

SOCIOGAME BEHAVIOR IN GROUPS
AND NONGROUPS

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Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF EDUCATION
May, 1970

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PREFACE

This is an empirical study of behavior of group members and of the influence of group properties on judgments made by them. It follows and extends the work of Dr. Mark K. MacNeil of the Center for Social Psychological Studies, Oklahoma State University. Dr. MacNeil's contributions to my development are myriad. He introduced me to the fascinating discipline of experimental social psychology; he provided never failing practical and theoretical guidance and assistance; and he arranged financial support for the present study. My deep indebtedness and gratitude to this distinguished scholar for his encouragement, leadership, and counsel cannot be satisfied merely by this formal acknowledgment.

I am also indebted to my other committee members for their guidance and assistance. Dr. Harry K. Brobst, Chairman, was always available for counsel, encouragement, and support. Dr. Robert T. Alciatore provided challenges and insights of great value. The intense interest and probing intellect of Dr. David Glenday have been sorely missed since his recent departure from Oklahoma State University.

This study could not have been conducted without the cooperation and assistance of personnel of the Bureau of Indian Affairs. Dr. R. Keating gave the Bureau's formal permission for the study. Dr. Leon Wall, Superintendent of Chilocco Indian School, gave freely of the experiences of his distinguished career of service to Indian youth. Mr. Jack McCarthy, Mr. Dee Gregory, and Mr. Dave Parker of the school's

counseling staff were extremely cooperative and helpful. Others cannot be named because of the nature of their role and of the information supplied, and of course, the study would have been impossible without the volunteer participation of the boys themselves. To all of those whose assistance was so indispensable and so freely given, I express my deep appreciation.

Contributions of fellow graduate students at Oklahoma State University must also be acknowledged. Miss Dorothy Pace provided a wealth of advice and assistance. Francis Claffey participated in the development and pre-testing of the baseball sociogame, and always contributed good ideas. Ron Boila, Dennis Rawlings, and Richard Hebouche assisted, with rare dedication and diligence, in various capacities as experimental assistants.

As the analysis, interpretation, and manuscript preparation took place at a distance from Oklahoma State University, I have freely sought assistance and advice from faculty members and students at Texas A and I University, and it has been freely given. Dr. John Rascoe read the manuscript and offered valuable suggestions. Miss Ana Diaz assisted in organizational tasks, and provided grammatical and editorial assistance of great worth. For their encouragement, advice, and assistance I offer my sincere gratitude.

Finally, but with more than routine emphasis, I thank my family. My wife, Emma Lou, as well as our daughters, Kathy and Lisa, offered understanding, encouragement, and sacrifice without which this task could not have been accomplished. Our son, Charles, now of International Business Machines, Incorporated, took time out from a busy schedule to help analyze the data. I am deeply indebted to all of them.

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CHAPTER I

INTRODUCTION

The purpose of this research is the experimental investigation of group member status position as a determinant of judgment of performance by individual group members under varying conditions of group solidarity. The study employs judgmental errors which occur when participants judge their own and others' performances in an unstructured task situation derived from the game of baseball. The relationships of individual and aggregate judgmental errors to pertinent aspects of group structure and group solidarity are specifically investigated. It is hoped that demonstrating these relationships will prove useful in development of a method for empirical determination of degrees of group solidarity.

Sociogame Behavior

There is a need for a new, specific term to communicate the commonalities of the large and growing number of research undertakings on which the present effort is based. These are the group behavior studies which employ systematic variations in judgment as quantifiable elements of individual behavior from which inferences are made to group related variables. Examples are found in the work of Harvey (1953); MacNeill (1967); and Sherif, Harvey, White, Hood, and Sherif (1961).

Typically, such studies are designed to elicit these behaviors through subject participation in a social stimulus situation with a

recreational or competitive context--a game. The parsimony and utility of the coined words "sociogame" and "sociodrama" to express commonalities of research methodologies in the study of social and behavioral variables provide an instructive suggestion. Based on this background, the term "sociogame" is applied herein to this and similar studies of group-related behavior.

A sociogame, then, is an experimental social stimulus situation of competitive or recreational context, employed to elicit quantifiable elements of behavior, usually judgments of stimuli of a relatively low degree of objective structure, for the purpose of studying group related behavioral variables.

Need for the Study

Studies of individual behavior occurring in a group situation apply directly to the problems and situational context of education. Common concepts relating to peer culture, adolescent cliques, and ruling ingroups have gained the professional attention of educators as the importance of student groups has been emphasized (e.g., Coleman, 1961). More recently, Jencks and Reisman (1968) have assessed the central purpose of education to be one of socialization. The overall relevance of properties of group interaction to education is further evident in current emphasis on use of group dynamics in classrooms, in group counseling and group therapy (Glanz and Hayes, 1967), and in recognition that "there is reason to believe that children learn more from one another than from their teachers" (Jencks, 1969, p. 13).

Assumptions and Delimitations

By its very nature, research involving the study of natural groups does not lend itself to large numbers, nor to broad, large population sampling techniques. The researcher must limit himself, practically, to employing pre-existing groups which are available, or he must create experimental groups. Natural groups cannot easily be equated with respect to a number of variables of experimental interest because few, if any, natural groups are identical in all ways. This limitation does not suggest foregoing the research effort, but instructs the researcher to generalize with caution.

Little group related behavior research has been done in cross cultural contexts. As far as can be determined, there has been no such research involving American Indians, the subjects of this study. During pretests of the sociogame, the need to be cautious in predicting behavior of Indians from evidence found in the study of Anglo-Americans was demonstrated. In the four groups of Indian boys in the preliminary study, judgmental error patterns were found to be significantly related to group status structure. In three groups, this relationship was direct, as expected. The fourth was a group of Navajo Indians, relatively unacculturated, and known as the local champions of "the Navajo way." In that group an inverse relationship was found between judgmental error and status position. This finding served as a reminder that some Indian tribes hold cultural values of harmony and noncompetitiveness, in which the ideal performance is one that does not reflect unfavorably on another (e.g., Wall, 1961).

