represented valid measures of groupness is dependent at least in part on the degree to which the topics did in fact represent an unbiased sample of norms common to the groups studied. The topics were selected after pretesting revealed that they were representative of the things that the college women sampled were most likely to discuss in the presence of other women.

One reason the measures of consensual agreement did not correlate more highly with other measures of groupness may be that another extraneous factor was operative: despite instructions to reach consensus "as quickly as possible," it may have been normative in some of the groups (and not in others) to discuss, argue, such topics in greater detail. One of the groups (37) set out explicitly to "beat the other groups," but none of the other groups appeared to be so motivated.

Perhaps instructions that more overtly incited this competitive element would have resulted in a more valid measure of the "real" time required for the groups to reach consensus.

The amount of time spent together as it was measured does not appear to be a meaningful dimension of groupness. Time spent together is not necessarily equivalent to the quality of interaction: five minutes of intense interaction among group members regarding matters of consequence to the group can obviously be more productive of heightened groupness than five hours of desultory activity. It was hoped that the "noise" resulting from relatively nonproductive time for a group might be cancelled out across groups, so that those groups for whom interaction was most intense might also spend the most time together. Such was not the case. If time spent together is to be retained as a potential measure of groupness, a technique must be devised to determine the relative perceived importance of various group activities. A question at the end of the week, asking each member to list in rank order of importance the activities engaged in with other group members, might result in a meaningful ranking of group activities.

A second problem associated with time spent together is the weighting of activities engaged in by various numbers of group members. Should a member of a four-person group who spends an hour with all three other members be given credit for a full hour's time, while a member of a seven-person group receives only half credit for interaction with the same number of group members? A more equitable solution to weighting the interaction needs to be developed.

Finally, there is the problem involved in interpreting involuntary absences from the group. A member of one group, for example, spent

much of her time during the week she was completing the activity sheets in rehearsal for a play. All group members commented that the week, for that reason, was atypical. Since an atypical week is by definition not representative, the resulting data from that group was necessarily biased. Similarly, in a university community a weekend trip home may or may not be standard behavior, but a trip off-campus results in an all-or-nothing kind of evaluation for that individual.

Real groups versus paper groups. Three measures of groupness--variability in ranking, affect, and nongroup members of an ideal group--were the products of a paper and pencil form containing continua for member-ranking, affect, and members of an ideal group.

Not much is known about groups composed of females, but generally among male groups in this society it has been assumed that the more important a group's existence is to its members, the more tightly controlled is its privacy. In developing the self-report form regarding measures of groupness, this writer supposed a relatively low level of groupness would exist among the groups of college women to be studied, and that therefore self-reports might justifiably be used.

Such an assumption was apparently not entirely sound. Overt requests for group members to reveal parts of themselves and their friends to strangers resulted in probably unconscious camouflage by respondents. The only self-reported measure of groupness that seemed to relate significantly to anything was the measure for the number of nongroup members in the ideal group. This was the only really covert measure for groupness, and covertness was probably the reason for the measure's relative success.

Implantation

Of the eighteen group members who were exposed to implantation, four did not undergo implantation that was adequate for subsequent measurement of power in norm formation with the rest of the group. This was unusual; implantation had not previously been a problem (MacNeil & Pace, 1973).

Rather than explaining such results on the basis of the obvious sex differences between these and earlier subjects, it seems more likely that age, level of education, and resultant lack of naivete were the causes. Five of the six groups were composed of freshman women, but the sixth group, Group 37, contained freshmen, a sophomore, and junior women. Two of the three members of that group who were chosen for implantation failed to implant. Even the members of the two freshmen groups in which a member failed to implant were visibly more skeptical of the entire proceedings than is generally the case with younger, less sophisticated subjects.

Status-Power and Groupness

In three of the five groups for which power in norm formation could be measured, the relationship between status rankings and the power of implanted members was direct. In the remaining two groups the relationship was inverse. Measures of groupness failed to discriminate between the two categories of Status-Power except for the unobtrusive measure of number of nongroup members listed. Examination of the five groups as they were categorized according to the relationship between member status and power reveals some commonalities within categories.

Each of the three groups with a direct Status-Power relationship had a "specialty" that readily differentiated them from the other groups studied. Four of the five members of Group 65 played softball while the fifth member cheered them on; all the members of Group 14 regularly played a particular card game together, and the members of Group 45 were, as a group, actively involved with members of a male athletic team. For each of the groups, these activities consumed a large proportion of their time together.

Groups 25 and 54 (the Status-Power Inverse groups) contrasted with the other three groups in two ways. First, the two former groups came to the study with reputations for being religiously oriented groups: the single activity common to every member of these two groups was, according to their activity sheets, nightly individual--and sometimes communal--prayers and Bible reading. Second, Group 54 was definitely, and Group 25 most probably, a part of a certain larger formal evangelical organization. This evidently accounts for the fact that norms both within and across these two groups were similar and well-established at the time of the study; these norms were in fact not unique to the groups, but were derived from the larger reference group.

Summary

The purpose of this study was to explore some of the dimensions of groupness. Each of six informal (natural) groups of college women, selected through a disguised sociogramming device (the Disaster Emergency Planning Questionnaire) and nonparticipant observation, participated in four laboratory sessions. Session I, Orientation: The first session was a presentation of the rationale for "disaster teams"

of college women for potential emergencies; in addition, each group member was given a set of "activity sheets" (structured diary forms). They were asked to record their activities over a seven day period. Session II, Implantation: Three group members, evaluated by observers as highest, lowest, and a middle status, were implanted by confederates with moderately arbitrary norms in one of three norm formation situations: the autokinetic, the hex, or the jukebox situation. The task in the autokinetic judgment situation is to estimate the number of inches of perceived movement of an actually stationary pinpoint of light. The hex situation presents two points of light differing in angle from the horizontal (though always the same distance apart); the task is to estimate the distance between the points of light. The jukebox situation presents auditory stimuli--series of "beeps" embedded in music--and the task is to estimate the total number of beeps presented during a 45 sec. segment of music.

Session III, Groups: All group members participated in each of the three judgment situations in which a member had previously been implanted with an arbitrary norm. In this session, the power of each implanted member to influence the limits of the emergent norm was measured.

Session IV, Sociogramming: This session consisted of a Consensus Unit, in which the time required for consensual agreement of group norms was measured, and a Questionnaire Unit, in which group members completed paper-and-pencil forms regarding their group. These two units plus the activity sheets completed over a week's time yielded the measures of groupness for each group.

Regarding the measures of groupness, it was predicted that the amount of time required for consensual agreement, the degree of variability across status rankings, and the number of nongroup members chosen in an hypothetical ideal group would all vary directly with one another. Conversely, the above measures of groupness were predicted to vary inversely with the amount of time group members spent together. The measure of affect was predicted not to be related to any of the other measures of groupness. Results indicated a direct relationship across individuals between one of the measures of consensual agreement (time spent choosing) and (1) the number of nongroup members and (2) the second measure of consensual agreement (time spent discussing). Across groups, a moderate direct relationship was found between time choosing and the number of nongroup members chosen. No significant inverse relationships were found between the amount of time spent together and the other measures of groupness. As predicted, the measure of affect did not correlate significantly with any other measure of groupness.

A curvilinear relationship was predicted between member status and the number of acts initiated toward other group members during a discussion of group norms. It was expected that the highest and lowest status members of the groups would initiate the fewest acts and the middle status members would initiate the most. This relationship was not found.

Finally, five of the six groups were analysed regarding the relationship between status and power in influencing emergent norms, and of these five, power and status were found to be directly related to one another in three of the groups. For these groups, it was hypothesized

that the measures of groupness would be greater. The only measure of groupness that was found to discriminate significantly in the expected direction was the number of nongroup members chosen for an ideal group.

This study, involving a series of interrelated research probes pertinent to the concept of groupness, was theoretically based on the "street gang" model of small group dynamics. The model, founded on the empirical work of Whyte (1943), and others who reported on the dynamics of real groups in natural settings, and extended to the study of groups developed and studied under experimental conditions by Sherif, Harvey, White, Hood and Sherif (1961) is undoubtedly sound in its theoretical implications. The more specific implications from the empirical studies must be applied most cautiously to social units that are at a lower level of groupness. Another caution directly discernible from the results of this study is that the methods used to detect factors involved in groupness must not only be extremely subtle, but also appropriate for the specific group under study. For example, a direct questionnaire is responded to differentially by the members of groups at different levels of groupness--when the group is not extremely important to its members, their sociogram responses may accurately reflect group status. As the importance of the group to the members increases, however, the responses to the direct sociogram do not reflect the group structure.

