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TABLE OF CONTENTS

I. INTRODUCTION

A. THEORETICAL CONSIDERATIONS

The present study was designed to test the hypothesis that differences in group cohesiveness can be reflected and efficiently measured by a projective technique. Other methods of studying groups have proved to be both laborious and time consuming. These have included sociometric analysis (21, 39, 49), ratings of group behavior (2, 5, 24), and factor analysis of standard tests and measurements (7). It was therefore proposed to ascertain the relationship between the measurement of group cohesiveness by a projective technique and observation of behavior to group cohesiveness as determined by a sociometric method.

The basic hypothesis of projective techniques is that responses to ambiguous stimuli are determined in part by the respondants' needs, motives, conflicts and other personality characteristics (3, 25, 30, 33, 50).

Since the present experiment is concerned with groups, the following discussion of projective techniques will be in the context of group projective testing. Group projective techniques (GPT) refer to procedures wherein a group of people is engaged in a cooperative endeavor to interpret patterns of stimulation which are essentially unstructured

and ambiguous. The typical procedure is to have a number of people discuss the kind of story they wish to compose about an ambiguous picture. After this initial period of communication, a final story, which represents a consensus of the group's interpretations, is presented to the experimenter (E).

Since the present experiment is concerned with groups composing stories about pictures, the following discussion is an attempt to understand the variables which might influence the relationships between the characteristics of the actual groups and the type of stories they compose.

The first factor to be considered is the situation under which the group takes the test. The attitude which the group has toward the experiment and toward E should have a profound influence on the acceptance or rejection of E's instructions. Also the attitude of the group toward the situation will determine the kind of motives and defenses that will be called into play during the story's composition. If the group perceives its task as one of cooperation with E and acceptance of the values he represents, acceptance of the instructions should be expected. If, on the other hand, the group perceives E's request as an imposition, something less than full acceptance of the instructions should be expected. This could result in hostility toward E, which might be reflected in the stories.

Another variable that enters in the relationship between the groups' characteristics and the type of stories they compose is the nature of the picture. In group projective testing, the pictures should present people with whom the subjects (Ss) can identify. If the sketches contain people with whom the Ss cannot identify, one cannot consider the stories that are subsequently told about the people in the sketches as reflections of the group's characteristics. For example if the sketches depict a group of Negro boys and the Ss consist of white southerners with strong feelings in favor of segregation, one should expect rejection of, rather than identification with, the figures. Thus, if this particular study concerned "the role of friendship in the maintenance of group structure", the stories told could be expected to reveal attitudes about Negroes rather than the actual group's feelings of friendliness. If identification is to be assumed in testing middle class college students, the pictures should depict people who do not look markedly atypical in terms of Ss class membership.

Another factor that one must consider is the degree of ambiguity inherent in the pictures. Very highly structured and "stereotyped" pictures may yield stereotyped stories and there will be little basis for differentiating groups. Thus the sketches should at least be sufficiently unstructured to permit a variety of interpretations. This ambiguity is a

necessity in projective testing. In fact, the main hypothesis in GPT rests on the assumption of stimulus ambiguity. In Ss quest to interpret the pattern of stimuli that are presented to him, inner needs and motives are used to give structure and a sense of completion to the sketch (33).

In GPT, the sketches should contain figures that will facilitate the projecting of stories about groups. The simplest way of insuring this result is to depict a group of people in the pictures. If but one person is depicted in a sketch (as in Picture II of the present series), the scene should be so structured that it permits the introduction of groups into the stories in some manner.

A major factor that must be considered in regard to studies on GPT is the structure of the groups investigated. In this paper, group structure refers to the stabilized differentiation of group members in terms of role expectations. That is, a division of labor is present in the group which is more or less stabilized. This division of labor represents a differentiation in terms of several variables: e.g. responsibility, friendship, power and communication pattern (6). These variables are interdependent so that a change in any one variable may lead to a change in the other variables. For example, the newly elected vice president of an organization usually makes new friends and drops old ones.

Past studies have indicated that the development of

group structure involves several characteristic changes (43,47). In the early stages the members feel no special obligation toward one another, communication is not patterned and appears to depend more on the external situation than on any system of expectations or roles. Shared meanings as well as a system of values for members in newly formed groups appear to be rudimentary. During the course of interaction with one another, each member gradually learns what to expect from the others. He need not be conscious of these occurrences. He learns, for example, that one man may have more ability than another in a certain area and thus will act accordingly. Another man may have greater access to certain resources and if the resources are important to the group's functioning, this man will receive special treatment. The result is a special pattern of expectations concerning this man's rights and obligations to the group. In the well structured group, each member has a highly stable pattern of relationships with the others. Each person has a fairly good idea about what to expect from the other persons under certain conditions. This is the meaning of role expectations.

The question now arises as to how the patterns of relationships among members affect the type of stories they tell under conditions of group projective testing. Since the present study is concerned with group cohesiveness and its effects on thematic apperceptions, the discussion will

concentrate on this variable. A core definition of cohesiveness may be described as the attractiveness the group has for its members.[1] This attraction appears to have a profound effect on the group's structure. Individuals in highly cohesive groups work in a coordinated fashion and with enthusiam in their endeavor to attain their goals. They tend to develop a stabilized pattern of relationships when confronted with a new situation (19). Roles became highly differentiated and little time is spent on arguments concerning one's rights and obligations. Strong efforts are exerted to harmonize differences concerning the problem at hand so that the group can function as a unit.[2] (12, 19).

The highly cohesive group may act in any number of ways under conditions of group projective testing. If the group is motivated to take the test and to do a good job, compliance with the instructions should be expected. Under these conditions enthusiastic interactions should take place. In efforts to come to agreement on the type of stories they relate, strong attempts at influencing each other should appear. That is, although there may be minor shifts in roles and expectations with a shift in the group's problem, by and

[1]This definition is given for purposes of simplification. A more systematic treatment appears on pages 19-20.

[2]This writer has called the multiple effects of member attraction to the group the "components" of cohesiveness. These components are specified on pages 19-20.

large the pattern of expectations tends to be stabilized in cohesive groups. Both Whyte (54) and Sherif (47) have described this finding in detail. Considering that this type of group is a source of attraction for the members, a more or less stabilized system of expectations will have already existed prior to the testing situation since restraining forces against inter-member communication are at a minimum (19). Thus, a system of cooperation will have been set up. Concern over status priorities will be a minimum which will leave much of the group's energy free to be used in concentrating on the task at hand. Groups which are initially high in cohesiveness may be expected to show these characteristics in their behavior while they are composing stories, as well as in other tasks.

As was mentioned above, if the pictures that are presented to the group are capable of evoking identification in the group members, the assumption may be made that the characters in the stories are to some extent a reflection of the people who are telling the stories. If the instructions call for a highly dramatic story, and the group complies, we should expect stories which express strong emotions and activities. The interactions and feelings among the characters in the story should reflect the actual characteristics of the group which is relating the story. The basis for this hypothesis is the same that is made in individual projective

testing (25, 42, 50). Each subject in the group will identify with that character (or characters) in the picture who has qualities similar to his own. The stories that are made up should be projections of the subject's own strivings, conflicts, etc. Since the instructions in GPT call for an agreement on the stories that are told, the final product of the group cannot be a reflection of each individual's predispositions and tendencies. The final product will tend to be a compromise among the stories that each person wants to compose. In the case of a group with one dominating individual, the final stories will be strongly influenced by him. However, this still implies tacit approval from the other members in cohesive groups for reasons which now follow.

The basis for the compromise solution is rooted in the past history of the actual group. The manner by which each person's needs are satisfied is a reflection of the person's role and his relationship to the others. Thus when the task is presented to the individual to make up a dramatic story which has to be harmonized with the stories of the other members, a process of accommodation is called for which is similar to the type that the group has already experienced in its past history. Thus needs that are expressed in the stories are likely to undergo a similar fate to those expressed in real life. The end result is that the quality of the interactions and need satisfaction which are expressed in

the stories is a reflection of the group's actual characteristic mode of operation. Thus high cohesive groups should project stories about groups which are high a cohesiveness.

If, however, the highly cohesive groups enter the experimental conditions with a hostile attitude, a different course of events may take place. The group could react to E in a listless fashion and tell stories which reflect their current apathy or passive aggression. Conformity to the instructions would be at a minimum and the type of stories that are related would reflect this form of resistance. This hypothesis seems to be supported by a number of observations in industry (29, 38) where high cohesive groups were found to restrict their production as a reaction against management's practices.

A highly cohesive group which has this hostile attitude could react in yet another way. They might continue to show their characteristic mode of operation <u>in behavior</u> but express their hostility toward the experimenter (or his surrogates) indirectly through the stories. In other words under some conditions the stories of a cohesive group might reflect harmony and cooperation, and under other conditions when the group feels hostile, their hostility might be discharged by having the characters in their stories in a quarrelsome, bickering mood. In the present experiment it is presumed that the groups are cooperative.

In regard to the behavior and thematic content of low cohesive groups, a different set of conditions must be considered. The low level of attraction among the members should lead to a rather unstabilized group structure. Little opportunity would have been given to the development of a predictable pattern of interaction. Insecurities should be present and much energy should be expended in trying to iron out status aspirations and conflicts. The result would be that little energy would be available for use in the solution of external problems. If the attraction among members is sufficiently low, the very existence of the group would be in jeopardy.

Under conditions of group testing, the low cohesive groups might react in the following way. If the members actually dislike each other, a meeting might lead to a rejection of everything that had to do with such an encounter. Hostility toward those responsible for this gathering could occur. Compliance with the instructions might therefore be low. The result would be that the behavior of the groups during testing would reflect the initial state of low cohesiveness. If actual dislike is not present, a coordination of effort should not be expected in any case. Much of the members' energies would be expended in defending themselves against insecurities of one sort or another. Cooperation and other group facilitating qualities should be relatively

lacking.

The stories, likewise, should reflect the group's low cohesiveness. Since the actual group members have not had an extensive opportunity to learn how to harmonize their needs, we should not expect a consistent pattern of relationships to be reflected in the stories. Undischarged feelings of hostility toward one another (as well as toward E) might also be expressed in the stories. As a matter of fact, all negative affects which cannot be expressed in actual behavior might be reflected in the stories. The end result would be that in stories of low cohesive groups the themes would reflect insecurities and inconsistencies as well as negative affects. Since stories involving insecurities and negative affects suggest a low state of attractiveness among group members, the hypothesis is made that low cohesive groups will tell stories about groups which are low in cohesiveness.[3]

On the basis of the preceding considerations it was hypothesized that high cohesive groups would compose "high cohesive" stories and that low cohesive groups would compose "low cohesive" stories.

[3]Low cohesive groups might also resort to relating a "polite" or stereotyped story which would reflect their passive aggression. These kinds of stories should not be expected to be rated high in cohesiveness.

B. REVIEW OF RELATED STUDIES

A review of the literature will include definitions of group cohesiveness, methods of inducing or selecting groups of varying degrees of cohesiveness, and consideration of the meaning of group cohesiveness in terms of the "components" which relate to it. Following this review, sociometric methods of creating varying degrees of group cohesiveness will be discussed. The final topic in this section will consider group projection methods.

1. COHESIVENESS

a. DEFINITIONS

A number of definitions of cohesiveness have been offered. Festinger, Schachter and Back (17) define cohesiveness as "the total field of forces which act on members to remain in the group," the average of the resultant force usually being considered the index for cohesiveness. In other words, there are several forces acting on the individuals of a group to remain either in the group or depart from it. Cohesiveness occurs to the degree that the forces which influence the individuals to remain in the group are stronger than the forces which influence them to leave the group.

Deutsch (12) puts stress on the phenomenological aspects of cohesiveness. For him, group cohesiveness is related to the degree of perceived cooperative interdependence among members and to the strength of goals about which members are cooperatively interdependent. Moreno (40) tends to agree

with the above. He equates group "cohesion"[4] to the forces holding the individual to a given group. For him, the degree of cohesion increases when the number of goals held in common by the members increases. Marquis et al. (37) feel that cohesiveness is related to the attractiveness of the group for its members. In their work with decision-making conferences, they obtained an index of cohesiveness by rating a number of components: (a) the extent to which the group was supporting and accepting of its members, (b) the pleasantness of the affective atmosphere, (c) the extent to which the members seemed to like each other, and (d) the extent to which the members seemed non-frustrated. These criteria, or indices, were all highly intercorrelated. The lowest correlation was .60. The average of the ratings of these criteria was taken as the group's index of cohesiveness. Other investigators (4, 9, 22) have stressed the attractiveness of the group for its members as measured by sociometric scales. Cohesiveness is defined by these researchers as the ratio of in-group choices over out-group preferences.

b. METHODS OF INDUCING OR SELECTING VARIOUS DEGREES OF COHESIVENESS

By far, one of the simplest ways of creating group cohesiveness is the selection of groups which are

[4]Moreno's (40) "cohesion" is equivalent to the term cohesiveness as discussed in this paper.

already organized for some activity or purpose. French (19) studied organized and unorganized groups. The organized groups were comprised of individuals who had known each other for some time, had played on the same sporting teams, had eaten together and had engaged in other activities of a friendly nature. The unorganized groups were simply individuals who had not known each other previously and were instructed to meet for a given experiment. It was found that organized groups remained cohesive, i.e., they resisted a splitting of their structure in the face of experimental frustration, whereas the unorganized groups quickly splintered into subsections when frustration was experienced.

Instructions to given experimental groups may be used to create different degrees of cohesiveness. Back (1) studied two-man teams and manipulated the degree of cohesiveness in three ways. When the instructions were designed to make the members feel personally attracted to one another, to make them feel part of a prestige group, and to make the group's task attractive to them, cohesiveness increased. Deutsch (12) also found that instructions to groups could change their cohesiveness. When a group of people was told that a task required the cooperation of all members, a relatively high degree of cohesiveness resulted.

A number of studies have indicated other ways of creating or increasing group cohesiveness. Schachter (46)

reported that group cohesiveness could be created on the basis of selecting individuals who held activity interests in common. White and Lippitt (53) reported that democratically led groups express higher degrees of cohesiveness. Weschler et al. (52) found that groups led by permissive leaders obtained higher scores on perceived morale (a concept related to cohesiveness) than groups led by restrictive leaders. Thibaut (49) reported that status is related to cohesiveness. He found that the groups' cohesiveness increased when they were tendered privileges which were withheld from other groups.

A number of investigators have used sociometric techniques to determine or establish cohesiveness. Goodacre (22) asked Army personnel to select buddy preferences for three different activities: (a) choices for social activity off the post, (b) choices to help in solving a tactical problem, and (c) choices for social activities on the post. The total number of choices by men for members of their own unit was defined as the amount of cohesiveness present in the unit. Criswell (9) and Bronfenbrenner (4) described group "coherence" by the degree of choices which are reciprocated. Thus, it seems possible to create cohesiveness by bringing members together who have chosen each other on sociometric questionnaires.

Low degrees of cohesiveness, on the other hand, may be

obtained by a number of methods. French (19) found that when participants disagreed on the way to solve a problem, or on which problem to tackle first, disruption occurred. Festinger et al. (17) reported that a member was not likely to be attracted to a group if he felt that members would probably disagree with him on certain issues. The possibility or perception of failure may also lead to a lowering in cohesiveness. Coch and French (8) reported a high rate of turnover in a pajama factory, when the individuals failed to reach a standard rate of production. French,(19) in another study, found that members tended to leave the situation in the face of frustration.

In line with the above studies it seems possible to create different degrees of group cohesiveness by producing varying degrees of disagreements among members over procedure; by suggesting to the group members that the others differ from them in the acceptance of certain attitudes in varying degrees; by inducing different attitudes among members related to the degree of possible group goal attainment. Groups may be varied in cohesiveness by the amount of frustration which is experimentally applied to the groups. One final study should be mentioned. Fouriezos, Hutt, and Guetzkow (20) found that staff conferences were rated as unsatisfactory by the members if a high degree of self-oriented behavior occurred. Self-oriented behavior referred

to actions which were not directed to the group tasks as such, but were an expression of more personal or ego-related needs. Thus it might be possible to vary the cohesiveness of groups by experimentally varying the amount of self-oriented needs that are expressed by the members. Having considered some of the ways of creating and varying cohesiveness, studies which view cohesiveness as being composed of several indices will be considered.

c. COMPONENTS OF COHESIVENESS

In a study by Marquis et al. (37) it was found that groups who were rated high in cohesiveness had members who were supporting and accepting of one another, seemed to like each other personally, and did not seem particularly frustrated. In addition, pleasantness of the affective atmosphere was noted. These group members went about their business with a high degree of systematization and regulation which was satisfying to them. They perceived their fellow participants as forming a unified group. The quality of these decision conferences was also rated high. A significant relationship was found between the group's productivity and member satisfaction with the meeting. After a time lapse occurred following the conferences, a positive correlation was found between agreement with group decision and satisfaction with the meeting.