The post priori interpretation was that due to a cultural ethic shared by the group members the valued (high status) performer was

equated psychologically with a valued (low) performance. This finding would be opposite to a prediction derived from equating high value with high performance. To avoid confusion resulting from such predictable reversals, groups of Navajo boys were precluded from participation in the present study.

Group norms, by definition, have greatest influence in matters of consequence to the group (Sherif and Sherif, 1956). The sociogame is one which, by subjective judgment and pretest evidence, is an important activity for these subjects. However, its relative importance to different groups and to individuals could not be specifically controlled. As a means of partial control, groups associated specifically with athletic activities of the school were excluded from participation, as were individuals known to be baseball players.

Finally, this undertaking is not a study of judgment, per se, nor of perception. Differences in perception, as inferred from judgments, in relation to different group structure properties, are the foci of this study.

Operational Definitions

High solidarity groups (H) are those aggregates of individuals who, in responses to the disguised sociogram, revealed perfect or nearly perfect reciprocities of choice. Members were observed to spend much time together in a wide range of situational involvements, and to exhibit visible evidence of group interaction and of group power over members.

Low solidarity groups (L) are those units whose members revealed a moderate number of reciprocities of choice. Members were observed to

spend some time together in a limited range of activities, and to exhibit few examples of group interaction and of group power.

Nongroups (N) are those aggregates formed by the experimenter from among individuals who revealed a total lack of reciprocal choice with others in the school complex. The individuals making up these aggregates were identified by confidential experimenter collaborators within their residence hall as being "loners."

Team is a collective term assigned to each aggregate of individuals, group and nongroup, participating in the study. This term is used herein and was used in all experimenter interaction with the subjects to avoid disclosure of experimental interest in social units.

Status is each member's differentiated position in the group structure hierarchy, operationally defined by sociogram and observer rankings. So defined, the term is not applicable to persons in the nongroup category.

The objective score in the judgment situation is the actual score obtained in the sociogame performance, determined by recording the location of hits on a target-backstop.

The judgment score is the value assigned to every discrete performance of each individual by every participating team member.

Judgmental error is the quantified judgmental departure from objective reality, obtained by subtracting the objective score from the judgment score.

Judgmental rank is the assigned position in the rank ordering of members within teams in accordance with direction and magnitude of judgmental error.

CHAPTER II

REVIEW OF THE LITERATURE

The pertinent literature may be considered under three categories. These are: (1) definitions of terms and distinctions related to them; (2) applicable theoretical considerations; and (3) selected classical and contemporary empirical research, with emphasis on studies of judgmental behavior in social stimulus situations.

Clarification of Terms

There is a pronounced tendency, in scientific as well as in everyday usage, to employ the word "group" to convey a variety of meanings. To some writers the word refers only to a collectivity of individuals, or to such a collectivity with a common interest, problem, or task. This view fails to account for the properties of groups which are highly important to the individual members. Researchers and theorists have long engaged in efforts to provide valid distinctions between common and precise usage of this term.

Cooley (1909) was among the first to attempt this distinction by the use of the term "primary group" to express the concept of "groupness." His use of the term primary group emphasized intimate face-to-face association and cooperation and the fact that such groups are primary in several senses, but chiefly in that they are fundamental in forming the social nature and ideals of the individual (Cooley, 1909).

Other terms, such as Thrasher's (1927) "gang" and Harvey's (1953) "clique," while validly conveying the concept of groupness, were not generalized to other types of group structures by social scientists because of certain unfavorable societal connotations. Faris (1953) used "small group" in the technical sense, valid from the viewpoint that many groups are indeed small. "Informal groups" (Harvey, 1954) distinguishes adequately between a voluntary association and one brought about by an external authority such as an employment situation or a classroom. MacNeil (1967) more recently employed "natural group" to distinguish the phenomenon of interest from both experimentally and authoritatively formed aggregates, and the term is useful in that sense. Other terms such as "actual groups" and "real groups" (e.g., Montgomery, 1968) are encountered.

All of these usages fail, at least in some degree, to convey the desired concept of "group" in the technical sense. For example, "primary group" implies a uniqueness, whereas individuals in society may be members of a number of groups, several or all of which may be fundamental in the sense that Cooley (1909) stated it. Other distinctions fail for general usage because group properties may evolve, to a greater or lesser degree, whenever individuals interact, regardless of the nature of their original association.

The present author will employ the single word "group" only in the technical sense, alone or with modifying adjectives which retain their ordinary meanings. In such usage, its meaning will be as defined by Sherif and Sherif (1969):

A group is a social unit consisting of a number of individuals who stand in role and status relationships to one another, stabilized in some degree at the time, and who possess a set of values or norms of their own regulating

their behavior, at least in matters of consequence to the group (p. 131).

"Conformity" and "compliance" are often encountered indiscriminantly referring to diverse agreeing behaviors under social or socially derived influences. This lack of precision increases the probability of error in interpretation of studies of behavior. The problem has recently been summarized, and the terms differentiated:

"Conformity" refers to those instances where individuals are behaving in keeping with previously internalized judgmental scales. "Compliance" refers to those instances in which individuals are pressured into behaving in a manner contrary to already established judgmental scales (Montgomery, 1968, p. 4).

Montgomery's findings support the importance of this distinction and demonstrate the differential effects of conformity and compliance situations on behavior of individuals. The internalization of group norms by individual members is the conceptual basis for viewing conforming behavior as that typical of group interaction. Compliance, on the other hand, is seen as that form of pressure-influenced agreement often associated with transitory encounters, or togetherness situations (Montgomery, 1968).