Conclusion

Given the complexities involved in studying individuals who already have established social relations with one another, it is not surprising that little research has been conducted with informal

(natural) groups. Women's groups are particularly difficult to locate and study because they are generally active in locations like private homes, inaccessible to a researcher. It was hoped that in an institutional setting such as a university, where the women are housed in semi-public settings (dormitories), natural groups of women might be more readily available. Observers unanimously confirmed that there were in fact many such natural groups, and the selection of groups for this study proved to be more a problem of eliminating what appeared to be less stable groups than a problem of locating suitable ones.

While it is true that none of the groups in the present study approach in degree of groupness the level of a street gang, there are, it seems to this writer, many more groups that are at the level studied herein than there are street gangs. The street gamg provides a model for the study of groups; investigations of street gangs are often enlightening, and always colorful and interesting, but it may be that such studies bear analogy to clinical studies of "abnormal" behavior, for while street gangs are important to research by reason of their high visibility (which contributes to making group processes within them relatively easy to observe), their asocial norms, and the extreme influence they exert upon the behavior of some specific individuals, still they do not represent a central norm in the larger society. For the members of the groups studied here, events will most likely result in separating most of the group members, and life will continue without serious psychological damage, but at the time that the women participated in the study, these moderately stable groups were important shaping forces in the pattern of their day-to-day living, and the like must be true for the vast majority of individuals in our society. For this

reason, if for no other, an increased knowledge of the aspects of such moderately stable groups appears to be important.

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APPENDIX A

DISASTER EMERGENCY PLANNING (DEP) QUESTIONNAIRE

FORM M

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

Many kinds of disasters might strike towns around this area. Hurricanes, tornadoes, floods, fires, even enemy atomic attack, possibly followed by invasion. When disaster hits a city or town the people living there are disorganized, many are injured, and the best help comes from places outside the damaged area.

Police, National Guard, and other agencies have most of the adult males in their services. There is, however, a largely unused source of emergency manpower--teenage boys.

This questionnaire is to find out what emergency units might be available in this area if the teenage boys were used.

Please answer all questions carefully. No one will ever see your answers except the disaster planning director. It will not be seen by school teachers, school officials, or anyone else.

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

NAME _____

ADDRESS _____

_____

TELEPHONE # _____

When you are not in school or at home, where can you most likely be reached?

_____

_____

1. Would you be willing to help if you were needed in an emergency?
2. Do you have a driver's license?
3. If so, what types of vehicles have you driven (tractor, truck, car, motor scooter, etc.)?
4. Do you have your own (or share with brother or sister) car, motor scooter, etc.?
5. When you are out with friends, how often do you drive? ($\frac{1}{4}$, $\frac{1}{2}$, 3/4 of the time?)
6. Do you know how to swim?
7. Do you hold any of the Red Cross life saving certificates? Which ones?
8. Have you had Red Cross training in first aid?
9. List Cub Scout, Boy Scout, or Explorer Scout merit awards you have earned which might be useful in a crisis.
10. List any other skills you may have which would be valuable in an emergency. (Carpenter work, driving a boat, ham radio operation, etc.)
11. Do you have camping equipment? Check which ones.
    - small tent _____
    - bed roll _____
    - cooking gear _____
    - lantern _____
    - battery radio _____
12. Do you often go hunting, camping, etc., with friends?

13. Are you skilled in the use of a gun, knife, or other weapon? (List the weapons.)

14. Could you survive off the land, supplying your own food, water, and shelter?

15. a. Had you rather do so alone or with a group of friends?

    b. Which friends? List them in the order you would choose them.

16. If the disaster were caused by atomic bombing followed by enemy invasion, would you want to serve in an underground resistance, spying and sabotage racket?

17. Have you had judo, karate, or boxing training? (List which ones.)

18. Have you ever had to defend yourself with weapons? With fists?

19. Do you ever fight your friends? Just for fun? Serious fights?

20. If the disaster were caused by atomic bombing, followed by enemy invasion, who among your friends would you pick to work with you as a sabotage team? List them.

21. Who among your friends get your plans and activities started and see that things get done?

    First one _____
    Second one _____
    Others _____
    _____

22. Are there any of the fellows you run around with that you would <u>not</u> like to have in the resistance unit with you? If so, list them.

23. Which of your friends do you consider the bravest?

24. Who would you pick to be the leader of the small group of half a dozen or so boys you would be with?

25. Would he choose you if he picked two fellows to help with the planning?

26. Who would you pick to be the lieutenants? Name two.

    _____
    _____

27. In a situation of extreme secrecy, who would you trust among your friends? List in the order of the most trusted first, the next one second, etc.

APPENDIX B

DISASTER EMERGENCY PLANNING (DEP) QUESTIONNAIRE

FORM F

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

Many kinds of disasters might strike towns around this area. Tornadoes, floods, fires, even governmental collapse. When disaster hits a city or town, the people living there are disorganized, many are injured, and the best help comes from places outside the damaged area.

Police, National Guard, and other agencies have many people in their services. There is, however, a largely unused source of emergency manpower--college women.

This questionnaire is to find out what emergency units might be available in this area if college women were used.

Please answer all questions carefully. No one will ever see your answers except the disaster planning director. It will not be seen by college administrators or anyone else.

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

NAME:_____

COLLEGE:_____CLASSIFICATION:_____MAJOR:_____

LOCAL ADDRESS:_____

LOCAL TELEPHONE:_____

MARITAL STATUS:_____

AGE:_____

ARE YOU EMPLOYED?_____IF SO, WHERE?_____

When you are not in class or at the above address, where can you most likely be reached?

_____

_____

1. Would you be willing to help if you were needed in an emergency?
2. Do you have a driver's license?
3. If so, what types of vehicles have you driven (tractors, trucks, cars, motorcycles, heavy machinery, planes, boats, etc.)?
4. Can you operate a standard transmission (stick shift)?
5. Do you have a car or motorcycle?
6. When you are out with friends, how often do you drive (never, part, most, all of the time)?
7. Do you own a bicycle?
8. Do you know how to swim?
9. Do you hold any of the Red Cross lifesaving certificates? Which ones?
10. Have you had Red Cross training in first aid?
11. Indicate which of the following service organizations you have participated in and give the number of years you were a member:
    - F. H. A. _____
    - 4 H _____
    - Girl Scouts _____
    - Sorority _____
    - Camp Fire Girls _____
    - Other (specify) _____

12. Have you acquired any skills from the above organizations which would be valuable in an emergency? List them.

13. Would you participate in a class teaching such skills?

14. Do you have camping equipment? Check which ones?
    small tent _____
    bed roll _____
    cooking gear _____
    flashlight _____
    lantern _____
    battery radio _____
    other (specify) _____

15. Do you often go hunting, camping, etc., with friends?

16. Could you survive off the land, supplying your own food, water, and shelter?

17. a. Had you rather do so alone or with a group of college girl-friends?

    b. Which friends? List them in the order you would choose them.
    First choice _____
    Next choice _____
    " " _____
    " " _____
    " " _____
    " " _____
    " " _____
    " " _____

18. If the disaster were caused by weakening of the government, would you want to serve in a task unit?

19. Have you had judo, karate, or self-defense training? List which ones.

20. Have you ever had to defend yourself?

21. If the disaster were caused by weakening of the government, who among your friends would you pick to work with you as a task unit? List them in the order you would choose them.
    First choice _____
    Next choice _____
    " " _____
    " " _____
    " " _____
    " " _____
    " " _____
    " " _____

22. Who among your friends get your plans and activities started and see that things get done?

Most likely to _____
Next most likely to _____
" " " " _____
" " " " _____
" " " " _____
" " " " _____
" " " " _____
" " " " _____

23. Are there any of the women you run around with that you would <u>not</u> like to have in the task unit with you? If so, list them.

24. Who would you pick to be the leader of the small group of half a dozen or so women you'd be with?

25. Would she choose you if she picked two women to help with the planning?

26. In a situation of extreme secrecy, who would you trust among your friends? List them in the order of the most trusted first, the next one second, etc.