Deutsch, (12) in his work on cooperation and competition,

found that cooperative groups (which can be considered high in cohesiveness) exhibited more of the following than did competitive groups:[5] (a) coordination of efforts among the members, (b) diversity in amount of contributions per member, (c) sub-division of activity, (d) pressure toward achievement, (e) communication among the members, (f) communications which were mutually comprehended, (g) attentiveness to fellow members, (h) orientation and orderliness, (i) productivity per unit, (j) quality of product and discussions, (k) friendliness during discussions, (l) favorable evaluation of the group and its products by its members, (m) group functions. White and Lippitt (55) found that democratic leaders produced similar effects in their groups. Work motivation appeared higher, originality was rated higher, and less hostility appeared among the members. There was both a greater variety of remarks in the cohesive groups and a greater expression of "group-minded" remarks. French (18, 19) investigating cooperative groups and organized groups reported findings which support many of the above conclusions.

Henry and Guetzkow (23)have described several variables deemed important for the study of groups. Although they have not related these variables to the concept of cohesiveness,

[5]In this study the groups' tasks were to solve human relations problems and "group puzzles" (12).

the variables are quite similar to several of the characteristics of cohesiveness which have been discussed above. These variables are communication clarity, goal concentration, motivational level, tension direction, pacing level, personal interdependence, personal affect, role differentiation, in-group feeling, individuality of members and quality of group product.[6]

d. SUMMARY STATEMENT OF THE CONCEPTION OF COHESIVENESS

The following represents a summary statement about the characteristics of cohesive groups which have been reported in the literature.[7]

The members of cohesive groups are highly attracted to their groups. They like each other personally (friendly personal aspect)[8] and obtain satisfaction from their meetings (group satisfaction with group meeting). The group tends to act as a unit (high goal concentration) and resists a splintering into factions. The members of these groups go about their business in a systematic way (achievement orientation). Distractions due to personality conflicts are held to a

[6]These variables have been used as some of the components of cohesiveness and are defined on pages 47-52.

[7]The components of cohesiveness include both structural and dynamic concepts of process as well as the products of cohesive groups.

[8]Words in parentheses are the indices or components of cohesiveness which are defined specifically below. Evidence for their relationship to cohesiveness is given in section on hypotheses.

minimum (fast pacing level). The members feel free to express their own individual opinions. If any disagreement arises, they try to patch up differences (exertion of influence to achieve uniformity, and individuality of members minimized). Also, they understand readily the other members' point of view (communication clarity). They tend to divide their labor efficiently. The roles they assume (role differentiation) are interdependent (personal interdependence) and lead to effective results (organized,realistic and creative group products). The members attack their problems with enthusiasm (high motivational level) and support one another for the attainment of their goals (supporting tension direction). The members are proud of their group (high in-group feeling). They tend to be satisfied with the business of their meetings, as well as the meetings as a whole (group satisfaction with outcome and with meeting).

2. SOCIOMETRY

A sociometric questionnaire is a method used to determine the attractions and sometimes repulsions within a given group (34). Each person is usually asked to indicate his preferences for other members in the group with whom he would like to engage in some particular activity. These preferences are usually ranked.

Several studies have used sociometric questions as a method of defining or describing group cohesiveness.

Goodacre (22) considers the total number of choices made by the constituents for its own group members to be an index of cohesiveness. More specifically, on the basis of their "buddy-preferences" for three different activities (social activity on the post; social activity off the post; and preferences for tactical problem team mates), cohesiveness was described. The cohesiveness of a given unit was said to increase as the number of choices for members within that unit increased.

Thibaut (49) created teams of equal cohesiveness by assigning weights to each person's first five choices for team mates. Experimental groups were composed of some individuals who were chosen by a given person and some who were not chosen. Festinger, Schachter, and Back (17) illustrate further the criterion of in-group choices for describing cohesiveness. In their experiment, the cohesiveness of a given apartment house area was defined as the ratio of the number of choices made of people who lived in that area to the total number of choices made throughout the entire residential area.

The realiability and validity of sociometric questions have proved quite adequate for experimentation (34). The important factors to control are the criteria of choice or factors rated by members of a group (21, 34). That is, ratings made by the Ss are always in terms of some group

activity. If a study is being performed on coordination of efforts on a mechanical task, this criterion - choice in terms of team mates for this type of problem - should be specified on the sociometric question.

3. GROUP PROJECTION METHODS

The literature reveals very few studies which have used group projective methods for the study of small groups. The first one was conducted by Horwitz and Cartwright (26) at the National Training Laboratory for Group Development in 1947 at Bethel, Maine. In this study, five separate groups, i.e., classes in the Laboratory, were investigated to determine the relationship between the interpretation of an ambiguous group-structure picture and certain group properties. The ambiguous picture was a sketch showing a group of seven men in a conference room. The group was asked to describe the picture and to make up as dramatic a story about it as possible. They were given about twenty-minutes to complete their project. The picture was given to the group of people with the idea of obtaining one collective story. The picture was devised so that both conscious and unconscious group processes could be disclosed. Horwitz and Cartwright (26) believed that a projective instrument could reveal group characteristics and not merely an array of individual projections. They felt there is a tendency for the individual's perceptions to be influenced by a group situation, that

there is a tendency for a person to report only those perceptions which are based upon experiences shared by the other members; and that there is a tendency of the members to reject idiosyncratic material.

The full record of each group's discussion was tape-recorded and each sentence was analyzed according to formulae. Not only were the final stories scored, but, in addition, all preliminary discussion that was brought into the twenty-minute discussion period was also scored. The experimenters used a sociometric test which required the members to indicate whom they would "choose" as the most productive people in the work shop. The results disclosed a perfect positive correlation (rho = 1.00) between scoring high in "group productivity" and making up stories about "cohesive groups" in interpreting the picture.

Another report on group projection was an exploratory study by Henry and Guetzkow (23) in which they described a series of five ambiguous pictures. All sketches were chosen for the use of adult groups meeting for various purposes. Although all five sketches were deemed important for the determination of the group's structure and dynamics, each picture tended to favor the eliciting of special group characteristics. For example, picture II[9] was designed to

[9]See Appendix B.

reveal a group's attitudes toward a lone individual. Picture III[10], on the other hand, was said to be more likely to elicit stories concerned with the relationship of ascendant and submissive behavior. Henry and Guetzkow (23) selected the sketches on the basis of a number of criteria. (a) The sketches were designed to reveal both the group's formal and informal structures and relationships. (b) The sketches were designed to allow the expression of non-rational feeling. (c) The pictures were designed to foster the projecting of the group's characteristic mode of behaving and (d) allow considerable freedom of choice in interpretation to the group members. (e) The sketches were designed so that the possible significance of the subjects' responses would not be directly revealed and (f) to provide a task of delimited proportions that would challenge the group to immediate action.

In administering the Group Projection Sketches, instructions similar to those in the Horwitz and Cartwright study were given to the groups. Henry and Guetzkow (23), unlike Horwitz and Cartwright (26), felt that only the final product, the story, should be analyzed. Themes which were brought up, but later discarded, were found to be statements about what the group is <u>not</u>. The final product of the story-telling was considered to be a valid reflection of the group's structure

[10]See Appendix B.

and interactions. It was also concluded that a series of five pictures was more likely to reveal the important facets of the group's processes than a single one. Also, the series of five reduced the possibility of receiving unique responses to the particular content of a given picture. No data were given to support these statements.

As far as scoring the thematic apperceptions of the group is concerned, the authors suggested two methods. The first method was highly impressionistic. The themes were compared to what is already known about the group, and interpretations were made accordingly. The other method made use of rating scales. Each story was rated on scales deemed important for describing group structure and interactions. The scales had six intervals, and cues were provided to help the rater in the scoring of the thematic material. No additional information was given on ways of achieving final scores for each scale. Actual experimentation using these Group Projection Sketches was lacking.

A study by Libo (31) should be mentioned although his technique was not strictly speaking a "group projection" method. His method was designed to determine the attractiveness of a group for each individual member. His Group-Picture-Impressions consisted of three pictures constructed to elicit stories about personally meaningful individual-group relationships. It was group administered, but each

member wrote his own stories, and a separate score of attraction to the group was obtained for each person. The main purpose of the technique was to disclose the effect of the presence of a group upon each of the members.[11]

C. STATEMENT OF THE PROBLEM

The present study was designed to determine the effectiveness of a group projective technique in measuring group cohesiveness, as defined by a sociometric procedure.

D. HYPOTHESES

A series of hypotheses will be presented together with their rationale. The major hypotheses concerning the relationship between the cohesiveness of the group (as determined sociometrically) and the type of stories they compose will be stated first. A hypothesis will then be presented concerning the cohesiveness of the group (as defined sociometrically) and the kind of behavior which they exhibit. This will serve as a "validity" check on the cohesiveness of the groups. Next, hypotheses concerning the relationship of reaction time and response-duration to cohesiveness will be advanced. Following this section, hypotheses concerning the relation-

[11] During the course of this experiment, a paper by Torrance (51) has been published. His experiment involved the interpretation of Pictures I and V of the GPS by intact groups. He found that more effective bomber crews tended to be more attracted to their groups than less effective crews and also tended to project this characteristic in their stories for picture I. For picture V, the more effective crews seemed to be more tolerant of discord and unpleasantness in their stories.

ship between the reactions of the members toward the session and cohesiveness will be advanced.

RELATIONSHIPS BETWEEN THEMATIC RATINGS AND COHESIVENESS OF THE GROUPS

The main hypothesis was that the high cohesive groups would obtain a higher total score on the summed ratings of the components in the thematic content than the middle cohesive groups, which, in turn, would obtain higher total scores than the low cohesive groups.

In addition, a positive relationship between each component and group cohesiveness was hypothesized. Following are the specific hypotheses and the reasons why they were formulated.

1. Communication clarity of the characters in the thematic content is directly associated with group cohesiveness. This hypothesis was based mainly on two studies. Deutsch (12) found that his cooperative groups had less difficulty in trying to follow or understand the other members' point of view than the competitive groups. His concept of cohesiveness is allied to cooperation. French (18) reported a high degree of mutually understood communications in cooperative groups.[12]

2. High goal concentration in the thematic content

[12]In all the reported studies, which are used as evidence for all the hypotheses, traditional methods, such as ratings, classifications, etc., obtained from actual observations, recordings, self-reports, etc., are used unless otherwise indicated.

is directly associated with group cohesiveness. Several studies suggested this hypothesis. White and Lippitt (53) reported that their cohesive groups had high ratings on work motivation when they concerned themselves with group goals. French (19) reported that his organized groups tended to concentrate on a common goal rather than to splinter into subgroups. Deutsch (12) observed more "group functioning" among his cooperative Ss than among the competitive Ss.

3. High Motivational level in the thematic content is directly associated with group cohesiveness. Several studies suggested this relationship. French (19) reported a high level of motivation in highly organized groups. Also, when the groups experienced obstacles, more frustrations seemed to occur. Other studies (11, 12, 53) have indicated similar findings, with respect to group motivation.

4. Tension[13] expended in supporting members of the group rather than opposing them in the thematic content is directly associated with group cohesiveness. This hypothesis is supported by several studies. Marquis (37) found that groups scoring high on an index of cohesiveness were supporting and accepting of their members. White (53) found that cohesive groups showed less hostility toward their

[13]Although the term "tension" has been used in several ways, the present writer is following Henry and Guetzkow (23) in their definition. Tension is equated to energy which is available to the group in solving their problems.

members, while Deutsch (12) noted that the core of cohesiveness lay in the cooperative attitudes on the part of the members.

5. A fast pacing level[14] in the thematic content is directly associated with group cohesiveness. The relatively strong need to achieve goals held in common by the group (53), as well as the high rate of productivity in cohesive groups (52) contributed to this hypothesis. Since it was assumed that the abilities to solve the problem in the present experiment were roughly equal between the groups, it was believed that the greater motivation in the more cohesive groups would lead to this result.

6. High personal interdependence in the thematic content among the members is directly associated with high group cohesiveness. The fact that cohesive groups tended to have group goals (19, 44) and cooperated in reaching them (12) lead one to assume a high level of personal interdependence among the members. Both French (19) and Deutsch (12) have noted this relationship.

7. A friendly personal affect among the members in the thematic content rather than an antogonistic affect, is directly associated with group cohesiveness. In addition to

[14]Pacing level refers to the speed with which the group approaches and solves its problems. (23).

the factors of cooperation and personal interdependence, which tended to lead to friendly interpersonal relations, many studies (12, 22, 37) have shown members of cohesive groups to be friendly and pleasant toward one another.

8. A high degree of role differentiation in the thematic content is directly associated with group cohesiveness. Since it takes a cooperative group to be willing to divide the labor amongst themselves, a greater differentiation of function among subjects of a cohesive group was expected. Marquis (37) noted a decided division of labor among the people engaged in group decisions, and this factor was associated with satisfaction with the meeting. French (19) also noted a differentiation of function and communication among his organized groups.

9. A high in-group feeling in the thematic content is directly associated with group cohesiveness. The fact that cohesiveness has often been defined in terms of in-group attraction (10, 11), and the finding (53) that members of those groups tended to use "we" more often than low cohesive groups lead to this hypothesis.

10. High individuality of members in the thematic content is inversely associated with group cohesiveness. The fact that cohesive groups tended to cooperate in their internal interactions; i.e., the members subordinated their own "self-oriented" needs for the sake of group goals, led

to this hypothesis. Experimental evidence (20, 37) also pointed out that a high degree of self-oriented behavior does not lead to satisfaction with the group meetings.

11. A high reality oriented outcome on tasks in the thematic content is directly associated with group cohesiveness. The meaning of this variable concerns the extent to which the group activity is based upon reasonable observation of fact and the realities of the group's situation. This hypothesis is based on the fact that cohesive groups tend to have important needs satisfied (37), which makes unreal phantasies and misinterpretations unnecessary. Deutsch (12) reported his cohesive groups tended to have more insight and understanding of their problems than non-cohesive groups. Since high cohesive groups tended to be more effective in their performances than low cohesive groups (37), a higher level of reality orientation among the high cohesive groups was hypothesized.

12. A well organized outcome in the thematic content is directly associated with group cohesiveness. The extent to which the outcome of the group's activity is well organized and coherently presented provides a definition of this variable. Experimental evidence led to this hypothesis. Cohesive groups tended to go about their business with a high degree of systematization and regulation (37). The general fact that the quality of the group's product tended to be

high in these groups (18, 22) made the hypothesis more favorable.

13. A more highly creative group product in the thematic apperceptions is directly associated with group cohesiveness. The fact that cohesive groups tended to exhibit more original ideas in their discussions, and ideas, which led to a more adequate handling of the problems presented to them (12) led to this hypothesis.

14. Group satisfaction with outcome and with meeting in the thematic content is directly associated with group cohesiveness. Although the evidence is equivocal (37), the fact that cohesive groups (1, 15) were more successful in reaching agreement on issues led to this hypothesis. Also, cohesive groups tended to be more satisfied with their meetings as a whole (37, 53).

15. High achievement orientation in the thematic content is directly associated with group cohesiveness. This is not to say that they are not concerned with each other's feelings, but rather that they are not distracted by other problems, such as whether they are accepted by the others (23). Back (1) reported that his cohesive groups made greater efforts to accomplish their tasks than the non-cohesive groups. Horwitz and Cartwright (26) also concluded that individuals with high membership motives tended to be less distracted as revealed by an analysis of group

discussion centered about the interpretation of an ambiguously structured picture.

16. A high degree of attractiveness of the group for its members in the thematic content is directly associated with group cohesiveness. The definition of cohesiveness as the resultant of all the forces acting on all the members to remain the group (15) has as its core, the notion that the group is a source of attraction for its members.

17. A high incidence of exertion of influence among members to achieve uniformity in the thematic content is directly associated with high group cohesiveness. Several studies (1, 16) have indicated that constituents of high cohesive groups were more active in attempting change of opinion than members of low cohesive groups when there was intra-group conflict of opinion.

RELATIONSHIP BETWEEN RATINGS OF GROUPS' BEHAVIOR AND THE COHESIVENESS OF THE GROUPS

With respect to the behavior of the groups in composing themes one main hypothesis was tested. It was hypothesized that high cohesive groups would have a higher score than middle cohesive groups, and that middle cohesive groups would have a higher score than low cohesive groups on the following: (a) group cooperation, (b) goal concentration, (c) motivational level, (d) attractiveness of group for its

members and (e) exertion of influence among members to achieve uniformity.[15] (See Appendix E for definitions and rating scales.)

The rationale for these hypotheses is similar to that for the thematic material.[16]

RELATIONSHIP BETWEEN REACTION TIME AND RESPONSE DURATION TO COHESIVENESS OF THE GROUPS

Since no data were available on reaction times and response duration[17] pertaining to group projective methods, hypotheses concerning these variables were problematical. However, the field of individual projective techniques suggested that a long reaction time may be associated with inability, emotional blocking, and/or an inhibition of response tendencies (3). Hence, a long reaction time in the present experiment was expected to be associated with groups which were incapable of or unwilling to express themselves, i.e., with groups whose members were not personally attracted to one another. Accordingly, low cohesive groups were expected

[15]Only five of the presumed more-important components of cohesiveness were included in this part of the study. Group cooperation includes tension direction, personal interdependence and personal affect in part.