Theoretical Basis for the Study

The Sherif and Sherif (1969) definition of group cited above reflects a number of the essential properties which are of concern in this study. Interpersonal interaction, among persons functioning at a conceptual level and communicating, is basic to, but not distinctive of, group functioning. In terms of the individual member, essential group properties exist in the form of reciprocal expectancies, i.e., standardized expectations, which develop during interaction. The individual

learns what to expect from the others in behavior, viewpoints, and treatment; what to expect from himself; and what the others expect from him.

Group properties of primary interest in the present investigation are "values or norms" and "status and role relationships." These terms overlap in part, because norms are defined as standardized ways of seeing and doing things, role is the expected behavior of an individual in the scheme of established reciprocities of the group and status refers to a differentiated position in the hierarchy of group structure (Sherif and Sherif, 1956). Thus group norms operate to define the reciprocal relationships, role, and status positions of group members in an interrelated way.

The regulation of member behavior by group norms must be seen as relative. The larger social scene and the immediate situation are factors interdependent with the group as behavioral influences. Internalized group norms, however, operate with relatively greater weight in situations where the social and immediate settings offer alternatives. The rationale for such regulation of behavior is summarized by Sherif et al. (1961):

At the psychological level, then, the individual becomes a group member to the extent that he internalizes the major norms of the group, carries on the responsibilities, meets expectations for the position he occupies. As pointed out by various authors, his very identity and self conception, his sense of security become closely tied to his status and role in the group through the formation of attitudes relating to his membership and position. These attitudes may be termed "ego-attitudes" which function as constituent parts of his ego system (p. 8).

The Sherifian concepts of psychological structuring and the frame of reference are useful in communicating the theoretical constructs on which much current research, and the present undertaking, rest. Frame

of reference denotes the system of functional relations among external factors and internal factors operative at a given moment. Since humans tend to structure experience, these factors interact to the end that forms, patterns, and sequences evolve for some persons, though not for others exposed in the same way to the same stimulus situation. Structured stimulus situations set limits to alternatives. Conversely, the more unstructured the external stimulus complex, the greater the relative weight of internal factors in psychological structuring. Internal factors are not observable, and must be inferred from verbal or non-verbal behavior as it relates to the external social and/or physical stimuli (Sherif and Sherif, 1956).

The very nature of internal factors operative in the frame of reference suggests that demonstrating their operation and influence on behavior presents some difficulties. Those factors which derive from group properties, originally external to a particular group member, exist in the individual group member as "internal attitudes" which "form social reference scales for the individuals" (MacNeil, 1967, p. 4). The same author further comments on the inadequacies of direct attempts to measure these group related attitudes:

Informal, natural groups by their very nature will not appropriately respond to direct questionnaires, overtly solicited sociograms, or other obvious status measurement procedures. This is particularly true for informal groups of teen-age boys (MacNeil, 1967, p. 33).

For these reasons, indirect methods of study, under conditions that keep subjects unaware that they are taking part in an experiment on group relations, have been developed.

One such indirect method is the experimental judgment situation. Discrete elements of behavior, in the form of judgmental and perceptual

reaction to objects, persons, or events are elicited and indexed to show differential behavior in varied situations. Since the factors of interest are internal, objective structure is reduced in order to reduce the operation of external factors in the frame of reference. A number of studies employing judgmental variation in the study of groups and their effects on individual behavior appear in the following section.

The present study is concerned with the differential effects of group membership under varying degrees of group solidarity. Sherif and Sherif (1956) see solidarity as the degree of adherence to major group norms by members, and as proportional to the prevalence of distinctive group properties. Group properties include not only the norms and status structure previously discussed, but distinctive names for members and for the group itself, participatory satisfactions manifested in time spent together, and relative costs of congregating, as in overcoming obstacles. While the above observations are most instructive in forming the operational definitions for high and low solidarity groups employed in the present study, a more appropriate conceptual definition of solidarity is provided by MacNeil (1967):

Solidarity, then, is an objectively determinable attribute of groups. It reflects, and is reflected in, the individual attitudes of each group member toward other members and himself, in regard to contributitional dependability in goal attainment (p. 29).

Thus, reciprocal expectancies, which are group related internalized attitudes, and solidarity, which is also manifested in member attitudes, are closely interrelated. MacNeil (1967), speaking of expectancies, says:

They are internalized evaluations of one's own--as well as others!--probable contribution toward group goals. Since these expectancies place each member in regard to his expected contribution toward the attainment of group goals, they

predetermine, to a great extent, the relative weight of each member's contribution. Such expectancies are the sine qua non of group structure (p. 5).

These member expectancies, then, which are standardized in interaction and which are group properties existing within each individual as internalized attitudes toward self and other members, are the conceptual basis for the present undertaking. Based on a postulation of the influence of these internal factors, it is anticipated that errors in judgment elicited in a controlled social stimulus situation are systematically related to status within group, from which these factors derive, and to group solidarity, which influences the relative weight of these factors as behavioral antecedents. This view implies generalization of the value (status) of each performer to the valuing (judgment) of his performance. In the lay terminology of Combs and Snygg (1959), the adage "seeing is believing" becomes instead "believing is seeing."

Results of Empirical Studies

Whyte (1943) conducted an extensive field study of street gangs, and his astute observations and analyses have become the classical antecedents of many studies treating social influence and expectation as behavioral variables. He observed that group activities are usually initiated by high status members, that they tend to select activities and emphasize interests in which they excel, and that therefore they enjoy a generalized reputation or expectation that they are good at everything. An example arose when the group became interested in bowling. Whyte observed that low status members, though good bowlers in other situations, bowled poorly with the group, thus adjusting their performance to meet the expectations of their fellow group members.