Most trusted _____
Next most trusted _____
" " " _____
" " " _____
" " " _____
" " " _____
" " " _____
" " " _____

APPENDIX C

WATFIV PROGRAM

```
      $JOB TIME=880,REGION=50K,PAGES=100
 1          DIMENSION BASE(999,11),LIST(1500),GROUP(1500),WEIGHT(10),RANK(100)
           1,IBASE(11),FMT(18),TITLE(18),KEY(999),CBASE(999,3),CLIST(5000)
 2          DATA IBLANK/1H /
 3          INTEGER BASE,ROW,ROW1,ROW2,GROUP,CBASE,CLIST
 4          NSTOP=999
 5          NNNN=NSTOP
 6    2000  DO 40 I=1,NSTOP
 7          DO 40 J=1,11
 8    40    BASE(I,J)=0
 9          NCBASE=0
10          NCLIST=1
11          READ (5,1,END=5000) NCHECK,NCYCLE,NPLAN,KEYS,LKEY,NAME,NTAPE1,
           1NTAPE2,
           1(WEIGHT(I),I=1,10),(FMT(J),J=1,18), (TITLE(K),K=1,18)
12          CALL CHECK(NCHECK,NCYCLE,NPLAN,KEYS,LKEY,NAME,NTAPE1,NTAPE2)
13          WRITE (6,17) (I,I=1,10),(WEIGHT(J),J=1,10)
14          WRITE (6,9) (TITLE(K),K=1,18)
15          WRITE (6,4) (I,I=1,10)
16          DO 50 I=1,NSTOP
17          READ (5,FMT) ROW,N, (IBASE(J),J=1,N)
18          IF ( ROW .EQ. 0 ) GO TO 57
19          DO 55 J=1,N
20    55    BASE(ROW,J)=IBASE(J)
21          BASE(ROW,11)=N
22    50    WRITE (6,3) ROW,N,(BASE(ROW,J),J=1,N)
23       57 IF (NAME .EQ. 1) GO TO 70
24          REWIND NTAPE2
25          WRITE (NTAPE2) ((BASE(I,J),J=1,11),I=1,NSTOP)
26          END FILE NTAPE2
27          DO 90 I=1,NSTOP
28          DO 90 J=1,11
29    90    BASE(I,J)=IBLANK
30          WRITE (6,9)
31          DO 95 I=1,NSTOP
32          READ (5,10) ROW,(IBASE(J),J=1,11)
33          IF (ROW .EQ. 0) GO TO 98
34          WRITE (6,13) ROW,(IBASE(J),J=1,11)
35          DO 95 J=1,11
36    95    BASE(ROW,J)=IBASE(J)
37    98    REWIND NTAPE1
38          WRITE (NTAPE1) ((BASE(I,J),J=1,11),I=1,NSTOP)
39          END FILE NTAPE 1
40          REWIND NTAPE2
41          READ(NTAPE2) ((BASE(I,J),J=1,11),I=1,NSTOP)
42    70    IF ( KEYS .EQ.1 ) GO TO 68
43          NN=0
44          DO 60 I=1,LKEY
45          DO 60 J=1,NSTOP
46          IF ( BASE(J,I) .EQ. 0 ) GO TO 60
47          NN=NN+1
48          LIST(NN)=BASE(J,I)
49    60    CONTINUE
50          CALL DLSORT(NN,LIST,NKEY)
51          DO 65 I=1,NKEY
52    65    KEY(I)=LIST(I)
53          NNNN=NKEY
54    68    DO 1000 NR =1,NNNN
55          ROW=NR
56          IF (BASE(ROW,1) .EQ. 0 .AND. KEYS .EQ.1) GO TO 1000
```

```
      NLIST=1
      LIST(NLIST)=ROW
      IF ( KEYS .EQ. 1 ) GO TO 78
      LIST(NLIST)=KEY(ROW)
      ROW=LIST(NLIST)
78    NN=BASE(ROW,11)
      IF ( NN .GT. 0 ) GO TO 74
      MLIST=0
      GO TO 491
 74   PRINT,'74',NN
      DO 100 J=1,NN
      ROW1=BASE(ROW,J)
       NLIST=NLIST+1
      LIST(NLIST)=ROW1
      NNN=BASE(ROW1,11)
      IF (NNN .EQ. 0 ) GO TO 100
       DO 79 I=1,NNN
      NLIST=NLIST+1
79    LIST(NLIST)=BASE(ROW1,I)
100   CONTINUE
      CALL DLSORT(NLIST,LIST,MM)
      IF ( NCYCLE .EQ. 0 ) GO TO 300
      PRINT,'200',NCYCLE
      DO 200 I=1,NCYCLE
      MLIST=1
      DO 250 J=1,MM
      NSUB=LIST(J)
      GROUP(MLIST)=NSUB
      NNN=BASE(NSUB,11)
      IF (NNN .EQ.0 ) GO TO 250
      DO 249 K=1,NNN
      MLIST=MLIST+1
      GROUP(MLIST)=BASE(NSUB,K)
249   CONTINUE
250   CONTINUE
      CALL DLSORT(MLIST,GROUP,MM)
      DO 275 J=1,MM
      IF (LIST(J) .EQ. GROUP (J) ) GO TO 275
      DO 280 K=1,MM
280   LIST(K)=GROUP(K)
      GO TO 200
275   CONTINUE
      GO TO 300
200   CONTINUE
300   MLIST=0
      PRINT,'NPLAN',NPLAN
      IF ( NPLAN .EQ. 2 ) GO TO 460
      MMM1=MM-1
      PRINT,'400',MMM1
      DO 400 I=1,MMM1
      II=I+1
      ROW1=LIST(I)
      DO400 J=II,MM
      ROW2=LIST(J)
      N1=0
      N2=0
      DO450 K=1,NCHECK
      IF ( BASE(ROW1,K) .EQ. ROW2) N2=1
      IF( BASE(ROW2,K) .EQ.ROW1 ) N1=1
 450  CONTINUE
```

```
117          N3=N1+N2
118          IF ( N3 .NE. 2 ) GO TO 400
119          MLIST=MLIST+1
120          GROUP(MLIST)=ROW1
121          MLIST=MLIST+1
122          GROUP(MLIST)=ROW2
123      400 CONTINUE
124          GO TO 490
125      460 DO 475 I=1,MM
126          ROW1=LIST(I)
127          DO 470 J=1,MM
128          ROW2=LIST(J)
129          DO480 K=1,NCHECK
130          IF (BASE(ROW1,K) .NE. ROW2 ) GO TO 480
131          PRINT,'X',MLIST,ROW1,ROW2
132          MLIST=MLIST+1
133          GROUP(MLIST)=ROW1
134          MLIST=MLIST+1
135          GROUP(MLIST)=ROW2
136          GO TO 470
137      480 CONTINUE
138      470 CONTINUE
139       475 CONTINUE
140      490 IF ( MLIST .NE. 0) GO TO 492
141      491 WRITE (6,7) ROW,MLIST
142          GO TO 1000
143      492 CALL DLSORT(MLIST,GROUP,MM)
144          PRINT,'500',MM
145          DO 500 I=1,MM
146          NSUB=GROUP(I)
147          RANK(I)=0.
148          DO 550 J=1,MM
149          ROW1=GROUP(J)
150          DO 550 K=1,NCHECK
151      550 IF ( BASE(ROW1,K) .EQ. NSUB ) RANK(I)=RANK(I)+WEIGHT(K)
152      500 CONTINUE
153          MMM1=MM-1
154          PRINT,'575',MMM1
155          DO 575 I=1,MMM1
156          II=I+1
157          DO 575 J=II,MM
158          IF ( RANK(J) .LE. RANK(I) ) GO TO 575
159          TEMP=RANK(J)
160          RANK(J)=RANK(I)
161          RANK(I)=TEMP
162          NT=GROUP(J)
163          GROUP(J)=GROUP(I)
164          GROUP(I)=NT
165      575 CONTINUE
166          WRITE (6,5) ROW,MM
167          IF ( NAME .EQ. 1 ) GO TO 600
168          REWIND NTAPE1
169          READ (NTAPE1) ((BASE(I,J),J=1,11),I=1,NSTOP)
170          PRINT,'600',MM
171      600 DO 650 I=1,MM
172          NN=GROUP(I)
173          IF ( NAME .EQ. 1 ) WRITE (6,6) NN,RANK(I)
174          IF ( NAME .EQ. 2 ) WRITE (6,12) NN,RANK(I),(BASE(NN ,K),K=1,11)
175      650 CONTINUE
176          IF (NAME .EQ. 1 ) GO TO 680
```

```
177           REWIND NTAPE2
178           READ (NTAPE2) ((BASE(I,J),J=1,11),I=1,NSTOP)
179     680   NCBASE=NCBASE+1
180           CBASE(NCBASE,1)=GROUP(1)
181           CBASE(NCBASE,2)=NCLIST
182           CBASE(NCBASE,3)=MM
183           DO 700 I=1,MM
184           CLIST(NCLIST)=GROUP(I)
185     700   NCLIST=NCLIST+1
186     1000  CONTINUE
187           NM1=NCBASE-1
188           DO 800 I=1,NM1
189           II=I+1
190           DO 800 J=II,NCBASE
191           IF ( CBASE(I,1) .LE. CBASE(J,1) ) GO TO 800
192           DO 820 K=1,3
193     820   IBASE(K)=CBASE( I  ,K)
194           DO 830 K=1,3
195     830   CBASE( I  ,K)=CBASE( J  ,K)
196           DO 840 K=1,3
197     840   CBASE( J  ,K)=IBASE(K)
198     800   CONTINUE
199           WRITE (6,14)
200           NNN=0
201           DO 900 I=1,NCBASE
202           NN=CBASE(I,1)
203           ROW1=CBASE(I,2)
204           ROW2=ROW1+CBASE(I,3)-1
205           IF ( NNN .NE. NN ) WRITE (6,16)
206           WRITE (6,15) (CLIST(K),K=ROW1,ROW2)
207     900   NNN=NN
208           GO TO 2000
209     5000  STOP
210       1   FORMAT (6X,8I2/6X,10F4.2/18A4/18A4)
211       3   FORMAT (I6,2H (,I4,2H ) ,10I4)
212       4   FORMAT (7H PERSON,24X,8HSELECTED/14X,10I4//)
213       5   FORMAT (//24H STARTING POINT = PERSON,I5,10X,7HSIZE = ,I5//10X,
              14HCODE,10X,4HRANK)
214     6     FORMAT (6X,I8,8X,F8.3)
215     7     FORMAT (//24H STARTING POINT = PERSON,I5,10X,7HSIZE = ,I5)
216       8   FORMAT (//I8//(40I3))
217       9   FORMAT (1H1,18A4//)
218       10  FORMAT (I3,1X,11A4)
219       12  FORMAT (6X,I8,8X,F8.3,5X,11A4)
220       13  FORMAT (5X,I3,5X,11A4)
221       14  FORMAT (43H1CONCATENATION OF KEY-MAN GROUPS BY TOP MAN////)
222       15  FORMAT (1X,20I4)
223     16    FORMAT (//10H ---------//)
224     17    FORMAT (//8H WEIGHTS,5X,10I8//13X,10F8.2)
225           END
**WARNING**  FORMAT STATEMENT      8 IS UNREFERENCED

226           SUBROUTINEDLSORT(N,LIST,M)
227           DIMENSION LIST(1500)
228           IF ( N .GT. 0 ) GO TO 40
229           M=0
230           RETURN
231     40    IF ( N.GT. 1 ) GO TO 50
232           M=1
233           RETURN
```

```
234   50    IF ( N .LE.1500 ) GO TO 60
235         WRITE (6,1)
236   1     FORMAT (39H LIST OVERFLOW -- PROGRAM WILL CONTINUE)
237         N=1000
238   60    NM1=N-1
239         DO 100 I=1,NM1
240         II=I+1
241         DO 100 J=II,N
242         IF ( LIST(I) .LT. LIST(J) ) GO TO 100
243         NN=LIST(J)
244         LIST(J)=LIST(I)
245         LIST(I)=NN
246   100   CONTINUE
247         J=0
248         DO 200 I=1,NM1
249         IF ( LIST(I) .NE. LIST(I+1) ) GO TO 180
250         J=J+1
251         GO TO 200
252   180   KK=I+1-J
253         LIST(KK)=LIST(I+1)
254   200   CONTINUE
255         M=N-J
256         RETURN
257         END

258          SUBROUTINE CHECK(NCK,NCY,N1,N2,N3,N4,NT1,NT2)
259         IF ( N1 .LT. 1 .OR. N1 .GT. 2 ) N1=1
260         IF ( N2 .LT. 1 .OR.N2 .GT.2 ) N2=1
261         IF ( N3 .LT. 1 .OR.  N3 .GT.10 ) N3=1
262         IF ( N4 .LT. 1 .OR. N4 .GT. 2 ) N4=1
263         IF ( NCK .LE. 0 .OR. NCK .GT. 10 ) NCK=4
264         IF ( NCY .GT.10 ) NCY=10
265         WRITE (6,1)
266         WRITE (6,2)NCK,NCY,N1,N2,N3,N4,NT1,NT2
267         RETURN
268   1     FORMAT (42H1COMPUTER PROGRAM FOR COMPUTING SOCIOGRAMS//41H DAVID M
           1.SHOEMAKER PSYCHOLOGY DEPARTMENT//26H OKLAHOMA STATE UNIVERSITY)
269   2     FORMAT ((///11H PARAMETERS//I4,41H  CHOICE CRITERION FOR ADDITION
           1 TO GROUP/I4,22H   DEGREE OF EXPANSION/I4,28H   METHOD OF GROUP FO
           2RMATION/I4,32H   SELECTION OF KEY MEN (LEVEL =,I4,1H)/I4,
           318H   CHARACTER INPUT/I4,17H   SCRATCH TAPE 1/I4,17H   SCRATCH TAP
           4E 2)
270          END

      $ENTRY
```