[16]See pages 27-33.

[17]Reaction time refers to the elapsed time between the presentation of the picture by E and the first response made by an S during the discussion. Response duration refers to the total elapsed time between the presentation of a given picture to the group and the return of this picture to the E.

to take longer to organize stories to the various pictures than high cohesive groups.

Hypothesis: Low cohesive groups will have longer reaction times to the various pictures than high cohesive groups.

With respect to response duration, the literature is yet more meager. However, it was presumed that a relatively long response duration would be associated with the interest and motivation of the subjects. That is, if the subjects were interested in their task of interpreting the pictures, response durations would be longer. The present study hypothesized that high cohesive groups would have more interest in their task of interpretation. Since the members of these groups were not antagonistic to one another, they probably would not be especially anxious to "get the experiment over with".

Hypothesis: High cohesive groups will have longer response durations to the pictures than low cohesive groups.

RELATIONSHIP BETWEEN REACTIONS TO THE SESSION AND THE COHESIVENESS OF THE GROUPS

With respect to the Ss reactions to the session, the following hypotheses were made:

1. High cohesive groups will obtain higher ranks on satisfaction with the meeting than low cohesive groups.

2. High cohesive groups will obtain higher ranks on satisfaction with stories and their outcomes than low

cohesive groups.

3. High cohesive groups will express a greater willingness to engage in a similar activity again than lower cohesive groups.

The rationale for the above hypotheses is the same as that already discussed for thematic content.

II. METHOD

A. SUBJECTS

The Ss were undergraduate students at the University of Massachusetts. Twenty-one groups of three persons each were investigated. Twelve of the groups consisted of women, aged 18-21, with a mean age of approximately 20 years. Nine person groups were composed of males whose ages ranged from 18 to 28 with a mean of 21 years. All subjects were members of a fraternity or sorority for at least a year.

B. MATERIALS

The Group Projection Sketches consist of five $17\frac{1}{2}$" x $20\frac{1}{2}$" cardboard pictures. A description of each picture follows:[18]

I. Conference Group - A group of seven men variously grouped around a conference table.[19]

II. Man in Doorway - A man is standing in the doorway of a house, his back and partial profile visible to the observer.

III. Two Men - Two men are facing each other, the older man on the left, and the younger man on the right.

IV. Woman and Man - An older woman sits in a wing back chair. To her left, by a window, is a younger man looking at

[18]The Group Projection Sketches are the same ones used and described by Henry and Guetzkow (23).

[19]This is the same as the Ambiguous Group Structure Picture used by Horwitz and Cartwright (26).

the woman. There is an object in his hands.

V. Informal Group - Four men are in a room which looks somewhat like a clubroom. Two are seated with their backs to the observer. Two other men are standing in front of them, one with his foot upon the seat of the chair.[20]

C. PROCEDURE

The general procedure was to select groups which differed in group cohesiveness on the basis of a sociometric question. The groups were then presented with the GPS and asked to make up a story about which all the members were in agreement. Two observers were present and they rated the groups' behavior during the process of composing the stories. Following the end of the story compositions, each member in the group filled out a questionnaire which was designed to determine their attitudes toward the session. The thematic contents were then scored by two raters in terms of the degree of cohesiveness present in the stories. A detailed description is given below.

Group cohesiveness was determined by a sociometric procedure. Prior to the administration of the Group Projective Sketches, questionnaires were filled out by members of various fraternities and sororities. The fraternities and sororities selected were among the largest at the

[20]See Appendix B for photographs of these Sketches.

University of Massachusetts. In general, an attempt was made to select those organizations from which a return of approximately 50 questionnaires could be expected.[21] The questionnaire was designed to tap a number of attitudes. Included among the items was a sociometric question. This question was specific in terms of the activity with which it dealt. The Ss were told that their answers would be kept confidential, and were requested to answer the questions honestly. (See Appendix A).

The crucial sociometric question was "If you were to choose eight other members of the fraternity or sorority to help form a team which would take part in the experiment involving group discussion, whom would you choose? List in order of preference."

This question was designed so that the Ss would choose teammates to whom they were not only attracted, but also teammates who would presumably be skillful in the group task. Other items in the questionnaire were included, such as favorite sport, leisure time activities, etc., in order to ease some of the tension which may have occurred while making their choices. They were reminded, however, that due to the nature of the experiment, some of their choices might not be fulfilled.

[21]Explanation for this is given on page 40-42.

On the basis of the information received, three different kinds of three-man groups were formed: high, middle, and low cohesive groups. High cohesive groups consisted of three individuals who had mutually chosen each other for the task. An attempt was made to have members of these high cohesive groups come from the first 3 or 4 ranks of choice. The mean rank for these groups was 3.18. The range extended from rank 2 to 8. The middle cohesive groups consisted of two individuals who had chosen each other (mean rank of choice equal to 4.00, and range from 2 to 8) and a third person who did not have any choices addressed to him and did not have any of his own choices within the group. The low cohesive groups consisted of three people who had not chosen each other from among the eight ranked choices made by the Ss.

Although the Ss were told that the experimental teams would consist of only three members, eight choices were called for. This was done for several reasons. It would not have been possible to create groups which would vary in cohesiveness if only two or three choices had been made by each S.[22] This was especially true for high cohesive groups.

[22]A modified matrix algebra method was devised to create groups which varied in cohesiveness (14). Steps involved were these: The sociometric data were tabulated into a matrix form. Each matrix was squared. Each entry in the main diagonal represented the number of 2 man cliques in which the representative of that main diagonal element was involved. Trial and error procedures were then used to determine 3 man cliques.

Also, since it was proposed to match the members of each group in terms of popularity (total number of choices received), a wider selection of choices was necessary to allow for matching. In all cases. there were three members for each group. Nine groups in the high, nine in the low, and three in the middle cohesive condition were investigated in the experiment.

The high cohesive groups consisted of five groups of women and four of men. The low cohesive groups consisted of five groups of women and four of men. There were two groups of women and one group of men in the middle cohesive condition.

The popularity of a given person was measured by the total number of choices received (regardless of rank). Insofar as possible, an effort was made to have experimental teams in high, middle, and low cohesive groups matched in terms of popularity. The mean popularity scores for the members of the high cohesive groups were 9, 5.9 and 9.8.[23] For the middle cohesive groups the mean scores were 8, 5.3 and 9.3. For the low cohesive groups the mean scores were 8.7, 5.7 and 10.3. The control for popularity was required, as otherwise popularity and cohesiveness would be strongly confounded. It must be considered that persons enjoying

[23]Since the groups were matched on a person to person basis, the three means refers to the popularity of the persons occupying the three positions of the group.

high esteem in groups (high popularity score) may be able to induce a relatively high degree of the group's cohesiveness (27, 54). Because of a need to control for popularity, the larger fraternities and sororities were asked to participate. Also, for this reason, the first eight choices of the Ss had to be considered.

After entering the experimental session, Ss were given no indication as to how their sociometric choices were related to the other members present in their group since this might have affected motivational or other aspects of the groups' behavior.

The groups were told that the observers who were seated in a distant part of the room were present in order to learn about the procedure. The task was then presented to the groups. Each picture of the Group Projection Sketches[24] was mounted on a supporting stand which enabled the members of the groups (who sat around a table) to have a clear view.

The instructions were as follows:

"You have been called to take part in an experiment on group imagination. There are no right or wrong answers in this task. The main thing is to use your imagination as much as you like. I'm going to show you a series of five pictures one at a time. I want you to make up as dramatic a story about each as you can. Decide what is going on in the picture; who the people are; what they are doing, thinking, and feeling. Also indicate what led up to the present scene and the outcome of the story. Discuss what type of story you

[24]See Appendix B for photographs of these Sketches.

want. Once you have agreed, write up the story on the paper that is provided for you. You have about 15 minutes for each picture."

Any questions that were asked as to procedure or content were handled non-directively. The idea that was transmitted was that the group was free to do anything they wished within the framework of the instructions. If the Ss needed more time to complete a story, they were allowed to finish. The following instructions were repeated for subsequent pictures:

"Here is the next picture. Remember, make up a dramatic story with a description of the present scene, what led up to it, and the outcome."

The usual procedure was to rotate the duties of writing up the final stories. Thus after agreeing on what should be included in the story, the theme was written down. Consensus usually was obtained on a sentence by sentence basis. After the entire story was completed, it was read by the scribe and changes were made if further discussion ensued. Thus the final stories which were scored consisted of themes which were discussed and agreed upon by the members of the groups.

Reaction times and response durations were recorded by E. (See page 34 for definitions of these variables.)

Two sequences of the pictures were alternated from group to group. In the first experimental group the sequence of pictures was picture I, II, III, IV, and V. In the second

group it was V, IV, III, II, and I. This alternation resulted in all odd numbered groups receiving picture No. I first; and all even numbered groups receiving picture No. V first. The alternation of sequence was carried out in order to offset any factors of fatigue or practice that may have set in during the course of the experiment.

At the end of the experimental session, the Ss individually filled out a five-point questionnaire, called the "cohesiveness questionnaire", (See Appendix C) and were asked to rate their satisfaction with the meeting, with the final stories and their outcomes, and to indicate if they had the opportunity of doing a similar task again, whether or not they would like to participate.

Two observers were scheduled to be present at each experimental session. These observers were advanced graduate students in psychology who were given training as to their duties. One of the observers has had extensive experience in this type of work and his ratings were used in a validity check. The observers had no information about the cohesiveness of the groups they rated. Due to scheduling and other difficulties, both observers were not always present. One observer was present 19 out of 21 sessions. The second observer's duties were split among three different men. One was present 8 times, another 4 times, and the third, only once. This means that two observers were present only 13 out

of 21 times. The task of the observers was to rate the groups' behavior[25] on 5 components of cohesiveness: (a) co-operation, (b) goal concentration, (c) motivational level, (d) attractiveness of the group for its members, and (e) exertion of influence among members to achieve uniformity. (See Appendix D). Instruction sheets, which defined each of these components and the meaning of points on the scale, were also given to the observers beforehand. (See Appendix E). Six points scales were used. Two pilot groups were run, and discussions followed their ratings. Discrepancies were noted and an attempt was made to reach a common understanding of the components.

The stories composed by each of the groups for each of the five pictures were then rated by two different judges independently. These judges were graduate students who were trained in the use of projective techniques. They were instructed beforehand on the definition of each component of cohesiveness and cues were provided for the recognition of these. There was a general meeting held where the purpose of the study together with the meaning of the components were discussed. They were each given a copy of the lists of components on a typewritten sheet and were asked to familiarize

[25]The observers did not rate the stories which were being discussed by the subjects. Their duties were to rate the actual behavior of the groups.

themselves with their definitions which were explicitly stated. Each picture story was rated according to seventeen components of cohesiveness. Differences in the extent to which these criteria or components were met were rated on a scale of one to six. For example, if a given story showed a low degree of "motivational level", the raters would score this component "1". If a high degree of motivation was described in the stories, the judges were to rate this component "6".

Below are the instructions given to the two raters. Ratings of one and six were defined on the scales. In addition, through group discussion, the judges were given the following information regarding each of the points on the rating scale. A rating of "1" should indicate a component which is definitely low in its expression. In fact, its antithesis should be readily apparent. Thus, a rating of 1 on "motivational level" would not only indicate a low degree of energy exerted by the group in their pursuit of a goal, but also a sluggishness and lethargy would, more than likely, be apparent. Ratings of 2 would indicate a moderate degree of a given component's antithesis. Ratings of 3 would indicate a slight presence of a given component's antithesis. It was explained to the judges that ratings of 4 should indicate a slight amount of a given component's presence. Ratings of 4 marked the beginning of a "positive

presence" of a component. Ratings of 5 indicated a moderate amount of a component in a given story. And, ratings of 6 would be given only on those components whose presence is readily apparent and quite marked within the themes.

It was also pointed out to the judges that if the picture stories did not lend themselves to ratings of any sort along any given component, then they would mark the scale "zero". (See Appendix F.)

Two pilot groups were run and the stories composed by these groups were rated by the judges. Rating discrepancies were discussed. This procedure provided the raters an opportunity to familiarize themselves with the procedure. Also the discussion was aimed at reducing the differences in the component of the meanings between the judges.

The raters were presented with the following descriptions of the components to be rated:

1. Communication clarity - This variable deals with the extent to which there is present in the group clear understanding of each other's arguments and points of view. Group members need not accept each other's arguments, but must comprehend what the other members of the group are trying to say.

Rating 1 indicates misunderstanding and lack of clarity among the group members. Rating 6 indicates understanding and good verbal communication among group members. (The unequivocal statement of story plot and the presence of clear-cut outcomes suggest greater understanding; their absence suggests some confusion among group members.)

2. Goal concentration - This variable deals with the extent to which the group keeps directly to the point of the group problem, or to which it wanders onto tangential topics and loses sight of the original goal. Rating 1 indicates a group low in concentration and frequently loses sight of the goal, and spends time in tangential issues. Rating 6 indicates a group that sticks precisely to the topic, not permitting side issues to come up. The clarity of the plot line and the appropriateness of the outcome to the central plot are relevant. Further, hero figures, who follow closely the plot line and introduced figures who relate directly to the plot and do not intrude irrelevant trends, suggest a group concentrating on its task.

3. Motivational level - Rating is made on the basis of the amount of motivation or energy present in the group. Rating 6 indicates a group that has a high motivational level and much energy available for approaching the group problem. Rating 1 indicates a group of low energy, sluggish in its approach to the problem, a group of low tension level. Here, conflict, whether solved or unsolved, highly dramatic action, and/or the presence of closely interwoven personal relations all suggest a high motivational level.

The presence of slow moving action generally suggests a low level of motivation. Indefinite outcomes, stories without endings, hero figures with low motivation, upon whom outside influences do not exert pressure, suggest low motivational groups. A story of much dramatic action or high interpersonal activity would go with a higher tension level.

4. Tension direction - This variable indicates the emotional direction of energy and tension - whether the members support each other, or whether the tension is largely oppositional in nature and is expended in conflict. Rating 6 indicates a supportive group interested in developing and positively expanding the topic presented to the group. Rating 1 indicates a group is involved in much internal conflict and resists positive development of the topic. The relationships between characters, especially of introduced figures, will indicate the supporting or oppositional nature of the group. Attacking, critical or authoritative figures may suggest a group more concerned with oppositional action. Stories of friendly interpersonal relations, especially those using the first person or personal names, and stories where conflicts find satisfactory closure are suggestive of supportive groups.

5. Pacing level - This variable deals with the speed with which the group approached its topic of discussion. Rating 6 indicates a fast moving group that kept a fast pace in discussing its problems and that made rapid decisions. Rating 1 indicates a slow moving group that approaches its problems slowly and that proceeds at a slow pace in arriving at decisions. The speed with which the basic plot is outlined and the amount of unnecessary introduced material are useful here.

6. Personal interdependence - This variable deals with the extent to which there exists emotional interdependence among members of the group (whether friendly, supportive, antagonistic) and how much each individual feels the need for other group members. Rating 6 indicates a highly interdependent group where each member feels need for the presence of the other members. Rating 1 indicates a group of loose structure, wherein no given individual is of any crucial importance to the group as a whole. The extent to which there is clear reciprocity among characters in a story is evidence for the point. Group goals also indicate a high level of personal interdependence.

7. Personal affect - This variable deals with the nature of the personal affect existing among group members. Rating 6 indicates a group wherein friendly personal ties exist, a group whose members look upon each other not only as some group members, but as friends. Rating 5 indicates a group wherein members were supportive during group meetings, and with regard to the topics of group discussion, but who did not necessarily consider themselves friends outside of the group activities. Rating 4 indicates a group wherein personal relations are impersonal (though generally positive), and wherein relations between members deal exclusively with the content of the discussion. Rating 3 indicates a group wherein personal relations are purely formal. Rating 2 indicates a group wherein interpersonal relations are distant. Rating 1 indicates a group wherein members are antagonistic to each other.

The amount of negative language, unresolved conflict, and dissatisfied plot developments suggest low personal affect.

8. Role differentiation - This variable deals with the extent to which there is much variety and differentiation among roles within the group. Rating 6 indicates a group in which there is high differentiation of role and where different members of the group perform markedly different functions

within the group. Rating 1 indicates a group in which there is a low degree of differentiation in role, where there is a high amount of similarity of role. The more distinct and high-lighted the characters, and the more distinct views on the common problem, the greater is apt to be the role differentiation.

9. In-group feeling - This variable deals with the in-group awareness of the group, and the extent to which it considers itself distinct from other groups. Rating 6 indicates a group highly aware of itself as a group and sensitive to the possible intrusion of out-group persons. Rating 1 indicates a group with minimal in-group feeling which feels no real distinction between present in-group members and present out-group members. Descriptions of opposites and stories that emphasize some feeling of violacy would suggest in-group awareness.