Though judgment of performance was not directly involved in this highly structured situation, this observation does reveal the existence of a relatively stable set of expectations which tend to generalize from performance to status and back to performance in other situations.

An early, and also classical, demonstration that subjects could be persuaded to alter their judgments under the influence of social pressure in the form of a planted majority was provided by Asch (1955). Adult subjects judged relative lengths of straight lines in comparison with a standard line provided. Of present interest is the finding that when stimulus structure was reduced, the operation of social influence as a factor in judgmental behavior was enhanced.

Early studies of status relations and other group properties through judgmental behavior focused on predictions of future performance. As an example, Harvey (1953) identified and determined the status structure of adolescent male cliques. Subjects were the highest, lowest, and a middle status member from each of 10 such groups. They estimated the scores one another would make in a game involving throwing darts at a scoring board. Harvey found that the higher the status of the performer, the greater the tendency of other members to overestimate his future performance. The lower the status of the performer, the less was the tendency to overestimate, even to the point of underestimation. Harvey's 1953 study provides empirical evidence of the effect of group members' status position on performance expectancies.

Moving methodologically from status position as a determinant of expected future performance, investigators employing sociogame techniques began studying group properties in relation to judgments of completed and observed events. In the "bean toss" experiment (Sherif

et al., 1961), members of competing groups collected beans in a contest. Subjects then judged numerosity of beans they thought were collected by themselves--actually a substitute, standard stimulus. This experiment demonstrated differential judgmental behavior in relation to performance attributed to ingroup members and that attributed to outgroup members.

Harvey (1954) incorporated this dimension of social distance into another sociogame. Subjects were natural groups of college girls who judged each others' performances under distraction--writing place names while listening to unrelated recorded texts. The systematically varied situation included the presence of friendly outgroups as one treatment variable, and of hostile outgroups as another. Findings were that over-estimation of ingroup members' performances was increased in the presence of hostile outgroups, but was not increased in the presence of friendly outgroups. Harvey interpreted this differential behavior as heightened group solidarity in the presence of negatively related others. He also reported positive correlations between judgmental error and status within groups, which increased in the presence of the hostile outgroups.

The direct empirical antecedent of the present study is an investigation by Sherif et al. (1961) as a part of the classic Robbers Cave Experiment. Subjects were experimentally formed groups of boys who threw handballs at covered--reduced structure--targets and judged one another's performances. Direction and magnitude of judgmental error were directly related to status within groups, and there were "indications that the relationship . . . is closer in the group of greater solidarity" (p. 19). Although solidarity of groups was not specifically studied, the authors did point out the "necessity of systematic concern

with the degree of group structure and solidarity as a variable in small group studies" (p. 20). They further suggested some design features and a hypothesis for such a study:

At one extreme, subjects will be complete strangers; at the other extreme, subjects will be members of highly structured groups. The hypothesis to be tested is that judgments will be more a function of actual performance in the task in the case of the strangers, and progressively more a function of existing status relations and less of skill with the increasing degrees of stability of group structure (Sherif et al., 1961, p. 20).

Solidarity as a variable in small group studies employing judgmental behavior was introduced by MacNeil (1967). He studied the relative power of high and low status members in norm formation in groups of high and low solidarity. He used a counterbalanced design requiring one key member at a time to participate as "experienced" while the group as a whole formulated standardized judgments of novel stimuli. For this purpose, there was a need for two distinct stimulus situations in which to elicit quantifiable variations in judgmental behavior. For one such situation, he used the classic autokinetic; for the other he developed a situation wherein subjects judged numerosity of shot holes in a target spuriously attributed to group members' performance with a shotgun.

In both MacNeil's experimental judgment situations, the "experienced" member had actually been indoctrinated with an arbitrary norm. His previous participation was in a training session wherein collaborators of the experimenter gave prescribed judgments. In the experimental sessions, the degree of acceptance of the indoctrinated member's judgments as a basis for the forming group norm served as an index of relative power of that status position. MacNeil found that all indoctrinated members exerted some influence, since they were accepted

as experienced in the task. In the high solidarity groups, the high status member had greatest influence; the low status position had least of all. In the low solidarity groups, influences by high and low status positions were both intermediate and undifferentiated. These findings demonstrated that degree of solidarity of the group is a factor in the relative power of occupants of particular status positions, and confirms that solidarity is a variable to be considered in studies of group related behavior.

The empirical antecedents of this study have been summarized in this chapter. Variation in judgment, which has evolved as an accepted experimental approach in determining the effect of social factors on individual behavior, is common to all of these studies. The following empirical findings have been set forth:

1. Group members, unconsciously, make adjustments in their group related performances in relation to the expectations of the other members (Whyte, 1943).

2. Social factors operate with greater influence as behavioral determinants when there is reduced objective structure in the physical properties of the stimulus situation (Asch, 1955).

3. Group members' estimates of each others' future performances elicit errors which are systematically related to status position within the group (Harvey, 1953).

4. Members of experimentally formed groups, judging stimuli attributed to group members' performance in an intergroup competitive situation, make errors which are related to group identity (Sherif et al., 1961).

5. Members' judgmental behavior in a sociogame varies with fluctuations in group solidarity, when the degree of solidarity is operationally defined and manipulated as presence of friendly and hostile outgroups (Harvey, 1954).

6. Judgmental variation is related to status position in sociogame behavior of members of experimentally formed groups. Differences in group solidarity appear to be a factor in the strength of the relationship (Sherif et al., 1961).

7. The power of a member's influence in group norm formation is a joint function of the status position which he occupies within the group and group solidarity (MacNeil, 1967).

The exact relationships between judgmental variation and status in natural groups, between self and group judgments of the same performance event, and between judgments and skill have not been fully investigated. The variation in strength of association among these variables with differing degrees of natural group solidarity has not been established. The purpose of the present study is to conduct an empirical investigation of these relationships.