APPENDIX D

ACTIVITY SHEET

Day _____ Activity Sheet

ACTIVITY	WHO SUGGESTED	WHERE	WITH WHOM	FROM	TILL

APPENDIX E

BALES' INTERACTION PROCESS ANALYSIS

(IPA) CATEGORIES

Bales' Interaction Process Analysis Categories

1. Shows solidarity (gives help, reward, etc.)
2. Shows tension release (jokes, laughs)
3. Agrees
4. Gives suggestions
5. Gives opinion (evaluation, analysis)
6. Gives orientation or information
7. Asks for orientation or information
8. Asks for opinion (evaluation, analysis)
9. Asks for suggestions
10. Disagrees
11. Shows tension
12. Shows antagonism

APPENDIX F

CONSENSUS TOPICS

Consensus Unit: List of Topics

1. Energy crisis
2. Streaking
3. Interracial marriage
4. Watergate, impeachment, etc.
5. Movies
6. Television shows
7. Interfaith marriage
8. Sex and dating
9. Soap operas
10. Rural-urban life
11. Drugs
12. Dieting
13. Athletics
14. Music
15. Pets

APPENDIX G

CONSENSUS QUESTIONS

Consensus Unit: List of Questions

1. Is the energy crisis real or was it artificially produced? Give reasons for your answer.

2. Should streakers be punished? If no, why not, and if yes, how should they be punished?

3. What do you consider to be an interracial marriage? Under what circumstances, if any, is interracial marriage acceptable?