10. Individuality of members - This variable deals with whether each member of the group considers himself primarily as an individual in his dealings with the group, or whether he sees himself primarily in his role of group participant. Rating 6 indicates a low amount of individuality feeling. It would suggest a group whose members were primarily interested in furthering the group's activity. Rating 1 indicates a group of high individuality, wherein each member looks upon his participation primarily as a way to his own personal goals, rather than as a means of furthering the group interest. Commonality of interest as opposed to statements of opposed points of view is probably a direct reflection of this variable.

11. Reality-orientation - This variable deals with the extent to which the group activity is based on reasonable observation of fact and the realities of the group's situation. Rating 6 indicates a group that keenly perceives the facts of the situation and acts with the reality of those facts. Rating 1 indicates a group, wherein observation of its own reality position is hazy or inaccurate, and wherein action is poorly conceived and neglectful of the facts of the situation. The form qualities of the stories are most useful here. A well organized story that conforms to the reality of the stimulus rates a group reality oriented.

12. Organization of outcome - This variable deals with the extent to which the outcome of the group's activity is well organized and coherently presented. Rating 6 indicates a well organized and well presented outcome. Rating 1 indicates a poorly organized and confused outcome. The

internal consistency of the plot, the absence of "tag" ends, and the intricacy of its sequentiality are good indicators of the extent to which the group's decision-products are organized.

13. Creativity of group product - This variable deals with the originality of thinking about group activities and the creativity of outcome. Rating 6 indicates an original, creatively worked out solution. Rating 1 indicates a routine and stereotyped outcome.

14. Group satisfaction with outcome and with meeting - This variable deals with the extent to which the group feels satisfied and pleased with the outcome of its activity and the meeting. Rating 6 indicates a group well satisfied with its activity. Rating 1 indicates a group dissatisfied with its activity. The solution of conflict and the quality of endings are particularly relevant here. Unfinished endings, conflict unsolved, and heroes who fail to gain their goals all suggest some group dissatisfaction.

15. Achievement orientation - This variable is concerned with the extent to which the members go about their business in a systematic way. This is not to say that the members are not concerned with each other's feelings, but rather that they aren't distracted by other problems, such as whether they are accepted or not by the others. Rating 6 indicates a high achievement orientation. Rating 1 indicates a concern about personality and other problems and a low level of achievement orientation. A concern with the logical development of plot and with the sequence of events suggests an achievement oriented group. The desire to harmonize differences quickly in order to attend to the business at hand also indicates achievement orientation.

16. Attractiveness of group for members - This variable is concerned with the general attractiveness of the group for its members. Rating 1 indicates a low attraction level. Rating 6 is an index of high attraction. Themes which indicate that members are joining the group, are happy in their activity, and have a general pleasant affective atmosphere are good indications for a high attractiveness score.

17. Exertion of influence among members to achieve uniformity - This variable deals with the extent to which the members attempt to influence the others in obtaining a homogeneous story. Rating 1 indicates a low amount of exertion. Rating 6 indicates a high degree of communications aimed at creating uniform opinions. This variable may be seen in the

projected themes by the relative frequency and intensity with which the members aim to arrive at a group decision or group goal. Themes which do not show any desire to obtain some sort of consensus would indicate a low degree of exertion of influence.

Note - Mark the scale "0" if it cannot be scored.

III. RESULTS

A. Relationship of the Behavior of the Groups and the Cohesiveness of the Groups

1. Reliability of Observers' Ratings: The reliability measure for the observers who rated the groups' behavior was percent agreement within one scale interval. That is, if the observers agreed in their ratings of a given story within one scaled interval along a particular component, an instance of "agreement" was scored.[26] Table 1 indicates the percent agreement between observer X and observer Y based on the 13 group sessions when the two observers were present. Chi square tests were run in order to determine whether these percent agreements were significantly greater than zero (see Table 1). Yates' correction for continuity was applied (36). The following components were reliably rated by the observers: cooperation of members, motivational level, attractiveness of group for its members and exertion of influence among members. It will be noted that in 3 out of 4 of the cases the reliability was significantly greater than zero at beyond the

[26]Since there was no zero point on the scales, the chance percent agreement was 2.667 over 6. See page 69 for the general procedure used in deducing this percentage. Note also the differences with respect to the zero point.

TABLE 1

Percent Agreement Within One Scale Interval and Chi Squares of Reliability for the Judges on the Ratings of the Behavior of the Groups While Composing the Thematic Apperception Stories†

Dimension	Percent Agreement	X^2
1. Cooperation of Members	84.6%	6.97**
2. Goal Concentration	69.2%	2.32
3. Motivational Level	76.9%	4.34*
4. Attractiveness of Group for Members	84.6%	6.97**
5. Exertion of Influence Among Members	92.3%	10.23***

† based on 13 experimental sessions in which two observers were present.

Chance percent agreement within one scale interval = 44.4%

* indicates significance beyond the 5% level
** indicates significance beyond the 1% level
*** indicates significance beyond the .1% level

1% level of confidence. The component, goal concentration, was not rated consistently beyond chance levels, and hence was not treated further statistically.

2. Relation of Observers' Ratings to Cohesiveness of Groups: Table 2 presents the analysis of variance based on the ratings of observer X who was present in 19 out of 21 experimental sessions. Only this observer's ratings were treated since he was present at the experimental sessions for a sufficient number of times. The second observer was present only 8 times. Other observers were present on even fewer occasions. Only the 4 components which were reliably rated are considered in this analysis. The means of these 4 components, which were combined by summation, were computed for each experimental treatment (Table 3). This was done because the analysis (Table 2) revealed that the experimental groups differed only on this composite measure.

An F ratio of 5.17, significant at beyond the 2.5% level of confidence, was obtained for the variable of cohesiveness. Table 3 indicates that high cohesive groups were rated higher than the low cohesive groups on the basis of the composite mean scores. The t between these groups is 3.69 which is significant at beyond the 1% level of confidence. The middle cohesive groups were rated higher than the low cohesive groups, and the high groups were rated higher than the middle cohesive groups, but these differences were not statistically

TABLE 2

Analysis of Variance of Ratings of Behavior as a Function of Cohesiveness of the Groups

Source	df	ss	ms	
Between Groups	18	42.16	2.34	
Cohesiveness (B)	2	16.56	8.28	5.17*
Error (b)	16	25.60	1.60	
Within Groups	57			
Components (A)	3	5.48	1.83	1.72
AB	6	3.07	.51	.17
Error (w)	48	51.08		
Total	75	101.19		

* Significant beyond the 2.5% level of confidence.

TABLE 3

Mean Rating[1] of Behavior and Comparison of Groups by Pairs

	Mean	N[a]
High Cohesive Group	3.89	9
Middle Cohesive Group	3.58	3
Low Cohesive Group	2.89	9

	df	
$t = 3.69^*$	16	High vs. Low
$t = .59$	10	High vs. Middle
$t = 1.63$	10	Middle vs. Low

* Significant beyond the 1% level of confidence.

[1] These means represent the ratings of the 4 components which were combined into a composite score (See Table 1).

[a] Number of groups in each experimental condition.

Note: Comparisons were made by Fisher's t: $$t = \frac{M_1 - M_2}{\sqrt{ms_w \left\{\frac{1}{n_1} + \frac{1}{n_2}\right\}}}$$

significant, probably because of the small number of groups in the middle cohesive category. In summary, the main assumption was essentially confirmed, that is, the high cohesive groups scored higher on the behavioral indices of cohesiveness than the low cohesive groups.

3. Analysis of Reaction Time: Table 4 presents the analysis of variance for reaction time. Since 4 of the 105 reaction times were not recorded due to the examiner's oversight, the mean score for a given treatment for that given picture was added to the column where the omission occurred (32). The total number of degrees of freedom was reduced by the number of insertions, i.e., 4 (32). Table 4 indicates that there were no significant differences between the high, middle, and low cohesive groups in terms of reaction time. The mean reaction time for the high cohesive groups was 7.6 seconds; for the middle cohesive groups it was 4.8 seconds; and for the low cohesive groups it was 6.2 seconds. Thus, the hypothesis stating an inverse relationship between reaction time and the cohesiveness of the groups was not confirmed.

The F-test did show, however, that there were significant differences among the pictures. A modified t-test procedure (formula used was $d = t\sqrt{\frac{2msw}{n}}$ (32), was then run in order to determine which pictures differed significantly from each other. Since a 5% alpha error risk was advanced,

TABLE 4

Summary of Analysis of Variance
for Reaction Times in Seconds

Source	df	ss	ms	F
Between Groups	20	871.05	43.55	
Cohesiveness (B)	2	103.23	51.62	1.21
Error (b)	18	767.82	42.66	
Within Groups	80	5021.20		
Pictures (A)	4	956.82	239.21	4.31*
AB	8	285.98	35.75	.643
Error (w)	68	3778.40	55.56	
Total	100	5892.25		

* Significant beyond the 5% level of confidence.

t was set at 1.96. Table 5 presents the mean reaction time for each picture and mean difference in reaction time between each pair of pictures. Since d in the above formula was 4.51 seconds, the table indicates that picture I elicited a significantly longer reaction time than pictures II, III, and IV. Picture I had a longer reaction time than picture V, but this difference was not significant. Table 4 also demonstrates that cohesiveness was not a significant factor in determining reaction time to the individual (source of variance AB) or the combined (source of variance B) pictures.

4. Analysis of Response Duration: Table 6 presents the results from the analysis of variance for response duration. The F-test for cohesiveness indicated that the differences in response duration were not significantly related to the different degrees of cohesiveness: i.e., the hypothesis was not confirmed. The different pictures did yield significant differences in response duration beyond the 2-1/2% level of confidence. The modified version of the t-test was used with the formula $d = t\sqrt{\frac{2ms_W}{n}}$; t was selected a 1.96 which means that the alpha error was 5%. This test was used to determine which pictures were significantly different in terms of response duration. Table 7 indicates that picture I had a significantly longer response duration than pictures II, III, and V. Although the same trend with regard to picture IV occurred, this difference was not significant. Table 8 shows

TABLE 5

Summary of Mean Differences in Reaction Times in Seconds to the Projective Sketches

Mean RT.	Picture	II	III	IV	V
12.04	I	7.95*	7.42*	7.47*	4.18
4.09	II		.53	.48	3.77
4.62	III			.05	3.24
4.57	IV				3.29
7.86	V				

* Significant beyond the 5% level of confidence.

Critical difference (d) = 4.51

$$(d = 1.96\sqrt{\frac{2\ msw}{n}})$$

TABLE 6

Summary of Analysis of Variance for Response Durations in Minutes[1]

Source	df	ss	ms	F
Between Groups	20	1066.80	53.34	
Cohesiveness (B)	2	184.18	92.09	1.88
Error (b)	18	882.62	49.03	
Within Groups	84	1298.00		
Pictures (A)	4	196.89	49.22	3.34*
AB	8	40.99	5.12	.347
Error (w)	72	1060.12	14.72	
Total	104	2364.80		

* Significant beyond the 2.5% level of confidence.

1. Times are rounded off to nearest minute.

TABLE 7

Summary of Mean Differences of Response Duration in Minutes to the Projective Sketches

Mean RD.	Picture	II	III	IV	V
14.62	I	3.67*	3.81*	2.24	2.38*
10.95	II		0.14	1.43	1.29
10.81	III			1.57	1.43
12.38	IV				.14
12.24					

* Significant beyond the 5% level of confidence.

Critical difference (d) = 2.32

$$(d = 1.96\sqrt{\frac{2ns_w}{n}})$$

TABLE 8

Summary of Mean Differences of Response Durations in Minutes to the Projective Sketches (With Reaction Times Subtracted)

Mean RT.	Picture	II	III	IV	V
14.42	I	3.54*	3.69*	2.11	2.31
10.88	II		0.15	1.43	1.23
10.73	III			1.58	1.38
12.31	IV				.10
12.11	V				

* Significant beyond the 5% level of confidence.

Critical difference (d) = 3.32

$$(d = 1.96\sqrt{\frac{2ms_w}{n}})$$

that when the reaction times are subtracted from the response duration, a similar trend occurs. That is picture I tends to have the longest response duration. This subtraction was accomplished in order to eliminate the effect of reaction time on response duration. Table 6 also indicates that for different degrees of cohesiveness, the pictures did not differ significantly from one another in terms of response duration (source of variance AB).

B. Relationship of the Groups' Reaction to the Study and the Cohesiveness of the Groups

Prior to leaving the experimental session, the individuals of each group had filled out a questionnaire on their reaction to the study. (See Appendix C.) Analysis of variance was used to determine whether high cohesive groups were more satisfied with the final stories and their outcomes, more satisfied with the discussion meeting, and more willing to participate in a similar session than low cohesive groups. Table 9 indicates that there were no significant differences between responses to each of the three questions and membership in high, middle, or low cohesive groups.

However, there was a slight tendency for the "high" groups to score higher than the "low" groups on each of the questions (see Table 10), which is in the direction hypothesized. The middle cohesive groups tended to score higher than the high cohesive groups on each of the questions. However, there were only 3 groups in the "middle" condition.

TABLE 9

Summary of Analyses of Variance of Responses to the Cohesiveness Questionnaire

Question 1 - Satisfaction with Stories and Outcomes

Source	df	ss	ms	F
Cohesiveness	2	3.73	1.86	1.24
Groups within Treatments	18	27.00	1.50	
Subjects within Groups	42	25.70	.61	
Total	62	56.43		

Question 2 - Satisfaction with Meeting

Source	df	ss	ms	F
Cohesiveness	2	.78	.39	.52
Groups within Treatments	18	13.38	.74	
Subjects within Groups	42	27.70	.66	
Total	62	41.86		

TABLE 9 (Continued)

Question 3 - Willingness to Participate Again				
Source	df	ss	ms	F
Cohesiveness	2	.97	.49	.39
Groups within Treatment	18	22.69	1.26	
Subjects within Groups	42	35.05	.83	
Total	62	58.71		

TABLE 10

Summary of Mean Scores on Cohesiveness Questionnaire for High, Middle and Low Cohesive Groups

	High Cohesiveness	Middle Cohesiveness	Low Cohesiveness
(1) Satisfaction with Stories and Outcomes	3.96	4.00	3.48
(2) Satisfaction with Meeting	3.77	3.88	3.59
(3) Willingness to Participate Again	3.10	3.11	3.03

C. Relationship Between Content of Thematic Apperceptions and Cohesiveness of the Groups:

1. Reliability of Judges' Ratings of Thematic Stories:

The measure of realiability used in the present study was percent agreement of judges' ratings within one scale interval. That is, if one judge rated a given component "2", the other judge would have to rate the same component (for any given story) either "2", "1", or "3", in order to have "agreed" with the first judge.[27] Table 11 indicates the percent agreements by the judges. Chi square tests were run to determine whether these agreements were significantly greater than chance (chance agreement was 34.69%).[28] Table 12 presents chi squares and the level of confidence of the raters on the 17 scales. It was found that the judges were consistent significantly beyond chance in 14 of the 17

[27]Although our components had but 6 intervals, the judges were instructed to score a component 0 if the themes did not lend itself to any scoring; hence, each component scale had 7 intervals.

[28]The chance agreement percentage was computed in the following manner. Each story can be scored along 7 scale intervals. Either it is not scoreable; hence scored "0", or it is judged from "1" to "6". The percent agreement within one scale interval applies only to scoreable stories. If one judge rated a story "0", the other also had to rate the story "0". Thus for this interval, the chances are 1 in 7 for agreement between judges. The probability is 2 in 7 for agreement if one judge scores a given story either 1 or 6. The probability is 3 in 7 for agreement, if one judge scores the story either 2, 3, 4, or 5. Thus, the mean probability for agreement between judges is somewhat less than 2.43 over 7 which equals 34.69%.

TABLE 11

Percent Agreement of Raters on Components of Cohesiveness in Thematic Content

	Dimensions	% Agreement
1.	Communication Clarity	49.5
2.	Goal Concentration	39.0
3.	Motivational Level	51.4
4.	Tension Direction	65.7
5.	Pacing Level	44.8
6.	Personal Interdependence	75.2
7.	Personal Affect	66.7
8.	Role Differentiation	60.0
9.	In-Group Feeling	68.6
10.	Individuality of Members	69.5
11.	Reality Orientation	37.1
12.	Organization of Outcome	45.1
13.	Creativity of Group Product	51.4
14.	Group Satisfaction with Outcome and Meeting	67.6
15.	Achievement Orientation	38.4
16.	Attractiveness of Members for the Group	71.4
17.	Exertion of Influence Among Members to Achieve Uniformity	64.8

Chance % agreement within one scale interval = 34.69%.

Mean % agreement of judges = 60.8%.

TABLE 12

Chi Squares for Reliability of Raters on Thematic Content

	Components	X^2
1.	Communication Clarity	9.58
2.	Goal Concentration	0.92*
3.	Motivational Level	13.8†
4.	Tension Direction	43.3†
5.	Pacing Level	5.18
6.	Personal Interdependence	78.1†
7.	Personal Affect	46.1†
8.	Role Differentiation	28.6†
9.	In-Group Feeling	52.8†
10.	Individuality of Members	54.8†
11.	Reality Orientation	0.20*
12.	Organization of Outcome	6.1
13.	Creativity of Group Product	13.8†
14.	Group Satisfaction with Outcome and Meeting	48.8†
15.	Achievement Orientation	0.40*
16.	Attractiveness of Members for the Group	61.1†
17.	Exertion of Influence Among Members to Achieve Uniformity	40.6†

* Not significant at 5% level of confidence.
† Indicates significance beyond the .1% level.

dimensions. The judges did not agree beyond chance in rating goal concentration, reality orientation of group product, and achievement orientation. Table 11 also indicates that the average percent agreement among the 14 reliable components between the raters was 60.8%. All further statistical manipulations of cohesiveness were concerned with only the 14 components on which the judges were in reliable agreement.