CHAPTER III

PROBLEMS AND HYPOTHESES

The exact relationships among judgmental variation, within-group status position, skill of performer, and comparison of individual judgments to those of the group as a whole have not been fully explored. The report on the bean toss sociogame (Sherif et al., 1961), concentrated on group aspects, omitting details of individual behavioral variations of present interest. Accounts of the handball sociogame did comment on correlations of individual and group judgments, and on a relationship between judgmental error and skill. The strength of both relationships seemed to vary with indications of group stability and solidarity (Sherif et al., 1961). However, these studies dealt with two experimentally formed groups, and this work has not been replicated with natural groups. Other investigations have dealt with expectations of future performance (Harvey, 1953) and with experimental manipulation of solidarity, which was operationally defined in terms of social distance (Harvey, 1954).

The purpose of this research was the study of the relationship of group solidarity to patterns of judgmental error which occur when members of various aggregates judge their own and each others' performances in a sociogame situation. A primary interest was the relationship between sociogame behavior and status position within groups. The degree of agreement between group judgments of each member's displayed

skill and that member's self judgment of the same event was specifically investigated, as was the relationship of judgments rendered to actual skill of each member. All these relationships were studied under varying conditions of group solidarity.

The problem of eliciting judgmental behavior from the subjects was approached with cognizance of specific methodological requirements. These requirements included an appearance of realism in the activity, a reasonably high importance of the activity to the participants, and control of objective reality. Control of objective reality included presenting a low level of objective structure to the subjects in the judged stimulus situation and providing the researcher a means of determining the actual performance of each subject.

Subjects were asked to judge each others' performances in throwing a baseball at a target. Realism derived from similarity of the performance and judgment tasks to the functions of the pitcher and umpire in baseball. Importance derived from the popularity of the game of baseball with most boys. The nature of the target--the regulation strike zone of baseball without visible (to subjects) scoring aids--provided a low level of objective structure, and assured judgmental errors. Determining the actual performance of each subject was achieved by recording the obtained scores by two scorers located next to, and on opposite sides of, the target.

The Specific Problems Investigated

When members of teams composed of high solidarity groups (H), low solidarity groups (L), and nongroup aggregates (N) judge their own and their fellow team members' performances in a baseball sociogame, errors

occur. The patterns of such errors were investigated in relation to the following specific problems:

1. With respect to high and low solidarity groups (H and L), what is the relationship between judgmental rank and status position under the differing conditions of solidarity?

2. What is the relationship between members' judgments of their own performances and others' judgments of the same events under the differing conditions of solidarity?

3. What is the relationship between accuracy of judgment and the differing conditions of solidarity?

It is postulated that the sociogame behavior of individuals is systematically related to relevant properties of groups to which they belong, and that solidarity of groups is a factor in the strength of such relationships.

Hypotheses

On the basis of experimental findings and theoretical formulations briefly summarized in the previous pages, the following hypotheses were advanced concerning the relationships of sociogame behaviors to prevalence of specified group properties:

1. There is a direct relationship between status position and judgmental rank, the strength of which varies directly with group solidarity (H > L).

2. The degree of agreement between self judgment and team judgment of the same performance varies directly with group solidarity (H > L > N).

3. Judgmental accuracy varies inversely with group solidarity (N > L > H).

The basis of the above hypotheses is the view that the group norm which defines the status position of each member interferes with objective evaluations of members' performances. To the extent that it exists, such a norm is reflected in standardized expectations of member contribution in group activities. Since the norm is both more clearly defined and of greater importance in more solid groups, this factor should operate to the end that judgments are more closely related to actual performance in the nongroup aggregates, and progressively more closely related to existing status positions, and less to skill, with increasing degrees of group solidarity.

It is further postulated that, to the extent that each member has internalized the group view of his own status position, such acceptance is reflected in higher agreement between his own judgments of himself and his fellows' judgments of him. This principle operates to produce a closer agreement between self judgments and team judgments with increasing degrees of group solidarity.

CHAPTER IV

METHOD AND PROCEDURE

The locale of this study was a coeducational boarding school operated by the United States Bureau of Indian Affairs for eligible Native Americans. The student body numbers about 1,000 members in grades 9 through 12, representing some 95 ethnic identities--Indian tribes and the various Alaskan entities--from some 35 states. Eligibility for admission to the school includes factors of ethnic identity, geographic isolation of the home, poor quality of the home environment, and inability to adjust in integrated, i.e., Anglo-American, schools. The boarding school is a campus community in a rural area of north central Oklahoma, effectively isolated from surrounding towns and other attractions. These factors combine to enhance the value of informal social life among the students, and provide opportunities for frequent and recurrent observation and study of group related behavior. In addition, the researcher enjoyed a special relationship with the students and staff of the school¹--one which gave him and his assistants a plausible reason to be in the school area, and provided excellent cover for both formal and informal observations.

¹Project Vision was an ongoing contract under which Oklahoma State University provided, among other services, informal information about higher education to students of the Indian school. The program sponsored reciprocal home and school visits between the Indian youth and college student volunteers. The researcher was employed part time by the University as Project Supervisor.

In the fall of 1967, a preliminary study by the present investigator elicited the informal social structure of a residential complex of the school. Some 350 tenth, eleventh, and twelfth grade males were tested by use of a disguised sociogram (Appendix A). The instrument, in the guise of a Civil Defense Planning Questionnaire, elicits sociometric information purportedly for use in forming teams of boys for emergency assistance in event of natural or other disaster.² From the sociometric information obtained, 35 groups were identified (Pace and Davis, 1969). Further studies, including pretest of the sociogram, provided validating information, confirming inferences about group solidarity apparent from analysis of the disguised sociogram. Extensive subsequent contacts by the researcher, continued nonparticipatory observation by a trained research assistant, and information provided by collaborators within the dormitory, further validated the sociometric findings.