4. Should Nixon resign? If so, why? If not, why not?

5. What are the five best movies made in the last ten years?

6. What are the five best TV shows on this season?

7. What do you consider an interfaith marriage? Under what circumstances is interfaith marriage acceptable?

8. Is pre-marital sex ever acceptable? Is so, when? If not, why not?

9. What is the best soap opera on television? Why?

10. Define what you mean by rural and urban. Is it better to live in a rural or urban community?

11. What is a drug? The use of which, if any, presently illegal drugs should be legalized?

12. What is the best way to diet for losing weight?

13. What is the best spectator sport (most fun to watch?) Why? What sport is the most fun to play? Why?

14. Choose, and list in order of preference, the five best records made in the last year or so.

15. What animal makes the best pet? Why? (Be specific as to breed.)

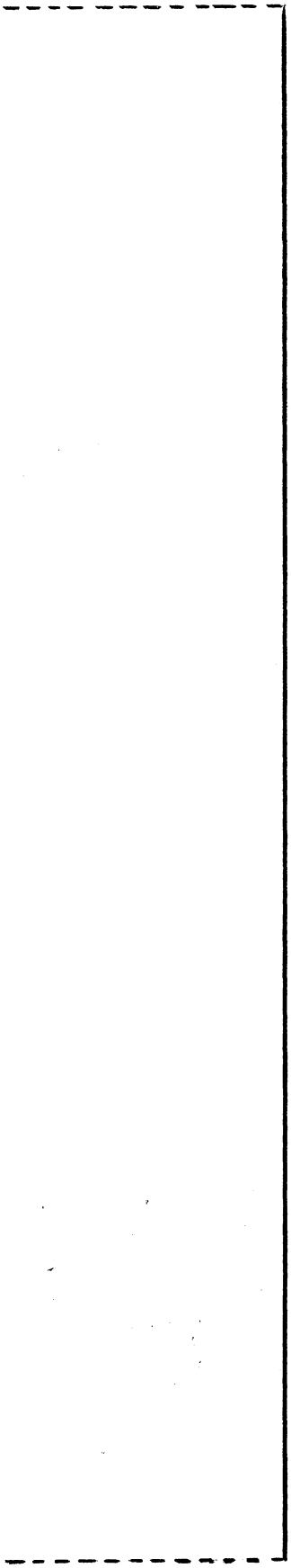
APPENDIX H

PACKAGE OF 4 SOCIOGRAM QUESTIONS

NAME _____

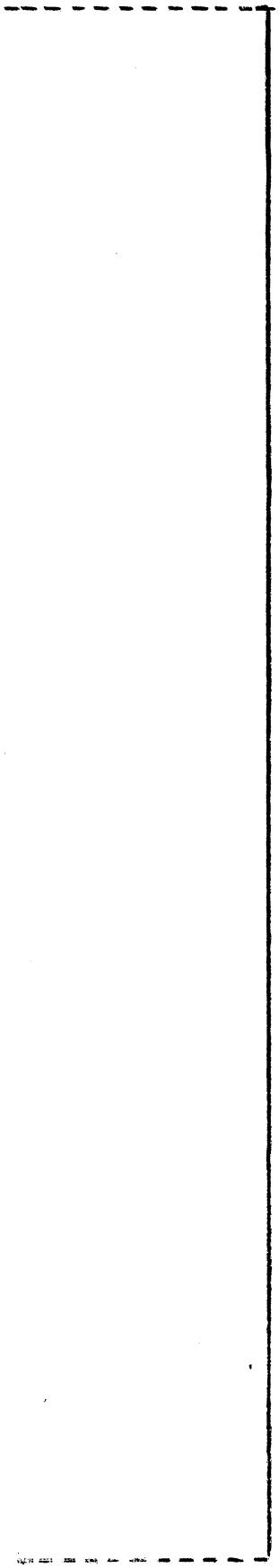
Relative Contribution Lines

1. Using the "contributions line" on the next page, we'd like you to tell us how much of the time each of your friends here with you (including yourself) makes suggestions that are carried out by all of you. The line runs from the bottom marked "makes the fewest suggestions that are carried out," to the top, marked "makes the most suggestions that are carried out." First, put the name of the person here with you (you must include yourself) who makes more suggestions that are carried out than anyone else on the dotted line at the top. Next put the name of the person who makes the least suggestions that are carried out on the dotted line at the bottom. Place the names of all of your other friends who are here along the vertical line according to how much they give suggestions and ideas that are carried out. Make a slash mark across the line to show just where you think each of their contribution of ideas would fall. Be sure to put a slash mark for each person here with you and their name next to it.


Makes the most suggestions that are carried out
Makes the fewest suggestions that are carried out

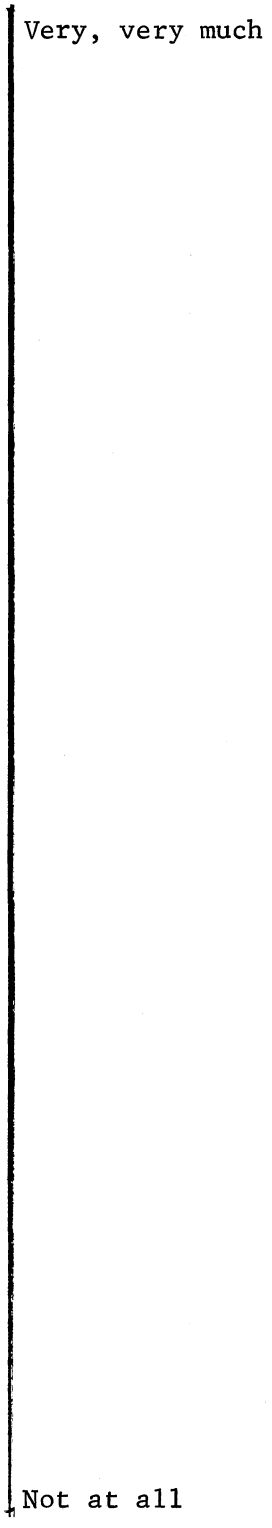
NAME _____

2. Using the "contributions line" on the next page, we'd like you to tell us how much of the time each of your friends here with you (including yourself) does work in group activities. For example, if someone suggests a party, who does the most to get the party set up? The line runs from the bottom marked "does the least work in group activities" to the top, marked "does the most work in group activities." First, put the name of the person here with you (you must include yourself) who does more work in group activities then anyone else, on the dotted line at the top. Next, put the name of the person who does the least work in group activities on the dotted line at the bottom. Place the names of all your other friends who are here along the vertical line according to how much work they do in group activities. Make a slash mark across the line to show just where you think their contribution of work in the group activities would fall. Be sure to put a slash mark for each person here with you and their name next to it.


Does the most work in group activities
Does the least work in group activities

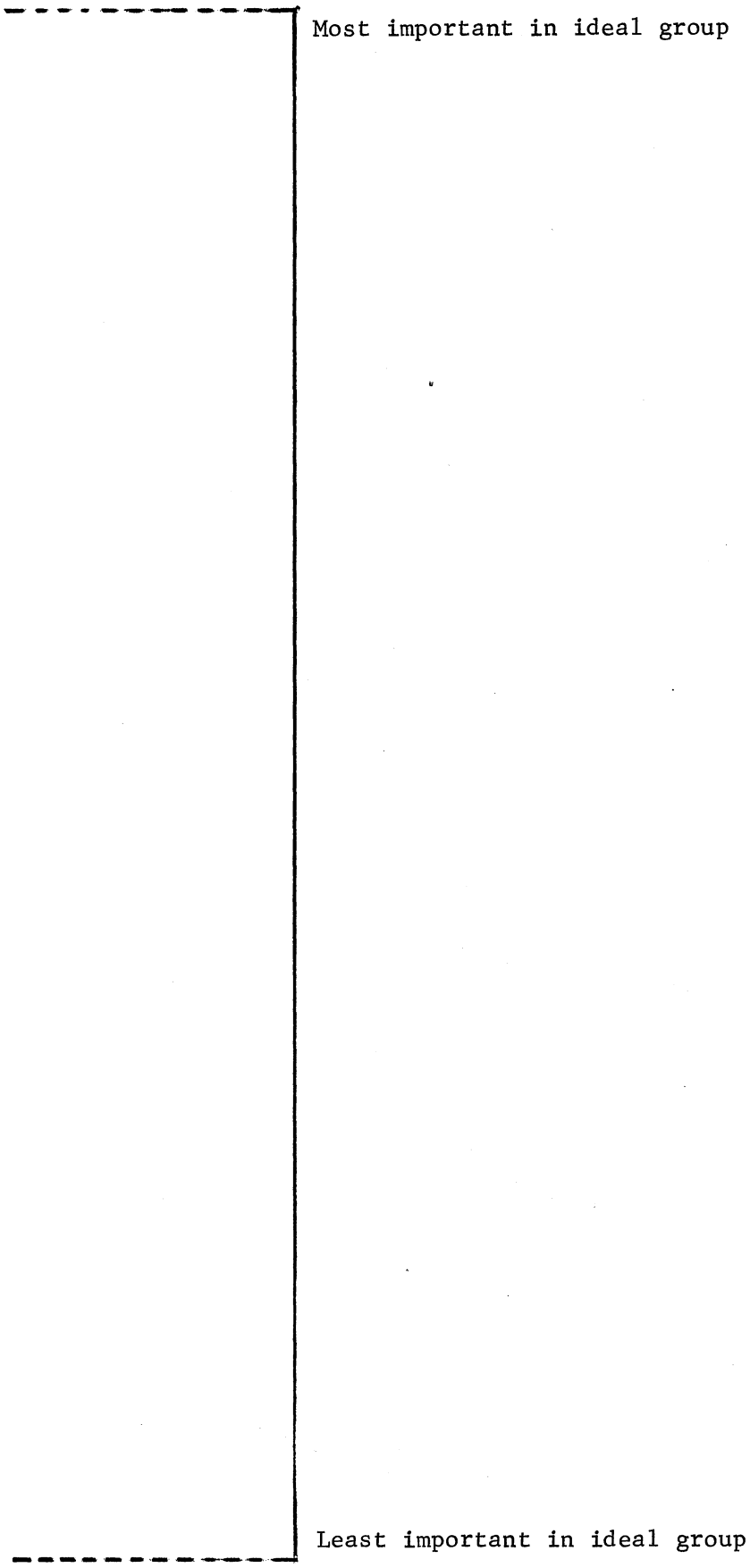
NAME _____

3. How well do you like your group here with you? Place a slash mark on the scale indicating how well you like the group here with you, anywhere from "very, very much" to "not at all."