2. Relationship Between Content of Thematic Apperceptions and Group Cohesiveness: Table 13 presents a summary of the analyses of variance applied to the mean ratings of the two judges. The analysis reveals 4 significant F ratios. The F ratio for pictures is 3.53 which is significant at the 2-1/2% level of confidence. This finding indicates that certain pictures elicit stories higher in cohesiveness than other pictures. The F ratio for components is 12.16 which is significant beyond the .1% level of confidence. This finding indicates that certain components are rated higher than other components. The F ratio of 2.11 (AB interaction) indicates that certain components are scored relatively higher on some pictures than on others.

The fourth significant F ratio is the pictures by components by cohesiveness interaction of 1.99. This interaction indicates that the cohesive groups responded significantly differently when both the particular picture and the nature of the scoring components are taken into account.

TABLE 13

Analysis of Variance for Ratings of Thematic Content by the Two Judges[1]

Source	df	ss	ms	F
Between Groups	20	248.78	12.44	
Cohesiveness (C)	2	30.45	15.22	1.25
Error (b)	18	218.33	12.13	
Within Group	1449	2481.46		
Pictures (A)	4	109.96	27.49	3.53****
Components (B)	13	211.80	16.29	12.16*
AB	52	107.86	2.07	2.11**
BC	26	25.06	.96	.71
AC	8	29.05	3.63	.47
ABC	104	203.66	1.96	1.99***
Error (Residual)	1242	1794.17		
$Error_1$ (bA)	72	559.25	7.77	
$Error_2$ (bB)	234	312.80	1.34	
$Error_3$ (bAB)	936	922.12	.99	
Total	1469	2730.34		

* significant beyond the .1% level
** significant beyond the .5% level
*** significant beyond the 1% level
**** significant beyond the 2-1/2% level

Note 1: Means of two judges used.

Table 14 presents the results for cohesiveness by pictures interaction for each component of cohesiveness. By this method, an attempt was made to determine which components were important in yielding a picture times cohesiveness interaction; i.e., which components were crucial in influencing scores which separated high from low cohesive groups for certain pictures. Table 14 does not yield any significant F ratios. That is, no component taken singly results in a significant picture times cohesiveness interaction.

Table 15 presents separate analyses of variance for each picture. The F ratios indicate that no one picture is responsible for a significant components and cohesiveness interaction.

Figures 1 through 5 represent graphically the mean scores for both high and low cohesive groups for each picture. Although no one picture was independently important in separating the groups along the components, it was felt that one picture in comparison to some other picture might be significant in producing differences in certain components. That is, on a given component picture II might separate high and low cohesive groups in the expected direction and another picture might separate high and low cohesive groups in the opposite direction. The net effect would be that both pictures have to be considered in locating significant differences.

TABLE 14

Summary of F-tests for Cohesiveness Times Pictures Interaction for Each Component on the Thematic Content

No.	Component	F*
1	Communication	.16
3	Motivational Level	.83
4	Tension Direction	.20
5	Pacing Level	.69
6	Personal Interdependence	.71
7	Personal Affect	.49
8	Role Differentiation	.60
9	In-Group Feeling	1.08
10	Individuality of Members	.32
12	Organized Outcome	.51
13	Creative Group Product	.88
14	Satisfaction with Outcome and Meeting	.53
15	Attractiveness for Group	.55
17	Exertion of Influence	1.91

Note: In all instances df = 8 and 104.

* No F's are significant at 5% level of confidence.

TABLE 15

Summary of F-tests for Cohesiveness Times Component Interaction for Each Picture on the Thematic Content

Picture	F*
I	.75
II	.72
III	.43
IV	.86
V	.67

Note: In all instances df = 26 and 234.

* No F's are significant at the 5% level of confidence.

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
ON PICTURE I FOR EACH COMONENT

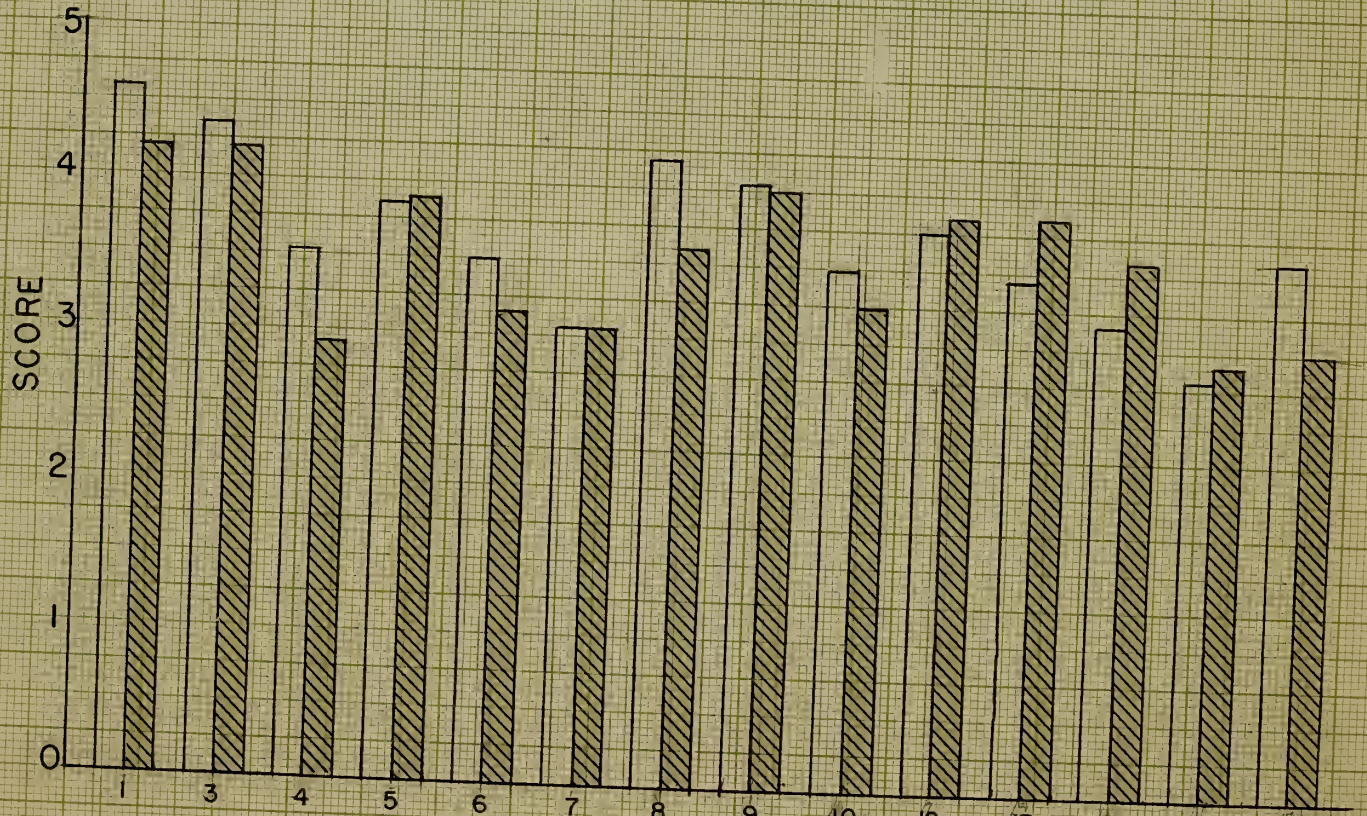

FIGURE I

STRIPED BAR REPRESENTS LOW COHESIVE GROUPS' SCORE ON ALL GRAPHS
NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
ON PICTURE II FOR EACH COMPONENT

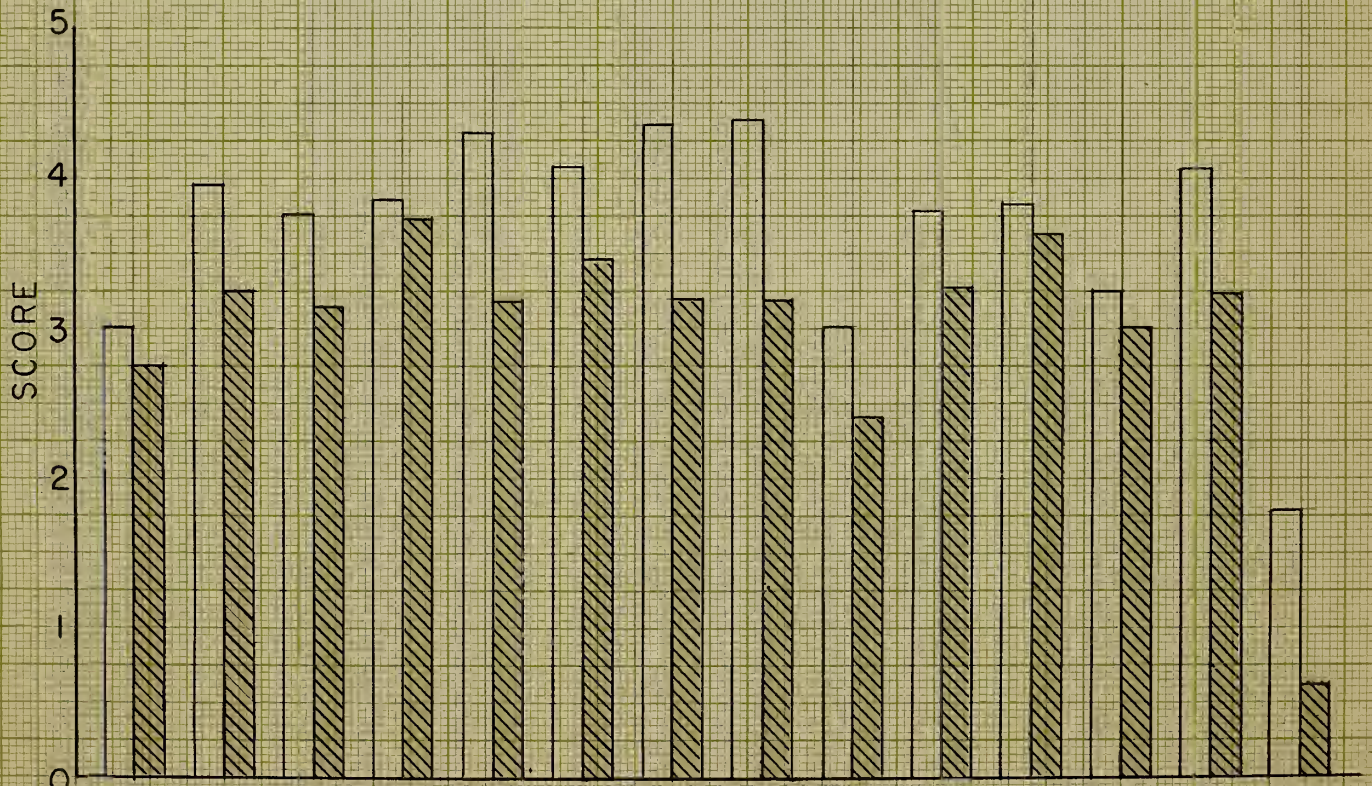

FIGURE II

NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
ON PICTURE III FOR EACH COMPONENT

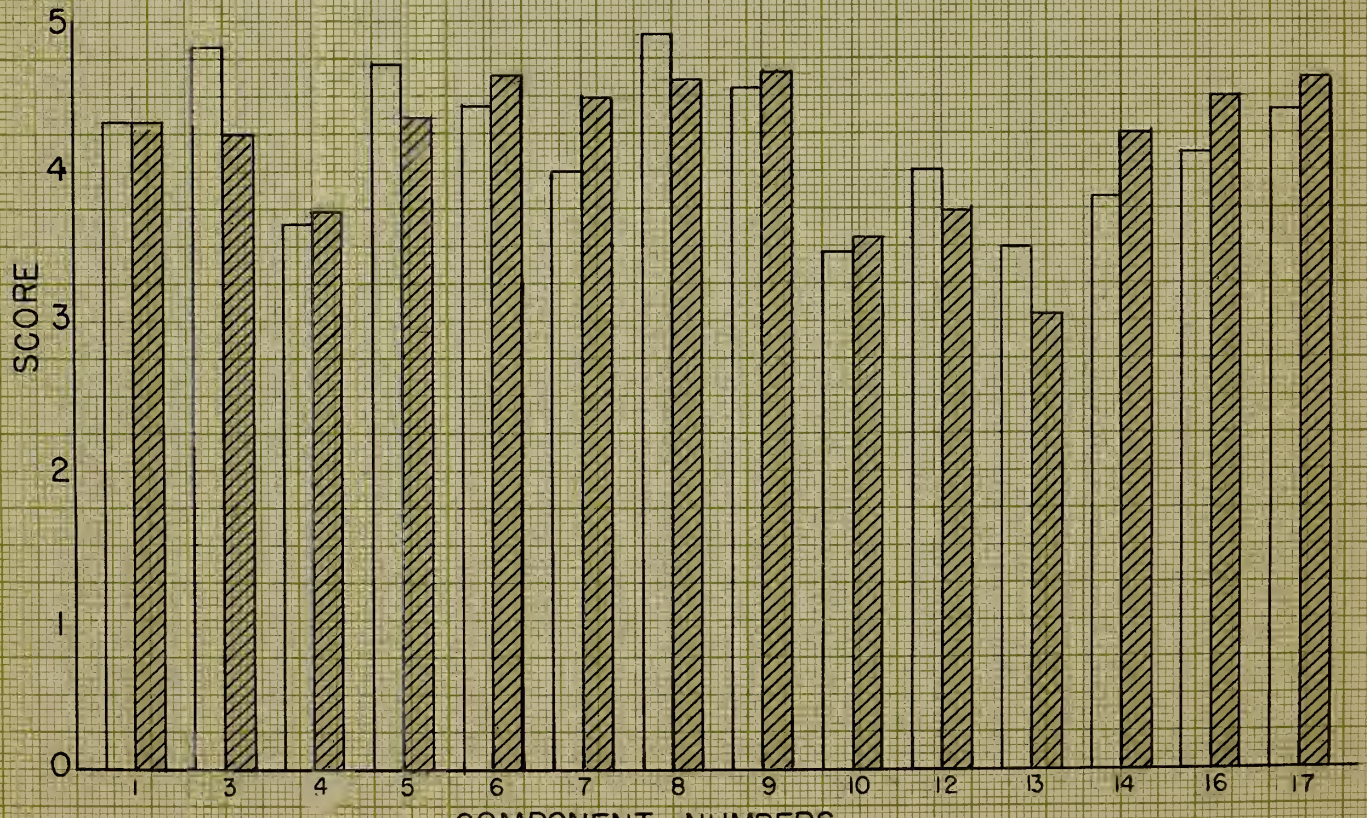

FIGURE III

NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
ON PICTURE IV FOR EACH COMPONENT