Subject Selection and Classification

In a final preliminary phase, the disguised sociogram was readministered in March, 1969, under the pretext of studying ways of doing Civil Defense planning. Results were used to confirm membership, solidarity, and status structure of groups under observation, and as an objective basis for final subject selection and classification. Teams were selected which were readily classifiable as high solidarity (H) or

²The Civil Defense Planning Questionnaire was developed for use as a disguised sociogramming instrument by M. K. MacNeil and Dorothy Pace, now of the Center for Social Psychological Studies, Oklahoma State University. A modification of the instrument has been developed for use with female subjects.

low solidarity (L) groups, or as nongroup (N) aggregates, according to the operational definitions stated in Chapter I. In addition, teams used were of mixed tribal identity, and not especially associated in the minds of the subjects with athletics. These restrictions were employed to distribute the effects of particular tribal norms, and to avoid extremes of variation in the importance of the activity to the different participating groups.

Two high solidarity groups, two low solidarity groups, and two aggregates of nongroup individuals were selected to participate, as teams, in the baseball sociogame.

Subjects were kept unaware that their social relationships were being studied. Group observations were carried out under an appropriate cover as stated above, and cooperation in the sociogame was obtained under a guise. The rationale for the study was an expressed interest in how well persons formed into a team for one purpose (emergency Civil Defense work) could function together, and evaluate each other's performances, in a totally different situational involvement. Subjects participated voluntarily, and their presence at the desired time was assured by the offer of a 20-ounce T-bone steak per person, which was served at a cookout immediately following completion of the sociogame.

Teams were designated by color to avoid connotations of hierarchy or other interpretation that might derive from numbering, lettering, or use of a group's own or a fictitious name. High solidarity groups were designated the Red and Orange teams, low solidarity groups were called Blue and Green, and nongroups became the Gold and Silver teams. The objective basis for classification of teams according to degree of reciprocity of sociometric choice is summarized in Table I.

TABLE I
RECIPROCITY OF CHOICE BY TEAM AND SOLIDARITY CATEGORY

Category	Team	Group N	Total Team Sociometric Choices R E C I P I E N T S		
			Ingroup	Other Students	All Others
High Solidarity	Red	6	80	0	5
	Orange	8	94	1	4
Low Solidarity	Blue	6	24	17	19
	Green	6	16	14	4
Non- groups	Gold	6	0	11	16
	Silver	5	0	13	22

The social structure of the six teams, abstracted from all sociometric information obtained, is presented below. Identity of students, referred to herein by numerical code, remains in the confidential possession of the author.

High Solidarity Groups (H)

The Red Team (Figure 1) was formed from a group of mixed ethnic identity--two Poncas, two Colvilles, one Cheyenne, and one Eskimo. The five members who completed the disguised sociogram gave a total of 80 sociometric choices revealing preference and value for one another, as opposed to no such choices for other members of the student body. One member offered the name of five friends back home, but he clearly labeled them as not applicable to the present school setting.

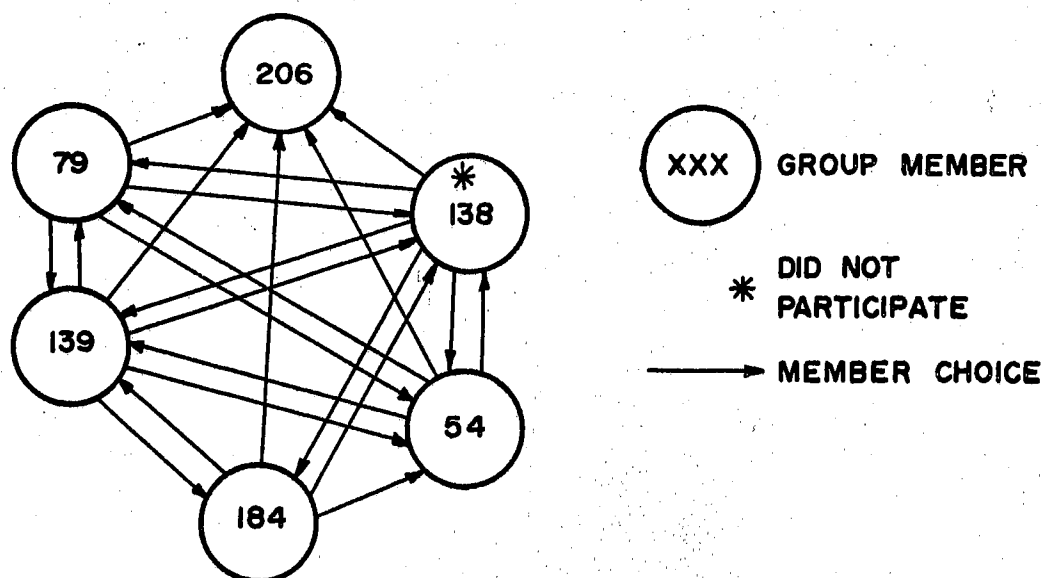


Figure 1. Red Team - Sociometric Group Structure

These boy's informal associations were repeatedly observed to be with each other almost exclusively. Although a group name and private nicknames--common products of group interaction--were absent, every experimenter association with this group revealed the existence of private jokes, hidden meanings, and similar indications of solidarity. Group power was evident from the ability and willingness of certain members to bind the group as a whole to specific commitments. Group differentiation from others was well established, as the existence of this social unit, and its membership, were widely known on the school campus. Five members took part in the sociogame, as one member was away from school on a family emergency.