NAME _____

4. Make up an ideal group. You may include those present and any other girls you know. After you have decided which girls you would like to have in your ideal group, place the names of all the girls chosen along the vertical line according to how much you would like them in your ideal group. First, put the name of the person you would most like to have in your ideal group on the dotted line at the top. Next place the name of the person that is least important in your ideal group on the dotted line at the bottom. Be sure to put a slash mark for each person in your ideal group and their name next to it.


Most important in ideal group
Least important in ideal group

APPENDIX I

DATA SHEET FOR TIMER TO RECORD

CONSENSUS DATA

GROUP DISCUSSION TIME RECORDING SHEET

Group No. _____

Date _____

Time Begun _____

A. Topic Choice

_____ min. _____ sec.

B. Topics

1) Topic # _____: _____ min. _____ sec.

2) Topic # _____: _____ min. _____ sec.

3) Topic # _____: _____ min. _____ sec.

4) Topic # _____: _____ min. _____ sec.

5) Topic # _____: _____ min. _____ sec.

6) Topic # _____: _____ min. _____ sec.

7) Topic # _____: _____ min. _____ sec.

APPENDIX J

DATA FOR TIME SPENT TOGETHER, RANK VARIABILITY, AFFECT, NONGROUP MEMBERS, TIME CHOOSING & TIME DISCUSSING, ACROSS GROUPS

Group	Time Together (Min)	Rank Variability	Affect	Nongroup Members	Time Choosing (Min)	Time Discussing (Min)
14	1775	7.43	19.5	5.3	5.85	26.05
25	985	4.20	20.2	6.2	3.95	19.83
37	1125	5.87	18.8	2.3	1.30	5.08
45	691	6.03	20.9	3.6	2.38	33.76
54	585	7.20	20.6	6.0	1.73	12.77
65	662	6.52	20.0	4.6	2.78	30.43

APPENDIX K

DATA FOR TIME SPENT TOGETHER, RANK VARIABILITY, AFFECT, NONGROUP MEMBERS, ACROSS INDIVIDUALS

Subject	Time Together (Min)	Rank Variability	Affect	Nongroup Members
14c	2304	7.91	21.0	5
14b	2347	8.15	18.0	5
14a	2022	2.14	18.0	8
14d	426	11.55	21.0	3
25b	1005	3.75	21.5	6
25d	1288	7.06	21.5	4
25a	1459	0.00	21.0	7
25e	571	2.61	18.0	6
25c	604	7.56	19.0	8
37a	1119	2.92	17.5	0
37b	1168	3.11	20.0	8
37g	837	6.49	18.0	2
37e	1408	7.13	15.0	2
37c	1192	4.33	22.0	2
37f	879	8.46	18.5	1
37d	1271	8.66	20.5	1
45b	794	3.01	22.0	8
45e	64	8.12	22.0	2
45c	1157	9.04	22.0	4
45d	671	7.83	20.0	1
45a	769	2.13	18.5	3
54b	510	4.20	21.0	3

Subject	Time Together (Min)	Rank Variability	Affect	Nongroup Member
54a	884	0.75	21.0	9
54c	443	7.44	22.0	5
54d	515	9.21	18.5	7
65c	687	8.69	16.5	3
65d	653	5.57	20.5	4
65b	653	6.21	19.5	10
65e	951	7.97	22.0	3
65a	366	4.16	21.5	3

APPENDIX L

A SUMMARY OF THE RAW DATA

FOR TIME SPENT TOGETHER

TIME TOGETHER - GROUP 14

14 a With	Minutes Together	Proportion of Group	Proportional Minutes
b	255	1/3	85
c	1290	1/3	430
bc	665	2/3	443
bd	70	2/3	47
bcd	720	1	720
cx	180	1/3	60
bx	60	1/3	60
bcx	530	2/3	177
		Total	2022

TIME TOGETHER - GROUP 14

14 b With	Minutes Together	Proportion of Group	Proportional Minutes
a	1395	1/3	465
c	740	1/3	247
d	45	1/3	15
ac	585	2/3	390
cd	15	2/3	10
acd	730	1	730
ax	90	1/3	30
cx	320	1/3	107
acx	530	2/3	353
		Total	2347

TIME TOGETHER - GROUP 14

14 c With	Minutes Together	Proportion of Group		Proportional Minutes
a	210	1/3		70
b	885	1/3		295
ab	745	2/3		497
abd	660	1		660
ax	180	1/3		60
bx	225	1/3		75
dx	180	1/3		60
abx	880	2/3		587
			Total	2304

TIME TOGETHER - GROUP 14

14 d With	Minutes Together	Proportion of Group		Proportional Minutes
c	20	1/3		7
ac	20	2/3		14
abc	405	1		405
			Total	426

x = A nongroup member.

TIME TOGETHER - GROUP 25

25 a With	Minutes Together	Proportion of Group	Proportional Minutes
b	95	1/4	24
c	60	1/4	15
d	49	1/4	12
e	60	1/4	15
bc	135	1/2	67
bd	540	1/2	270
be	30	1/2	15
ce	60	1/2	30
de	90	1/2	45
bcd	60	3/4	45
bce	90	3/4	67
bcde	210	1	210
bx	90	1/4	22
dx	60	1/4	15
cdx	105	1/2	53
ex	90	1/2	45
cex	90	3/4	67
dex	30	3/4	22
cdex	420	1	420
		Total	1459

TIME TOGETHER - GROUP 25

25 b With	Minutes Together	Proportion of Group	Proportional Minutes
a	200	1/4	50
c	30	1/4	7
d	50	1/4	13

GROUP 25 (con't)

25 b With	Minutes Together	Proportion of Group	Proportional Minutes
ac	120	1/2	60
ad	45	1/2	22
acd	150	3/4	113
acde	215	1	215
dx	120	1/4	30
acx	45	1/4	22
acex	150	3/4	113
acdex	360	1	360
		Total	1005

TIME TOGETHER - GROUP 25

25 c With	Minutes Together	Proportion of Group	Proportional Minutes
a	145	1/4	36
d	57	1/4	14
e	72	1/4	18
ab	155	1/2	78
ad	105	1/2	52
ae	15	1/2	8
abd	5	3/4	4
bde	45	3/4	34
abde	50	1	50
abx	90	1/2	45
adx	35	1/2	18
abdx	75	3/4	56

GROUP 25 (con't)

25 c With	Minutes Together	Proportion of Group		Proportional Minutes
abex	115	3/4		86
abdex	105	1		105
			Total	604

TIME TOGETHER - GROUP 25

25 d With	Minutes Together	Proportion of Group		Proportional Minutes
a	635	1/4		159
b	45	1/4		11
c	30	1/4		7
ab	30	1/2		15
ae	180	1/2		90
abe	220	3/4		165
bce	60	3/4		45
abce	140	1		140
ax	60	1/4		15
bx	90	1/4		22
ex	170	1/4		42
abx	240	1/2		120
cex	30	1/2		15
abex	30	3/4		22
abcex	420	1		420
			Total	1288

TIME TOGETHER - GROUP 25

25 e With	Minutes Together	Proportion of Group	Proportional Minutes
a	85	1/4	21
b	30	1/4	7
ab	30	1/2	15
ad	90	1/2	45
abd	40	3/4	30
bcd	45	3/4	34
abcd	215	1	215
ax	10	1/4	2
abdx	270	3/4	202
		Total	571

x = A nongroup member.