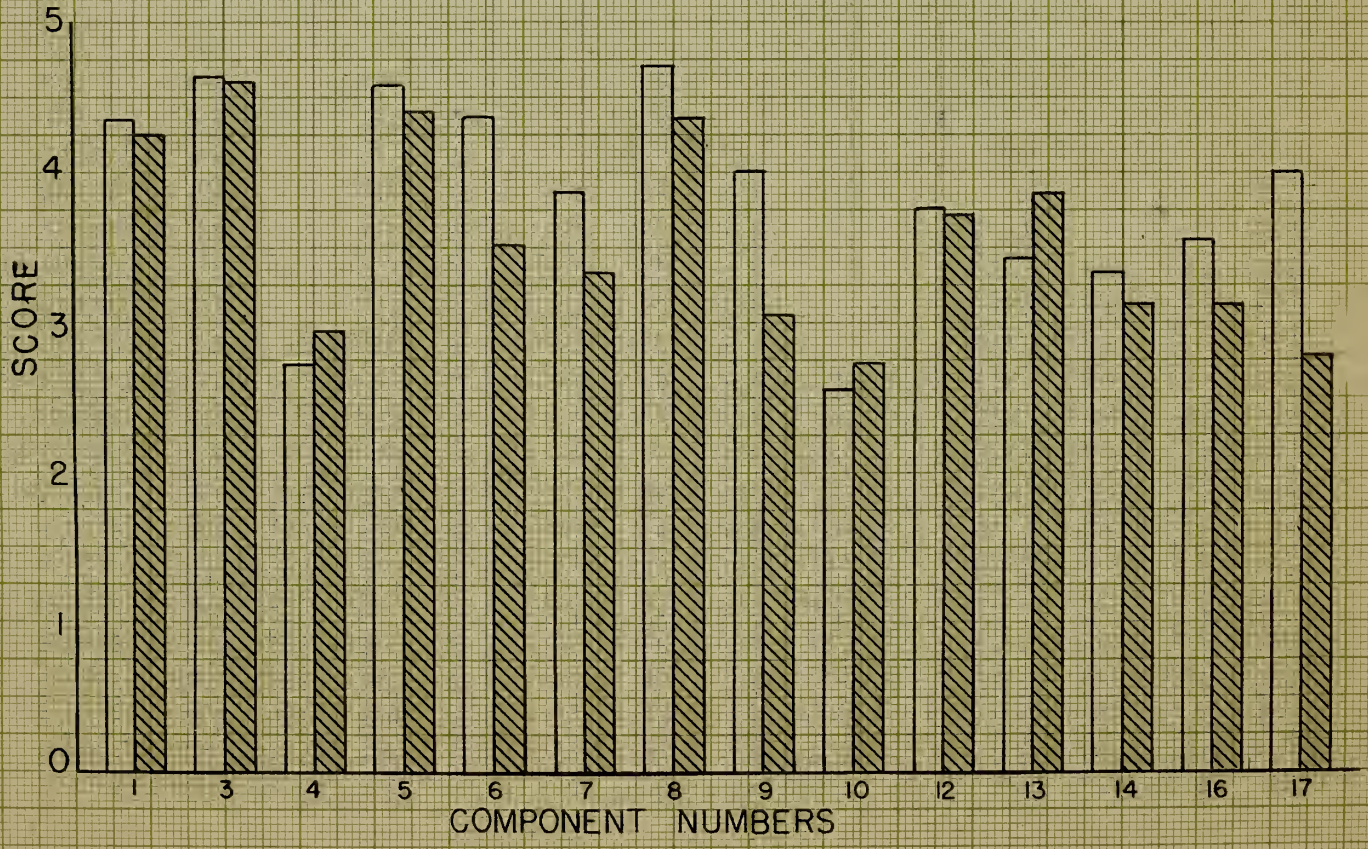

FIGURE IV

NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
ON PICTURE V FOR EACH COMPONENT

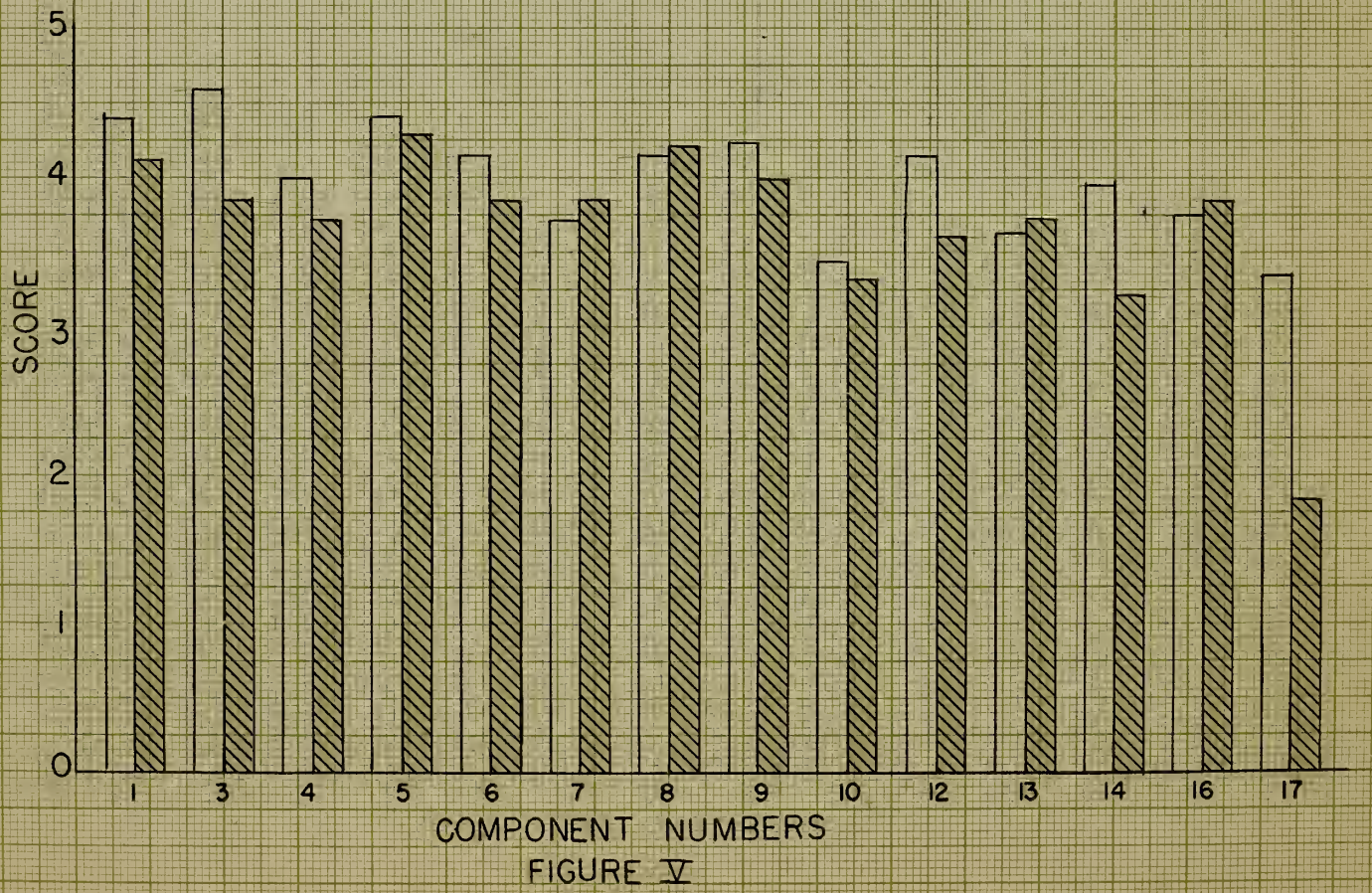

FIGURE V

NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

Picture II was considered in combination with each of the other sketches. This was done for two reasons: in the first instance picture II was most influential in separating high and low cohesive groups in the expected direction. (See figures 1 through 5.) In the next instance past studies (13) have shown that pictures low in "picture pull" may have a different effect in eliciting certain needs in thematic material than pictures which are considered "high" in picture pull.[29] Picture II is obviously the lowest in picture pull for cohesiveness in this experiment. This sketch, showing a lone figure, is quite remote from group cohesiveness. Tables 16 through 19 summarize the analyses of variance relating the results on picture II to each of the other pictures. It will be noted that picture II in combination with none of the other pictures yielded a significant triple interaction. The F ratio (for triple interaction) for picture II combined with pictures I, III, IV, and V were respectively .91, 1.18, .93 and 1.21.

An attempt was then made to determine which picture contributed most to the significant triple interaction of Table 13. Tables 20 through 24 summarize analyses of variance after each of the 5 pictures was deleted from the

[29]Picture pull refers to those physical properties of the sketch which facilitate the expression of content relevant to the dimension being investigated.

TABLE 16

Analysis of Variance for Pictures I and II

Source	df	ss	ms	F
Between Groups	20	167.64	8.38	
Cohesiveness (C)	2	28.64	14.32	1.85
Error (b)	18	139.00	7.72	
Within Group	567	1030.66		
Pictures (A)	1	7.64	7.64	.77
Components (B)	13	104.35	8.02	6.73
AB	13	104.36	8.02	6.45
BC	26	25.36	.97	.82
AC	2	11.32	5.66	.57
ABC	26	29.62	1.13	.91
Error (resid)	486	748.01	1.53	
$Error_1$ (bA)	18	177.93	9.88	
$Error_2$ (bB)	234	278.95	1.19	
$Error_3$ (bAB)	234	291.13	1.24	
Total	587	1198.30		

TABLE 17

Analysis of Variance for Pictures II and III

Source	df	ss	ms	F
Between Groups	20	237.23		
Cohesiveness (C)	2	19.79	9.89	.82
Error (b)	18	217.44	12.08	
Within Group	567	1037.95		
Pictures (A)	1	97.96	97.96	12.29
Components (B)	13	105.04	8.08	6.68
AB	13	99.29	7.64	7.36
BC	26	15.21	.58	.48
AC	2	18.36	9.18	1.15
ABC	26	31.99	1.23	1.18
Error (resid)	486	670.10	1.38	
$Error_1$ (bA)	18	143.52	7.97	
$Error_2$ (bB)	234	283.70	1.21	
$Error_3$ (bAB)	234	242.88	1.03	
Total	587	1275.88		

TABLE 18

Analysis of Variance for Pictures II and IV

Source	df	ss	ms	F
Between Groups	20	171.30		
Cohesiveness (C)	2	34.15	17.07	2.24
Error (b)	18	137.15	7.62	
Within Group	567	1101.59		
Pictures (A)	1	9.57	9.57	.89
Components (B)	13	160.63	12.36	9.97
AB	13	90.64	6.97	5.71
AC	2	14.03	7.01	.65
BC	26	29.08	1.12	.90
ABC	26	29.08	1.13	.93
Error (resid)	486	768.35		
$Error_1$ (bA)	18	192.45	10.69	
$Error_2$ (bB)	234	291.38	1.24	
$Error_3$ (bAB)	234	284.52	1.22	
Total	587	1272.89		

TABLE 19

Analysis of Variance for Pictures II and V

Source	df	ss	ms	F
Between Groups	20	213.73		
Cohesiveness (C)	2	41.09	20.54	2.14
Error (b)	18	172.64	9.59	
Within Group	567	1164.07		
Pictures (A)	1	29.86	29.86	2.02
Components (B)	13	174.49	13.42	10.11
AB	13	32.11	2.47	1.99
AC	2	5.20	2.6	.17
BC	26	16.42	.63	.47
ABC	26	38.95	1.49	1.21
Error (resid)	486	867.04		
$Error_1$ (bA)	18	266.21	14.78	
$Error_2$ (bB)	234	310.53	1.32	
$Error_3$ (bAB)	234	290.30	1.24	
Total	587	1377.80		

TABLE 20

Analysis of Variance Deleting Data from Picture 1

Source	df	ss	ms	F
Between Groups	20	218.43		
Cohesiveness (C)	2	30.34	15.17	
Error (b)	18	188.09	10.45	1.45
Within Group	1155	2102.11		
Pictures (A)	3	104.48	34.82	3.81
Components (B)	13	199.88	15.37	11.64
AC	6	27.77	4.63	.51
AB	39	168.13	4.31	4.25
BC	26	19.29	.74	.56
ABC	78	68.53	.87	.87
Error (resid)	990	1514.03		
$Error_1$ (bA)	54	493.73	9.14	
$Error_2$ (bB)	234	309.06	1.32	
$Error_3$ (bAB)	702	711.24	1.01	
Total	1175	2320.54		

TABLE 21

Analysis of Variance Deleting Data from Picture II

Source	df	ss	ms	F
Between Groups	20	252.25	12.61	
Cohesiveness (C)	2	9.92	4.96	.36
Error (b)	18	242.33	13.46	
Within Group	1155	1646.74		
Pictures (A)	3	64.90	21.63	3.73
Components (B)	13	173.45	13.34	10.72
AB	39	109.12	2.79	3.21
BC	26	21.86	.84	.67
AC	6	11.67	1.94	.33
ABC	78	49.90	.63	.73
Error (resid)	990	1215.84	1.22	
$Error_1$ (bA)	54	313.44	5.80	
$Error_2$ (bB)	234	291.05	1.24	
$Error_3$ (bAB)	702	611.35	.87	
Total	1175	1898.99		

TABLE 22

Analysis of Variance Deleting Data from Picture III

Source	df	ss	ms	F
Between Groups	20	231.04		
Cohesiveness (C)	2	37.95	18.97	1.77
Error (b)	18	193.09	10.73	
Within Group	1155	2028.26		
Pictures (A)	3	30.05	10.02	1.21
Components (B)	13	214.86	16.53	10.14
AB	39	157.53	4.39	4.72
AC	6	20.96	3.49	.42
BC	26	34.20	1.31	.80
ABC	78	62.14	.80	.83
Error (resid)	990	1508.20	1.53	
$Error_1$ (bA)	54	445.73	8.25	
$Error_2$ (bB)	234	382.57	1.63	
$Error_3$ (bAB)	702	679.90	.96	
Total	1175	2259.30		

TABLE 23

Analysis of Variance Deleting Data from Picture IV

Source	df	ss	ms	F
Between Groups	20	231.37		
Cohesiveness (C)	2	28.39	14.19	1.26
Error (b)	18	202.98	11.28	
Within Group	1155	2018.68		
Pictures (A)	3	106.65	35.55	4.11
Components (B)	13	147.89	11.38	8.24
AB	30	177.55	4.55	4.63
AC	6	20.51	3.42	.39
BC	26	18.64	7.1[illegible]	.52
ABC	78	66.85	.85	.87
Error (resid)	990	1480.59		
$Error_1$ (bA)	54	467.18	8.65	
$Error_2$ (bB)	234	323.21	1.38	
$Error_3$ (bAB)	702	690.20	.98	
Total	1175	2250.05		

TABLE 24

Analysis of Variance Deleting Data from Picture V

Source	df	ss	ms	F
Between Groups	20	281.55		
Cohesiveness (C)	2	22.41	11.20	.78
Error (b)	18	259.14	14.40	
Within Group	1155	1883.46		
Pictures (A)	3	106.23	35.41	6.33
Components (B)	13	165.59	12.74	13.54
AB	39	204.52	5.24	4.81
AC	6	28.35	4.72	.84
BC	26	22.95	.88	.94
ABC	78	65.57	.84	.77
Error (resid)	990	1290.25		
$Error_1$ (bA)	54	301.81	5.59	
$Error_2$ (bB)	234	220.17	.94	
$Error_3$ (bAB)	702	768.27	1.09	
Total	1175	2165.01		

analysis, one at a time. Each of the 5 pictures reduced the triple interaction to nonsignificance. The F ratios of .87, .73, .83, .87, and .77 were obtained when pictures I, II, III, IV, and V were deleted, respectively. None of these ratios is significant. Dropping picture II reduced the F ratio more than any other picture. An attempt was made to summarize by graph and table the differences between the high and low cohesive groups along the various components. Scores on the various pictures were combined. Figure 6 and Table 25 indicate that on 13 of the 14 components, the high cohesive groups scored higher than the low cohesive groups. Thus, there is a tendency toward the confirmation of the main hypothesis: that high cohesive groups would score higher than low cohesive groups along the components. The middle cohesive groups tended to score between the "high" and "low" groups (see Table 25). However, since the "middle" groups' scores would tend to be unstable (only 3 groups), their scores were not analyzed.