The Orange Team (Figure 2), also classified as a high solidarity group, was composed of eight members--one each Navajo, Kiowa, Sac and Fox, Crow, Ute, Sioux, Iowa, and Blackfoot. Seven members responded to

the sociogram and participated in the sociogame, the eighth having been recently expelled from school. Sociometric responses of the seven named these members 94 times, and other individuals five times, only one of whom was present in the school. In addition, the group name was given by five members as substitute for individual names in response to items relating to preference or value. No other respondent used that name in the sociogram, although it was widely used on campus to differentiate this specific social unit.

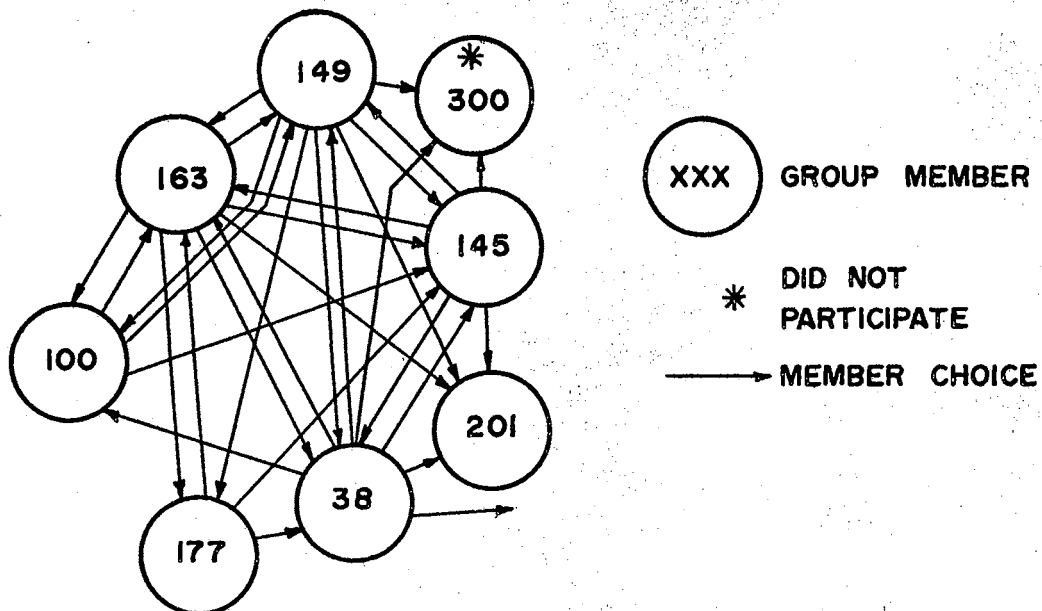


Figure 2. Orange Team - Sociometric Group Structure

This group spent most of their free time together, and exercised a kind of exclusive territorial right over a chosen table in the school dining hall. Group power over members was evident in the process of

decision making relative to participation. Reluctant members were overruled by their leaders, who gave assurance that "We're a bunch--and we'll all be there." And they were.

Low Solidarity Groups (L)

The Blue Team (Figure 3) was formed from a low solidarity group of six members of Alaskan origin and mixed ethnic identity--three Athabascans, one Andian, and two Eskimos. The five members who responded to the disguised sociogram gave a total of 60 sociometric choices--24 to each other; 17 to other students of the school; and 19 to friends at other places. This pattern of choices meets the criteria for a distinct reciprocity of choice, but neither exclusive nor approaching unanimity.

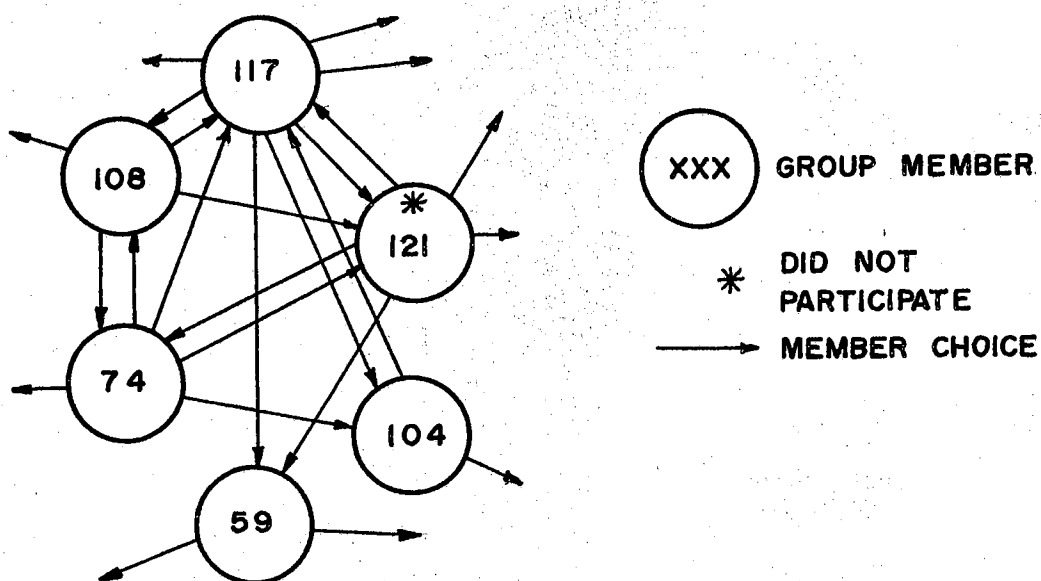


Figure 3. Blue Team - Sociometric Group Structure

Although these boys were observed together only occasionally, as is characteristic of low solidarity groups, they were reported to form "bull sessions" together in the dormitory on a regular basis--a limited range of situational involvement. They were not readily identifiable by other students as members of a social unit, they had no observable special names or other products of interaction, and no element would even try to speak for the group as a whole in making commitments. Five members of this group participated in the sociogame. The other member was available, but declined, and neither the researcher nor group pressure was effective in securing his cooperation.