TIME TOGETHER - GROUP 37

37 a With	Minutes Together	Proportion of Group	Proportional Minutes
b	140	1/6	23
c	60	1/6	10
e	45	1/6	5
bd	30	1/3	10
cd	255	1/3	85
bcd	595	1/2	298
cde	50	1/2	25
bcde	180	2/3	120
bcdeg	45	5/6	38
bcdefg	165	1	165
fx	180	1/6	30
afx	90	1/3	30
cdex	30	1/2	15
cdfx	90	1/2	45
bcdex	60	2/3	40
bcdfx	120	2/3	80
bcdefx	60	5/6	50
bcdfgx	60	5/6	50
		Total	1119

TIME TOGETHER - GROUP 37

37 b With	Minutes Together	Proportion of Group	Proportional Minutes
a	215	1/6	36
c	375	1/6	62
ac	190	1/3	63
cd	210	1/3	70

GROUP 37 (con't)

37 b With	Minutes Together	Proportion of Group	Proportional Minutes
acd	225	1/2	75
acde	205	2/3	137
acdg	165	2/3	110
acdeg	75	5/6	62
acdefg	225	1	225
ax	120	1/6	20
cx	225	1/6	38
cdx	180	1/3	60
cex	30	1/3	10
acdex	150	2/3	100
acdfx	150	2/3	100
		Total	1168

TIME TOGETHER - GROUP 37

37 c With	Minutes Together	Proportion of Group	Proportional Minutes
a	120	1/6	20
b	75	1/6	13
d	955	1/6	159
ad	255	1/3	75
bd	375	1/3	125
abd	330	1/2	165
abde	330	2/3	220
abdeg	45	5/6	38
abdefg	60	1	60
bx	120	1/6	20
adx	120	1/3	40

GROUP 37 (con't)

37 c With	Minutes Together	Proportion of Group	Proportional Minutes
abdx	240	1/2	120
adfx	15	1/2	7
abdgx	150	2/3	100
abegx	30	2/3	20
		Total	1192

TIME TOGETHER - GROUP 37

37 d With	Minutes Together	Proportion of Group	Proportional Minutes
a	20	1/6	3
c	1130	1/6	188
ab	30	1/3	10
ac	45	1/3	15
ae	30	1/3	10
abc	1100	1/2	550
ace	60	1/2	30
abce	180	2/3	120
abceg	30	5/6	25
cx	30	1/6	5
ex	90	1/6	15
acx	60	1/3	20
bcx	90	1/3	30
cex	15	1/3	5
acfx	120	1/2	60

GROUP 37 (con't)

37d With	Minutes Together	Proportion of Group		Proportional Minutes
aefx	120	1/2		60
bcgx	90	1/2		45
abcfx	120	2/3		80
			Total	1271

TIME TOGETHER - GROUP 37

37 e With	Minutes Together	Proportion of Group		Proportional Minutes
d	90	1/6		15
f	220	1/6		37
g	335	1/6		56
abcdfg	660	1		660
gx	960	1/6		160
acdgx	150	2/3		100
abcdfgx	380	1		380
			Total	1408

TIME TOGETHER - GROUP 37

37 f With	Minutes Together	Proportion of Group		Proportional Minutes
a	45	1/6		7
e	300	1/6		50
ae	50	1/3		17
acdeg	390	5/6		325
ax	300	1/6		50
ex	180	1/6		30
adx	90	1/3		30
acdegx	120	5/6		100
abcdegx	270	1		270
			Total	879

TIME TOGETHER - GROUP 37

37 g With	Minutes Together	Proportion of Group		Proportional Minutes
a	20	1/6		3
e	270	1/6		45
ae	45	1/3		15
ef	10	1/3		3
ax	5	1/6		1
ex	1185	1/6		198
acdex	70	2/3		47
abcdex	90	5/6		75
abcdefx	450	1		450
			Total	837

x = A nongroup member.

TIME TOGETHER - GROUP 45

45 a With	Minutes Together	Proportion of Group	Proportional Minutes
b	815	1/4	204
c	30	1/4	7
d	60	1/4	15
bc	380	1/2	190
bd	40	1/2	20
cd	30	1/2	15
bcd	255	3/4	191
ex	60	1/4	15
bcx	105	1/2	53
bdex	45	3/4	34
bcdex	25	1	25
		Total	769

TIME TOGETHER - GROUP 45

45 b With	Minutes Together	Proportion of Group	Proportional Minutes
a	255	1/4	64
c	1155	1/4	289
d	130	1/4	33
ac	515	1/2	258
ad	90	1/2	45
cd	10	1/2	5
ax	60	1/4	15
acx	105	1/2	53
cex	20	1/2	10
dex	45	1/2	22
		Total	794

TIME TOGETHER - GROUP 45

45 c With	Minutes Together	Proportion of Group	Proportional Minutes
a	200	1/4	50
b	960	1/4	240
d	130	1/4	33
ab	590	1/2	295
ad	30	1/2	15
bd	100	1/2	50
abde	140	1	140
ax	30	1/4	7
bx	15	1/4	4
dx	110	1/4	27
adx	150	1/2	75
abdx	195	3/4	146
abex	100	3/4	75
		Total	1157

TIME TOGETHER - GROUP 45

45 d With	Minutes Together	Proportion of Group	Proportional Minutes
a	80	1/4	20
b	200	1/4	50
c	300	1/4	75
e	30	1/4	7
ac	45	1/2	22
bc	150	1/2	75
abc	90	3/4	67
ax	25	1/4	6
cx	180	1/4	45

GROUP 45 (con't)

45 d With	Minutes Together	Proportion of Group	Proportional Minutes
abx	60	1/2	30
acx	90	1/2	45
bcx	30	1/2	15
abcx	165	3/4	124
abcex	90	1	90
		Total	671

TIME TOGETHER - GROUP 45

45 e With	Minutes Together	Proportion of Group	Proportional Minutes
adx	30	1/2	15
cdx	55	1/2	27
abdx	30	3/4	22
		Total	64

x = A nongroup member.

TIME TOGETHER - GROUP 54

54 a With	Minutes Together	Proportion of Group		Proportional Minutes
b	145	1/3		48
c	295	1/3		98
d	935	1/3		312
bc	30	2/3		20
bd	80	2/3		53
cd	35	2/3		23
bcd	225	1		225
			Total	884

TIME TOGETHER - GROUP 54

54 b With	Minutes Together	Proportion of Group		Proportional Minutes
a	195	1/3		65
c	140	1/3		47
d	170	1/3		57
ac	193	2/3		129
acd	140	1		140
ax	200	1/3		67
cx	15	1/3		5
			Total	510

TIME TOGETHER - GROUP 54

54 c With	Minutes Together	Proportion of Group		Proportional Minutes
a	210	1/3		70
b	165	1/3		55
d	15	1/3		5
ab	135	2/3		90
ad	30	2/3		20
abd	110	1		110
ax	90	1/3		30
abx	15	2/3		10
adx	65	2/3		43
			Total	433

TIME TOGETHER - GROUP 54

54 d With	Minutes Together	Proportion of Group		Proportional Minutes
a	945	1/3		315
abc	150	1		150
ax	60	1/3		20
bx	90	1/3		30
			Total	515

x = A nongroup member.

TIME TOGETHER - GROUP 65

65 a With	Minutes Together	Proportion of Group		Proportional Minutes
c	975	1/4		244
d	15	1/4		4
cd	10	1/2		5
ce	75	1/2		38
bde	60	3/4		45
bcde	30	1		30
			Total	366

TIME TOGETHER - GROUP 65

65 b With	Minutes Together	Proportion of Group		Proportional Minutes
d	315	1/4		79
e	235	1/4		59
ac	50	1/2		25
de	45	1/2		22
ade	15	3/4		11
acde	55	1		55
dx	355	1/4		89
ex	655	1/4		164
aex	50	1/2		25
cdx	45	1/2		22
dex	160	1/2		80
cdex	30	3/4		22
			Total	653

TIME TOGETHER - GROUP 65

65 c With	Minutes Together	Proportion of Group	Proportional Minutes
a	15	1/4	4
d	170	1/4	42
e	15	1/4	4
ab	25	1/2	13
ad	10	1/2	5
ae	30	1/2	15
be	45	1/2	22
bde	45	3/4	34
abde	60	1	60
ax	390	1/4	98
dx	20	1/4	5
abx	105	1/2	53
adx	60	1/2	30
bdx	30	1/2	15
bdex	20	3/4	15
abdex	60	1	60
		Total	687

TIME TOGETHER - GROUP 65

65 d With	Minutes Together	Proportion of Group	Proportional Minutes
b	250	1/4	62
c	185	1/4	46
e	130	1/4	33
ac	65	1/2	33
be	30	1/2	15
abe	115	3/4	86

GROUP 65 (con't)

65 d With	Minutes Together	Proportion of Group		Proportional Minutes
abce	15	1		15
bx	105	1/4		26
ex	55	1/4		14
acx	45	1/2		22
bcx	105	1/2		53
bex	430	1/2		215
bcex	15	3/4		11
			Total	653

TIME TOGETHER - GROUP 65

65 e With	Minutes Together	Proportion of Group		Proportional Minutes
b	355	1/4		89
c	25	1/4		6
d	190	1/4		47
ac	180	1/2		90
bd	165	1/2		82
abcd	20	1		20
ax	30	1/4		7
bx	695	1/4		174
dx	85	1/4		21
abcdx	415	1		415
			Total	951

x = A nongroup member.