Figure 7 reveals a tendency for 4 of the 5 pictures to separate high from low cohesive groups in the expected direction when all components are combined. Picture III, the sketch showing two men facing each other, was the only instance where this trend did not hold. In this case the two types of groups obtained almost identical scores. The "low" groups scored .01 of an interval higher than the high

MEAN SCORES FOR HIGH AND LOW COHESIVE GROUPS
FOR EACH COMPONENT FOR ALL PICTURES COMBINED

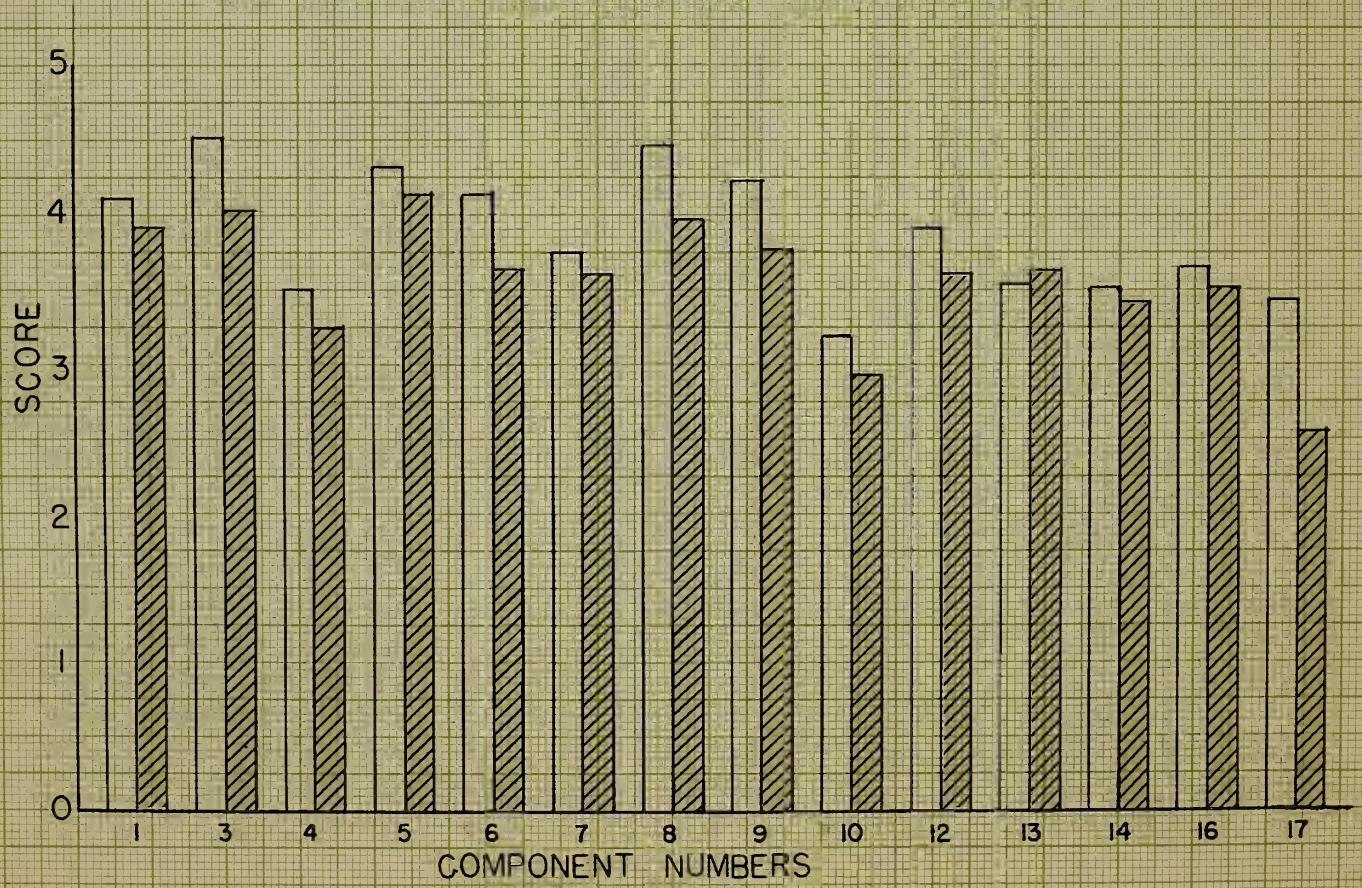

FIGURE VI

NOTE: SEE TABLE II FOR TRANSLATION OF COMPONENT NUMBERS

TABLE 25

Mean Scores of the Components for High, Middle, and Low Cohesive Groups as Rated by Judges of Thematic Content

Components	High Cohesive Group	Middle Cohesive Group	Low Cohesive Group
1	4.17	3.90	3.94
3	4.51	4.63	4.05
4	3.55	3.73	3.29
5	4.32	4.27	4.15
6	4.18	3.70	3.68
7	3.78	3.70	3.64
8	4.50	3.93	4.00
9	4.25	4.03	3.79
10	3.20	3.40	2.94
12	3.91	3.60	3.63
13	3.58	3.70	3.63
14	3.51	3.57	3.43
16	3.68	3.73	3.52
17	3.44	3.43	2.57
General Mean	3.90	3.81	3.59

Note: See Table 13 for translation of component numbers.

MEAN SCORES OF HIGH AND LOW COHESIVE GROUPS
FOR EACH PICTURE FOR ALL COMPONENTS COMBINED

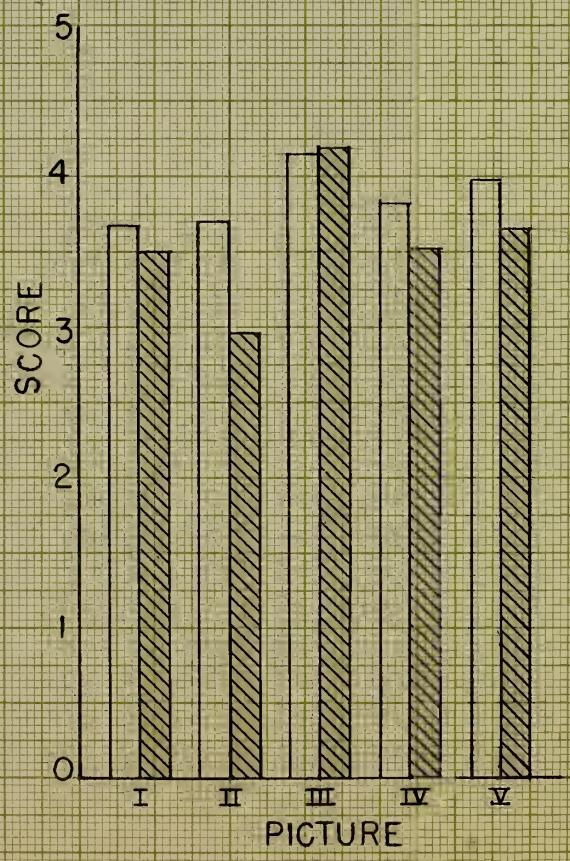

FIGURE VII

cohesive groups on the average.

Table 26 presents the mean differences between high and low cohesive groups for men and women separately. There is a tendency for the pictures to discriminate the women's groups more effectively in the expected direction.

TABLE 26

Summary of Means and Mean Differences Between Men and Women Groups Respectively on the Thematic Content[1]

	High Cohesive Group	Low Cohesive Group
Men	3.71 (N = 4)	3.59 (N = 4)
	Mean difference equals .12	
Women	4.07 (N = 5)	3.59 (N = 5)
	Mean difference equals .48	

[1]Means represent the composite scores of all components.

IV. DISCUSSION

Relationship of the Behavior of the Groups and the Cohesiveness of the Groups.

High cohesive groups were rated higher than low cohesive groups on the components of cohesiveness combined into a composite measure. There was a tendency for the middle cohesive groups to score in between the high and low cohesive groups. This composite score was derived from the ratings of the groups' cooperation, motivational level, attractiveness of the group for its members and exertion of influence among members. The reliability of the fifth component, goal concentration, fell just short of statistical significance. The components taken singly did not differentiate high from low group cohesiveness. This finding indicates that the sociometric measure of cohesiveness served to create groups which behaved differently in regard to behavioral indicators of cohesiveness. This supports the assumption that cohesiveness as sociometrically determined in this study was a valid designation.

Other studies have found similar relationships between sociometric measures and criteria which are related to components of cohesiveness. Darley, Gross & Martin (10) found that groups ranking high in cohesiveness tended to be more

satisfied with their social experiences in these groups than members of low cohesive groups. They defined cohesiveness in terms of a sociometric ratio. Jenkins (28) noted that groups which ranked high on morale--a concept related to cohesiveness--tended to have members whose choices on sociometric questionnaires were positive with respect to their groups.

The hypothesis that reaction time is related to the cohesiveness of the groups was not confirmed. Reaction time, however, was related to the differences between pictures. Specifically, the subjects took longer to respond to picture I than to all other pictures. One possible explanation is that picture I is relatively complicated and time is needed to organize it conceptually. This is corroborated by noting that pictuer I contains seven men in various spatial relationships to one another. None of the other pictures contains as many individuals. Picture V contains four men and is somewhat similar in content to picture I; i.e., a general discussion seems to be taking place. It is interesting to note in this respect that the reaction time difference between pictures I and V is not statistically significant. It is also possible that since pictures I and V were the first pictures (in alternate groups) the relatively long reaction times to pictures I and V may have been due to the subjects' hesitancy and caution in approaching a new task.

The hypothesis that response duration is related to group cohesiveness was not confirmed. However, response duration was related to differences between pictures. The explanation of why picture I had the longest response duration is conjectural. The original hypothesis that a long response duration is associated with the groups' motivation and interest in their tasks tends to be substantiated by this finding. If the groups were more interested in a given picture, presumably they would spend more time in "holding" the card and more discussion would ensue. The result would be a relatively long response duration. Picture I is a group of college-aged men variously placed around a conference table. It may be assumed that the college students who acted as Ss would be more interested in this picture than in the others. Thus, response durations for this picture would be expected to be relatively long. The present finding tends to support this view. Another possible explanation for the relatively long response duration for picture I may be given in terms of the speculation advanced with regard to reaction time difference. Not only does picture I take a relatively long time to begin a story because of its structural complexity, but for the same reason it may also take longer to organize stories to them. Since pictures I and V were the first sketches in alternate group sessions, and since picture V did not have a particularly

long response duration, the results cannot be explained in terms of pictures I and V being first in the series.

Relationship of the Groups' Reaction to the Study and the Cohesiveness of the Groups.

Although there was a tendency for the high cohesive groups to score higher on all three questions than the low cohesive groups, the differences were not significant. Thus, the hypothesis concerning the answers to the questionnaire and the cohesiveness of the group was not confirmed. In addition to the possibility that no real differences exist, two alternate explanations may be advanced. One is that the questionnaire simply was not sensitive enough in picking up differences between the groups. The other is that the middle and low cohesive groups were unwilling to record their negative feelings on the questionnaire because this was socially unacceptable to them. Since the members of each group were from the same fraternity or sorority, it is possible that they would be hesitant to express direct negative feelings which would be accessible to the experimenter and possibly to other people. The fact that the lowest mean score for any question was above 3.00, which corresponds to a score approaching "moderately satisfied" indicates that the Ss may have been hesitant in displaying negative feelings.

Relationship Between Content of Thematic Apperceptions and Cohesiveness of the Group.

The main hypothesis which was that the high cohesive

group would tell stories about more cohesive groups than would the low cohesive group, was not confirmed. A significant triple interaction did suggest that groups which vary in cohesiveness can be differentiated only when the particular picture and the particular component are considered together, but as none of the procedures aimed at determining the meaning more specifically of the interaction was successful no importance could be attributed to this finding.

The fact that the actual behavior of the groups was related to their cohesiveness (as determined by sociometry) brings up the question of why differences in the groups were not picked up by the thematic apperceptions.

One possibility is that ratings of behavior of groups provide a more sensitive measure of the cohesiveness than ratings made from thematic apperceptions. Another explanation is suggested by current theorizing on the relationship between the phantasy and overt expression of an impulse (25, 33, 50). It is generally agreed that the relationship between these variables is complex and is dependent upon a number of important factors. For example if the needs are generally frustrated (by society or for other reasons), the chances are high that they will appear in the phantasies of the individual but not in overt behavior. On the other hand, if society encourages the satisfaction of these needs and the individual is able to secure complete overt expression,

it may be that the expression of the needs will be high in behavior but low in the phantasy (33).

In the present experiment it is possible that a similar trend occurred. The differences in the groups' behavior were perceptibly different: both high and low cohesive groups expressed their impulses in actual behavior during the process of creating their stories. However, these impulses--attraction of the members for the group together with the other components--were not expressed in their stories in a consistent fashion. It should be remembered that the Ss in this experiment had known the other members of their groups for a considerable length of time. During this period of time adequate opportunity was probably available to express their impulses toward one another in overt behavior. This pattern of expression appears to have continued during the course of the experiment. As a result when their phantasies were expressed there were no great needs to project these impulses through the stories for the simple reason that a more adequate expression of them was available to them. The experiment of Horwitz and Cartwright (26) lends further support to this hypothesis as they found a high positive relationship between a sociometric measure (allied to (cohesiveness) and the type of stories told under conditions where the opportunity for their Ss to express their impulses toward one another in overt fashion was quite limited.

These Ss were acquainted with each other for two weeks only.

The findings of Torrance (51) seems to indicate this same trend. He found that the less effective crews (low cohesive groups) tended to project more harmony and friendliness than the more effective groups when a picture of an informal group was presented.[30] It is possible that since these needs were frustrated in actual behavior, the opportunity was taken to express them in the stories composed.

With regard to the findings on the questionnaire, there seemed to be evidence that the Ss were hesitant in expressing their negative feelings on paper. In this questionnaire, direct questions were asked. It is quite possible that these questions were a threat to the Ss need to put on "a good show" on behalf of their fraternity. This threat was probably not so acutely felt when the groups were busily engaged in carrying out the relatively benigh task of making up stories. Thus defensive measures of putting on "a good show" were not so acute. Thus differences in the behavior of the groups were manifested and observed by the rater.

Another factor that might have been operating in this complex of "conditions" influencing the relationship between group cohesiveness and the projection of this variable in thematic content is the relationship between the groups and

[30]This relationship was not found for interpretations of the picture of a more formal group (51).

the experimenter. In this experiment, nearly all of the groups were tested at night. Many communications and pre-arrangements had to be made before the actual experimental session. It is possible that this experiment was viewed as an imposition. A likely reaction to this situation would be hostility toward the experimenter and his work. Since this society has formed restrictions concerning the direct expression of hostility, indirect avenues of expression could provide the necessary channels of outlet. One possible indirect expression of hostility would be the lack of full compliance with the instructions. Thus when a dramatic story was called for, a neutral or hostile sort of story might be given instead. Accordingly, even for the high cohesive groups, the stories might tend to be rather low along the components of cohesiveness. The result would be that little differentiation between the high and low cohesive groups' stories would be discerned because of the complicating effects of hostility and reluctance.

This explanation seems to be consistent with some of the results reported in industrial settings (29, 38), where groups continued to show signs of high cohesiveness in behavior but restricted their output as a means of retaliating against management. A study by Schachter (45) has also suggested that under certain conditions, cohesive groups may agree to restrict their output.

In spite of the negative results, considering the tendency of the groups to be differentiated in the expected direction, further testing of the main hypothesis seems desirable. More work needs to be done on the relationship between the expression of a group characteristic in behavior and its appearance in thematic content. Systematic research should attempt to answer the question about the acceptability of a given group characteristic (in terms of society's values), the opportunity given to express this characteristic in behavior and its propensity to be projected in the Ss thematic content.

Unlike individual testing, in GPT each person's unique contribution to the story is submerged in the final "group" story. It would be interesting to note how individual stories--composed in the presence of the group--differ from group stories as such. In this way other conditions may be specified in the relationship between the group's actual characteristics and the projection of these characteristics in thematic content. These other conditions may involve certain individuals being inhibited from contributing in a typical fashion in the experimental situation; or other individuals having to make a good impression and thus dominating the creation of the final stories.

Mention was made above about the importance of the importance of the stimulus picture in throwing light on the

projective hypothesis. In addition to the selection of pictures that would be appropriate for the age and sex of the Ss, studies might well be done to specify the relationship between "picture-pull" and the propensity of the stimulus picture to evoke certain group characteristics (13).

Finally more work should be done in clarifying the relationship between formal and informal groups and their tendency to project their own characteristics under certain conditions. These latter conditions include the kind of group that is presented in the pictures.

V. SUMMARY

This experiment was concerned with the measurement of group cohesiveness by a group-projective test. The Ss were undergraduate students at the University of Massachusetts who were members of a fraternity or of a sorority. The independent variable consisted of a measure of cohesiveness based upon a sociometric questionnaire. High cohesive groups were composed of three individuals who had mutually chosen each other for the group task. Middle cohesive groups consisted of two individuals who had mutually chosen each other and a third person who had received no choices and had made no choices within the group. Low cohesive groups consisted of three people who had not chosen each other for the group task.

Each three-person team was seen individually and was instructed to make up a story for each of five pictures referred to as "Group Projection Sketches". Both reaction time and response duration were noted for each picture. Present in the experimental room were two observers who rated the groups' behavior along five components of cohesiveness; cooperation of members, goal concentration, motivational level, attractiveness of group for members, and exertion of influence among members.

Prior to leaving the room, each S filled out a

questionnaire on cohesiveness in which he indicated his satisfaction with the meeting, with the stories and their outcomes, and whether he was willing to participate in another experimental session.

The thematic stories composed by the groups were rated by two judges on 17 components of cohesiveness. These components were: (a) communication clarity; (b) goal concentration; (c) motivational level; (d) tension direction; (e) pacing level; (f) personal interdependence; (g) personal affect; (h) role differentiation; (i) in-group feeling; (j) individuality of members; (k) reality orientation on outcome; (l) organization of outcome; (m) creativity of group product; (n) group satisfaction with outcome and with the meeting; (o) achievement orientation; (p) attractiveness of the group for its members; (q) exertion of influence among members to achieve uniformity.

The major findings were as follows:

1. The sociometric method of composing groups which varied in cohesiveness was effective in producing differences in the behavior of the groups. The behavior of the high cohesive groups was rated higher than the low cohesive groups on a composite measure of cohesiveness.

2. Differences in reaction time as well as response duration to the sketches were significantly associated with differences in the specific pictures, but not in the

cohesivensss of the groups.

3. High cohesive groups tended to be more satisfied with the discussion meeting, with the stories and their outcomes, and wished to engage in a similar session more often than the low cohesive groups. However, these differences were not statistically significant.

4. No relationship was indicated between the cohesiveness of the groups and the content of their stories involving cohesiveness. However, there was a tendency for the high cohesive groups to tell stories whose content was rated higher than the low cohesive groups on the components of cohesiveness.

5. Several variables were discussed which could affect the relationship between group cohesiveness and its expression in overt behavior and in thematic content. These include the relationship of the groups to the experimenter, the groups' acceptance of the instructions, and the groups' opportunity to express its cohesiveness in overt behavior.

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APPENDIX A

Questionnaire 1

Please fill out the following questionnaire. Do not confer with anyone. If there are any questions, I will try to answer them. The answers to these questions will be used to form "three men" teams for an experiment involving group discussion. Your answers will be kept strictly confidential. Your participation in this experiment will be used to standardize a new psychological test. Hence, I should appreciate your cooperation.

1. Name _____

2. Age _____

3. Position in fraternity or sorority _____

4. Years or months membership in fraternity or sorority _____

5. Do you reside in the fraternity or sorority house _____

6. Academic major _____

7. If you were to choose eight (8) other members of the fraternity or sorority to help form a team which will take part in the experiment involving group discussion, whom would you choose? List in order of preference.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

   g. _____

   h. _____

8. Favorite leisure time activity _____

9. Favorite sport _____

10. Vocational ambition _____

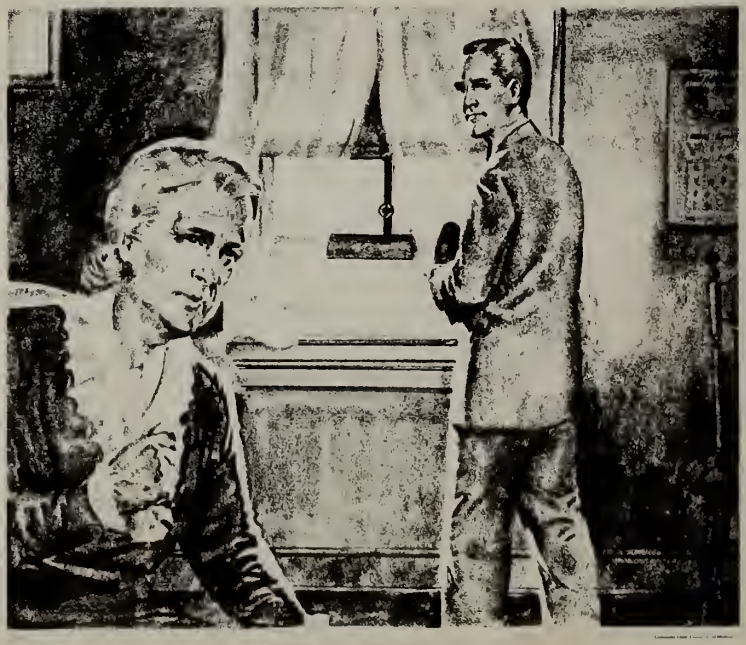
APPENDIX B

The Group Projection Sketches

SKETCH I

SKETCH II

SKETCH III



SKETCH IV

SKETCH V

APPENDIX C

Questionnaire II

1. How satisfied were you with this discussion meeting? Please rate:

1	2	3	4	5
Definitely not Satisfied	Moderately Dis-satisfied	Not Partic-ularly Satisfied or Un-satisfied	Moderately Satisfied	Highly Satisfied

2. How satisfied were you with the final stories and their outcomes? Please rate:

1	2	3	4	5
Definitely not Satisfied	Moderately Dis-satisfied	Not Partic-ularly Satisfied or Un-satisfied	Moderately Satisfied	Highly Satisfied

3. If you had the opportunity of having another session which would involve similar activity, would you like to partici-pate again? Please rate:

1	2	3	4	5
Definitely not Satisfied	Moderately Dis-satisfied	Not Partic-ularly Satisfied or Un-satisfied	Moderately Satisfied	Highly Satisfied

APPENDIX D

Rating Scales for Observers

1. Cooperation of Members

2. Goal Concentration

3. Motivational Level

4. Attractiveness of Group for Members

5. Exertion of Influence Among Members

APPENDIX E

Rating Scales of Observers

The following rating scale will be used by the two observers. Rate the groups on the following indices immediately after the session is over. Do not discuss your ratings with each other. Do the rating independently.

The following components of cohesiveness as revealed by the groups' behavior will be rated on six point scales.

1. Cooperation. This component is concerned with the extent to which the members cooperate on the group task. Rating 6 indicates a cooperative group. Rating 1 indicates a non-cooperative group. Criteria for a cooperative group are: the members support one another in the group task; there is friendliness and pleasantness of interdependence among members. The absence of antagonisms, conflicts, and opposing factions are also good criteria for a cooperative group.

2. Goal concentration. This variable deals with the extent to which the group keeps directly to the point of the group problem. Rating 6 indicates a group that sticks precisely to the problem. Rating 1 indicates a group low in concentration and frequently loses sight of the goal and spends time on tangential issues. Other indications of a high degree of goal concentration is the lack of antagonisms among the members which deflect from the purpose of the experiment. Withdrawals of members from the field (engaging in other activity), arguments over the development of the plot or ways to achieve the group story are indications of low goal concentration.

3. Motivational level. Rating is made on the basis of the amount of motivation or energy present in the group. Rating 6 indicates a group that has a high motivational level and much energy available for approaching the group problem. Rating 1 indicates a group of low energy, sluggish in its approach, a group of low tension level. The enthusiasm of the members in their approach to the task, the amount of frustration experienced by the members when the goal is temporarily blocked by arguments, other points of view, etc. indicated a high motivational level.

4. Attractiveness of group for its members. This variable is concerned with the extent to which the members are attracted to the group. Rating 1 indicates a low attraction level. Rating 6 is an index of high attraction. If the group members seem to be happy in their task, friendly in their interpersonal relations with a pleasantness of affective atmosphere--these are good indices for attractive groups.

5. Exertion of influence among members to achieve uniformity. This variable deals with the extent to which the members attempt to influence the others in obtaining a homogeneous story. Rating 1 indicates a low amount of exertion to influence. Rating 6 indicates a high amount of influence behavior. Subjects, who are enthusiastic in the influencing of other members, who attempt to harmonize differences, are engaging in a high degree of influence exerting behavior.

The following represents cues that may be useful in your ratings:

Cooperation

Rating 1--group is definitely non-cooperative and members are antagonistic and split into factions.
Rating 2--the group is moderately non-cooperative. The members are less "self-oriented" than in rating 1.
Rating 3--the group is slightly non-cooperative. Antagonisms are only slightly evident. There is a tendency toward own-need orientation.
Rating 4--the group is slightly cooperative. The tendency to support one another in the group task although not marked, is evident.
Rating 5--the group is moderately cooperative. There is a friendliness among the members as they attack the group task.
Rating 6--the group is definitely cooperative. All the members help one another toward the achievement of the goal and seem happy in their task.

Goal Concentration

Rating 1--group is definitely low in goal concentration. There are frequent withdrawals from the field. The emergence of tangential problems also leads to low goal concentration.
Rating 2--group is moderately low in goal concentration. Tangential issues are not as prominent here as in Rating 1. Antagonisms which deflect from the purpose of the group are not so pronounced.

Rating 3--group is slightly low in goal concentration. The rise of tangential issues are only slightly in evidence.
Rating 4--group is observed to be slightly high in goal concentration. A definite tendency for all the members to concentrate on the group task is evident.
Rating 5--group is moderately high in goal concentration. It sticks to the group problem and the members are quite intent in their concentration.
Rating 6--the group definitely concentrates on its problem. Side issues do not occur and a high degree of interest is shown by the members.

Motivational Level

Rating 1--the group is definitely low in motivational level. It is sluggish in its approach and is listless.
Rating 2--the group is moderately low in motivational level. It is not quite so sluggish and lacking in energy as in Rating 1.
Rating 3--the group is slightly low in motivational level. The tendency to be lacking in tension or energy is evident, although not marked.
Rating 4--the group is slightly high in motivational level. An interest in the group task is evident, although not marked.
Rating 5--the group is moderately high in motivational level. The interest in the group task is readily apparent.
Rating 6--the group is definitely high in motivational level. Much energy appears to be available in meeting its task.

Attractiveness of Group for its Members

Rating 1--indicates a group whose members are definitely not attracted to one another. They appear unfriendly and are antagonistic.
Rating 2--indicates a group moderately low in attractiveness. The members are not quite so antagonistic as in Rating 1. However, the atmosphere is definitely not friendly.
Rating 3--indicates a group slightly low in attractiveness. The tendency for unfriendliness and "strained atmosphere" is present.
Rating 4--indicates a group slightly high in attractiveness. There is a tendency for the members to be happy and friendly in their task.
Rating 5--indicates a group moderately high in attractiveness. A pleasantness of atmosphere is noted and the members appear happy and friendly.

Rating 6--indicates a group definitely high in attractiveness. The tendency to enjoy the task with a definite liking for each other is noted here.

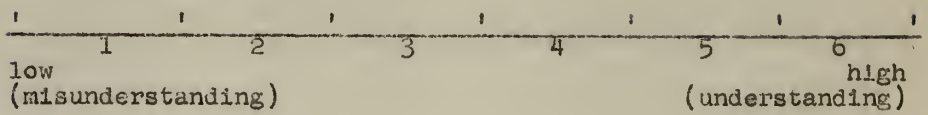
Exertion of Influence Among Members to Achieve Uniformity

Rating 1--indicates a group definitely low in influencing behavior. The members do not feel any particular need to arrive at a homogeneous story.
Rating 2--indicates a group moderately low in influencing behavior. The tendency to harmonize differences is barely perceptible.
Rating 3--indicates a group slightly low in influencing behavior. The tendency to apathy is still slightly evident.
Rating 4--indicates a group slightly high in influencing behavior. The tendency to exert influence is present although not marked.
Rating 5--indicates a group moderately high in influencing behavior. The members are intent on harmonizing differences.
Rating 6--indicates a group definitely high in influencing behavior. The members are quite enthusiastic in attempting, a harmonization of differences.

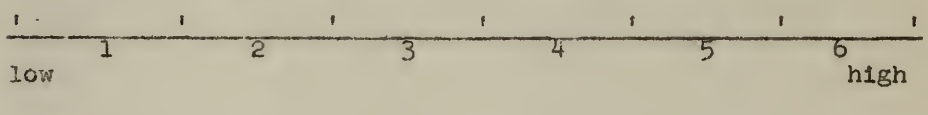
APPENDIX F

Scales for Rating Themes

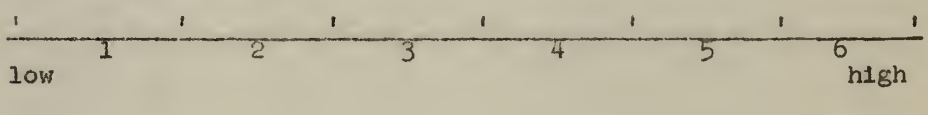
1. Communication Clarity



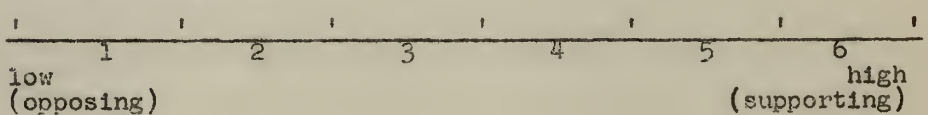
2. Goal Concentration



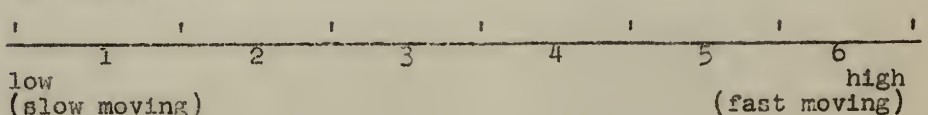
3. Motivational Level



4. Tension Direction



5. Pacing Level



6. Personal Interdependence

7. Personal Affect

8. Role Differentiation

9. In-Group Feeling

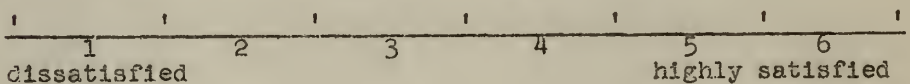
10. Individuality of Members

11. Quality of Group Product
Reality Orientation

12. Organization of Outcome

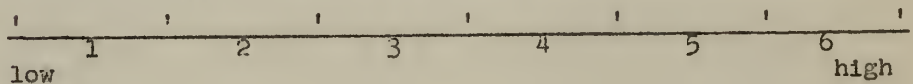
13. Creativity of Group Product

14. Group Satisfaction with Outcome and Meeting

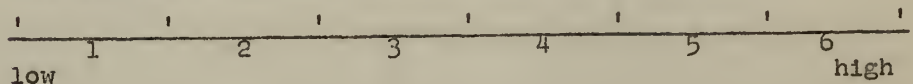


15. Achievement Orientation

16. Attractiveness of Group for Members



17. Exertion of Influence Among Members to Achieve Uniformity



APPENDIX G

Group Protocol from a Low Cohesive Group

Picture I

Executive board meeting is now in session. Man talking is trying to get fine repealed for breaking closed kitchen. In facing this tight-fisted board his chances of having the fine repealed are nil. Just as the situation looks hopeless and a vote is about to be taken, closed kitchen breaker approaches chairman of the board and reminds him of how he was caught in the commissary at two in the morning. After being reminded of this, the chairman decides the fine should be repealed because closed kitchen breaker's word is beyond reproach. Vote is taken and fine is repealed.

Picture II

Man in story wakes up and finds it a beautiful spring day. After getting up and having a big breakfast of ham and eggs, he just moved in the neighborhood and looks out the door to see what the neighborhood has to offer.

In a few moments a beautiful girl in a negligee comes over to borrow a cup of sugar. He invites the girl in to have breakfast with him.

At supper time she has to go home to cook supper for her husband without the negligee. She leaves the guy's house to go to her own home. The guy locks his doors and goes to town for a beer. When the girl gets to her house, she finds it locked and has to hide in the woods nearby until her husband returns home. Her husband gets mad and leaves her.

Picture III

Man on left, who is brother of man on right, wishes to have him throw fight the following evening, so he can collect bets and pay off old gambling debts. Night of the fight comes and kid brother cannot disgrace the rest of his family by throwing of the fight. Spurred on by the thought of his black sheep brother he wins the fight by a knock-out in the second round.

Picture IV

Old woman's son is suffering from an incurable disease known as fudgicitus. He needs fudgicles to live. Man who dislikes son has broken into the house and stolen the last fudgicle in the refrigerator. He is now in the process of escaping with the last fudgicle. The woman is heartbroken, her son will die without this fudgicle. As man is escaping through window, he slips and falls ten stories to the sidewalk below smashing himself and the fudgicle to smithereens. Son without fudgicle dies. Woman heartbroken at this fact dies also. Devoted dog dies too. Curvaceous blond who he has been sharing his fudgicles with has become addicted to the fudgicles and having no money to buy her own, dies also.

Picture V

Man telling story has, by bribing government officials, been able to procure large amounts of government surplus war materials. He has in a very shady deal been able to sell these war supplies at a very large profit. At present time he is bragging of said deal to the wonderment of two of the other persons. The man standing knows the true story of the incident and was one of the parties involved in the crooked deal. He is laughing to himself about the matter realizing that the man telling the story and bragging has actually been taken for everything. Next day story-teller will find out he has lost everything and knowing man standing is responsible sneaks up to his apartment and kills him. Story-teller is caught, brought to trial and sentenced to death.

Group Protocol from a High Cohesive Group

Picture I

The Junior Executive Committee of a large business concern in a growing industrial town, held a meeting to discuss advertising plans. They seem interested in the new idea and eager to get started on it. However, the man walking away is possibly dissatisfied and rather dubious of the entire plan.

This meeting was called to discuss the plans for organizing a public contest to promote more business. Each man represents a different department in the firm. This was done to keep the firm in the public eye and prevent "drop-off" of sales.

The idea was clever and financial outcome was successful.

Picture II

A very balmy spring day. A sense of appreciation brings this family man to the open door where he stands in complete contentment without any major worries on his hand. He finds his family well, his work financially secure and the world bright and happy.

After a hectic week in a busy city, a weekend of peace and quiet with his loving wife and two small children seems wonderful to him.

A day such as this revives and inspires his outlook on life. Monday morning will start a new week and fresh new ideas!

Picture III

Last night five boys, including the one in the picture, were driving recklessly outside the town. The police reprimanded them and talked it over with the boy's father. This is a good family of above-average income level. Family relations are good and problems are always discussed.

At this point the father having tried to reason has reached the point of anger. The boy is obviously saying "Dad, you don't get it at all, everyone does it."

The outcome of this discussion, the father has forbidden the use of the car to his son for two weeks in hope that he will realize his mistake and think twice before doing it again.

Picture IV

Junior, having been under Mother's constant care and guidance for several years since college and military service, has finally decided to break away.

He was her last son at home and the other children have gradually broken away. Quite naturally she has tried to hold him but he has finally met the "girl of his dreams" and realizes he wants his own life.

He had hoped to reason with her and explain that they would still be nearby, but she refuses to see his point so angry words have followed. Now the Mother is crying in hope that that will win him over.

It doesn't and he leaves on this note and gets married but she finally realizes that her life isn't ended, but will have a new one with the grandchildren.

Picture V

After a dinner at the home of one of these men, the four husbands are analyzing the reason their choice just lost the championship fight. The man telling his point of view is very engrossed in his idea and the two men watching are listening intently. They are all well-established business men.

Having reached a very heated point in the discussion, tempers flying, the wives return to the scene reminding them that the play starts in an hour and they don't want to lose their seats.

As in all situations like this, they return to friendly terms and their manner is jovial the rest of the evening.

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