APPENDIX M

NUMBER OF ACTS INITIATED, ACCORDING TO STATUS

NUMBER OF ACTS INITIATED

High Status Members	Middle Status Members	Low Status Members
121	119	92
32	181	60
253	83	218
96	13	51
203	78	102
	90	
	29	
	16	
	98	
	146	
	97	
	130	
	62	
	158	
	211	
	130	

$$eta^2 = \frac{\text{SS between groups}}{\text{SS total}}$$

SS between groups = 5832.747

SS total = 102,827.885

$eta^2 = .0567$

N = 26

J = 3

$$F = \left(\frac{N - J}{J - 1}\right)\left(\frac{eta^2}{1 - eta^2}\right) = .734, \text{ df} = 2, 23 \quad \text{n.s.}$$

APPENDIX N

FREQUENCY DISTRIBUTIONS, BY MEMBER AND BY GROUP, OF DATA FROM AK, HX, AND JB JUDGMENT SITUATIONS IN WHICH A SELECTED MEMBER HAD BEEN SUCCESSFULLY IMPLANTED WITH AN ARBITRARY NORM

GROUP 14 AUTOKINETIC

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	b	d	*a	c
0	2	4	0	1
1	0	0	0	0
2	0	0	0	0
3	3	3	0	1
4	0	3	1	3
5	5	5	4	11
6	3	7	5	2
7	1	1	1	0
8	1	6	11	1
9	0	0	0	1
10	9	7	10	14
11	0	0	0	0
12	3	2	7	2
13	0	1	0	0
14	0	0	1	0
15	8	0	0	4
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	5	1	0	0

*Implanted S.

GROUP 14 HEX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	a	*d	b	c
12	0	0	1	0
14	1	1	2	1
16	1	0	0	0
18	1	0	0	1
20	10	0	6	2
22	4	0	0	1
24	12	4	9	16
26	7	3	1	2
28	3	0	0	1
30	0	14	9	13
32	0	15	0	1
34	0	1	0	1
36	0	2	12	1

*Implanted S.

GROUP 14 JUKEBOX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Beeps	*c	a	d	b
50	0	1	0	1
55	0	0	0	3
60	0	1	3	7
65	2	11	21	5
70	8	17	6	12
75	19	9	9	9
80	11	1	1	3

*Implanted S.

GROUP 25 AUTOKINETIC

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	e	c	b	*d	a
0	0	0	1	0	0
1	0	0	0	0	0
2	1	1	0	0	0
3	0	0	0	0	0
4	0	1	0	0	0
5	4	3	1	1	0
6	1	1	1	0	1
7	1	1	0	1	1
8	1	3	11	1	0
9	0	1	0	1	0
10	8	8	7	3	0
11	1	0	0	0	0
12	8	3	6	5	6
13	1	1	2	2	1
14	2	2	1	1	2
15	3	4	4	11	8
16	1	1	1	3	5
17	2	0	0	4	3
18	4	5	4	3	9
19	0	0	0	1	0
20	2	5	1	3	4

*Implanted S.

GROUP 25 HEX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	c	d	*a	e	b
14	12	0	0	0	0
16	14	0	0	0	0
18	9	0	0	1	1
20	2	0	0	5	2
22	0	0	0	1	2
24	2	9	0	13	2
26	1	5	0	3	9
28	0	1	1	2	4
30	0	7	7	9	5
32	0	3	7	1	5
34	0	7	12	3	2
36	0	6	9	1	7
38	0	2	4	1	1

*Implanted S.

GROUP 45 AUTOKINETIC

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	*a	b	e	d	c
0	0	1	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	1	0	0	0

GROUP 45 - AUTOKINETIC (con't)

Inches	*a	b	e	d	c
8	2	0	2	0	3
9	0	0	0	0	0
10	2	1	3	5	1
11	0	0	0	0	1
12	4	5	2	2	10
13	2	0	2	0	0
14	5	2	1	2	1
15	7	8	6	2	2
16	3	0	3	5	3
17	2	0	1	0	0
18	4	6	7	7	6
19	0	0	1	0	1
20	1	8	6	10	2
21	0	1	1	0	5
22	1	3	1	2	1
23	0	0	1	0	0
24	4	1	2	2	1
25	1	0	0	0	0
26	0	1	0	1	1
27	0	0	0	0	0
28	0	1	0	2	0
29	0	0	0	0	0
30	1	0	0	0	1
31	0	0	0	0	0
32	0	1	0	0	1
33	0	0	0	0	0
34	0	0	0	0	0
35	0	0	0	0	0
36	1	0	1	0	0

*Implanted S.

GROUP 45 HEX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	*e	b	a	d	c
20	0	1	3	1	0
22	0	0	0	1	0
24	1	4	5	5	1
26	1	0	3	0	1
28	8	10	3	10	4
30	6	10	0	7	4
32	8	5	2	4	6
34	5	4	4	6	4
36	8	4	11	2	8
38	2	2	7	4	4
40	1	0	2	0	8

*Implanted S.

GROUP 54 AUTOKINETIC

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	c	*d	a	b
2	1	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	1	0
6	1	0	2	0
7	4	0	3	0
8	2	0	2	0
9	3	1	8	0
10	4	1	7	1
11	2	0	2	1

GROUP 54 - AUTOKINETIC (con't)

Inches	c	*d	a	b
12	5	7	0	6
13	2	4	3	4
14	2	6	1	7
15	5	7	4	2
16	1	6	1	11
17	3	6	2	2
18	1	2	0	6
19	0	0	0	0
20	3	0	1	0
21	0	0	2	0
22	1	0	1	0

*Implanted S.

GROUP 54 HEX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	c	*b	a	d
10	2	0	0	2
12	3	0	0	1
14	2	0	0	3
16	2	0	1	3
18	1	0	4	6
20	10	0	9	10
22	4	0	9	5
24	6	0	8	4
26	3	0	5	3
28	3	2	3	2
30	4	10	1	1

GROUP 54 - HEX (con't)

Inches	c	*b	a	d
32	0	11	0	0
34	0	7	0	0
36	0	8	0	0
38	0	2	0	0

*Implanted S.

GROUP 54 JUKEBOX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Beeps	*a	d	b	c
40	0	2	0	1
45	0	3	0	2
50	0	6	4	4
55	4	6	6	5
60	5	8	8	10
65	6	7	8	4
70	9	7	7	7
75	9	1	4	5
80	6	0	3	1
85	1	0	0	1

*Implanted S.

GROUP 65 AUTOKINETIC

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	*a	d	e	b	c
0	0	1	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	1	0
6	0	1	1	0	0
7	0	0	1	0	0
8	1	1	0	1	1
9	0	3	0	1	0
10	1	5	2	5	4
11	0	0	1	1	0
12	7	4	5	4	4
13	4	2	3	3	2
14	6	2	1	5	8
15	6	2	16	3	14
16	5	3	5	3	1
17	5	1	0	2	1
18	4	4	5	8	5
19	0	0	0	0	0
20	1	5	0	3	0
21	0	3	0	0	0
22	0	1	0	0	0
23	0	1	0	0	0
24	0	0	0	0	0
25	0	1	0	0	0

*Implanted S.

GROUP 65 HEX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Inches	*e	a	d	b	c
14	0	1	0	0	0
16	0	0	0	0	0
18	0	1	0	0	0
20	0	0	1	2	0
22	0	1	0	3	5
24	0	6	6	5	9
26	0	7	11	9	11
28	0	7	8	6	9
30	7	10	8	7	3
32	8	2	5	5	3
34	8	3	0	2	0
36	10	1	1	1	0
38	1	0	0	0	0
40	4	1	0	0	0
42	2	0	0	0	0

*Implanted S.

GROUP 65 JUKEBOX

TOTAL JUDGMENT DISTRIBUTIONS BY SUBJECT

Beeps	*c	a	d	b	e
45	1	0	1	0	2
50	4	3	1	5	9
55	0	1	3	4	6
60	3	13	5	10	14
65	9	3	7	11	9

GROUP 65 - JUKEBOX (con't)

Beeps	*c	a	d	b	e
70	15	15	5	5	0
75	6	1	7	5	0
80	2	3	9	0	0
85	0	1	2	0	0

*Implanted S.

VITA 2

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