The Green Team (Figure 4) was the other entry in the low solidarity category. It consisted of five members identified by sociogram and one who, new to the school, joined the group later. The tribal composition was two Poncas and one each Wichita, Athabascan, Shawnee-Wyandotte, and Alaskan. Cumulative sociometric choices were 16 to the ingroup, 14 to other students, and 4 to friends back home. Two members of this group, with whom the researcher maintained a close association, gave regular access to the group for observation. They often assembled in the early evening, as did many of the students, in the school's parklike commons. There, as one member stated their activity, they "never did anything--just sat around, smoked cigarettes, and told each other lies."

Informers confirmed that the regular activities of the group, as a group, were limited to the observed public gatherings. Again, no element could speak for the group as a whole. One member, after earlier agreement, refused to participate in the sociogame. The group volunteered to fetch him to the scene of the activity, but was unable to do so.

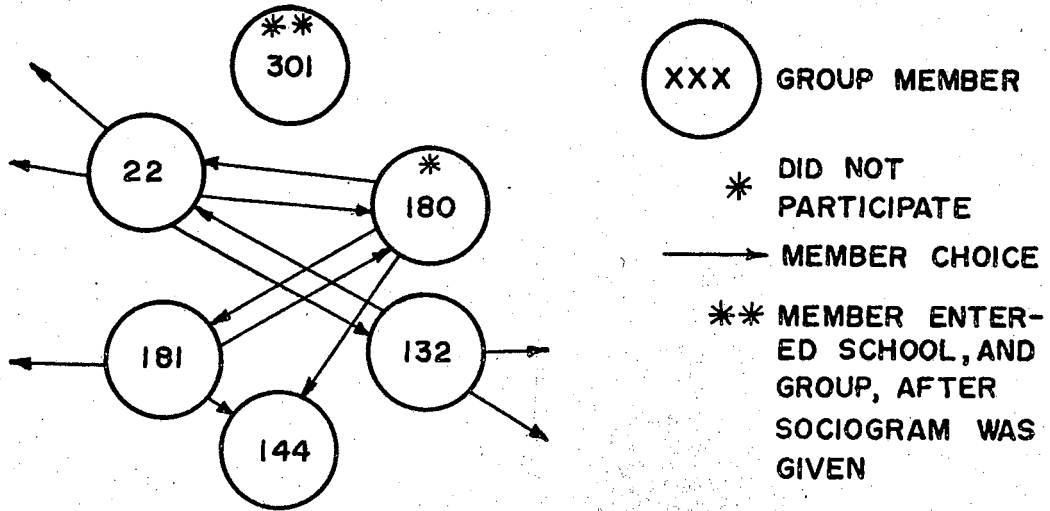


Figure 4. Green Team - Sociometric Group Structure

Nongroup Aggregates (N)

The Gold Team and Silver Team, five members each, were formed by the experimenter from among individuals whose sociogram responses revealed a total lack of reciprocities with each other, and no close ties with any other group. Ideally, such subjects would be total strangers to each other--an ideal that could not be realized without including subjects from another population, thus injecting other variables into the design. Since observer contact with a number of individuals is necessarily limited, confirmation of assignment to this category was provided by experimenter collaborators from within their dormitory complex. In each instance, such sources confirmed that each candidate for the nongroup category was indeed a "loner." Care was taken not to bring these subjects together or to inform them of their

assignment prematurely, lest association and perceived goals promote an incipient group. In assignment to teams, maximum separation of tribal identity and of area of origin was maintained.

Status Determination

Information relative to the status position of each member within his group was accumulated during all of the group identification and solidarity measurements previously related. Indications of interpersonal value, effective initiative, and power were apparent from the first sociogramming study. These indications of status structure were validated in subsequent studies, as previously reported. Accordingly, the responses to the readministered sociogram were reduced to rank order and weighted by factors of 4, 3, 2, 1, ..., 1 for first, second, third, and successive choices to provide a group status hierarchy.

Following corroboration, by observation of groups, of sociometrically determined status structure, positions were changed only in response to compelling evidence of status shifts. One such instance of change during observation occurred when a new member joined the group which was to become the low solidarity Green Team (Figure 4). The new member (301) repeatedly demonstrated effective initiative in the solution of problems, including those contrived by the researcher. An example was in the division of treats deliberately provided in inappropriate amounts--too few cigarettes, too many candy bars, too little money for cokes. These observations, over time, justified placing number 301 in the highest status position within the group.

Another major status shift of interest involved member 149 of the group which comprised the high solidarity Orange Team (Figure 2). A

collaborator close to the group reported that the previously designated high middle status member had moved into the highest status position over a period of three to four weeks. As final arrangements for the sociogame were being made, the researcher undertook to verify the reported shift. In discussing schedules and other arrangements with this group the researcher deliberately created and posed problems requiring group views and group decisions. In a number of such cases, member 149 made, or was deferred to in making, final group decisions. It was he who effectively committed the group to participation, overriding reluctant members. On the basis of this evidence, his designated status position was revised upward.

Other instructive patterns of interaction involved who effectively initiates group activities, whose ideas are valued, and similar behavioral observations. Abstracts from group status studies at initial, intermediate, and final stages are shown in Figures 5 and 6.

Apparatus

The baseball sociogame was a modification of the handball throw used by Sherif et al. (1961). The target used in the present study was the highest unstructured strike zone of regulation baseball, with only a standard home plate as a reference point for the subjects. The padded backstop was oversized--seven by nine feet--so that it would not provide precise aiming or judgmental anchorages. Scoring areas, faintly marked on the backstop, were visible to objective scorers (experimental assistants), but not to team members (subjects). Scores assigned for hits in various areas on or near the target were weighted according to their functional value in baseball. The greatest value was given to pitches

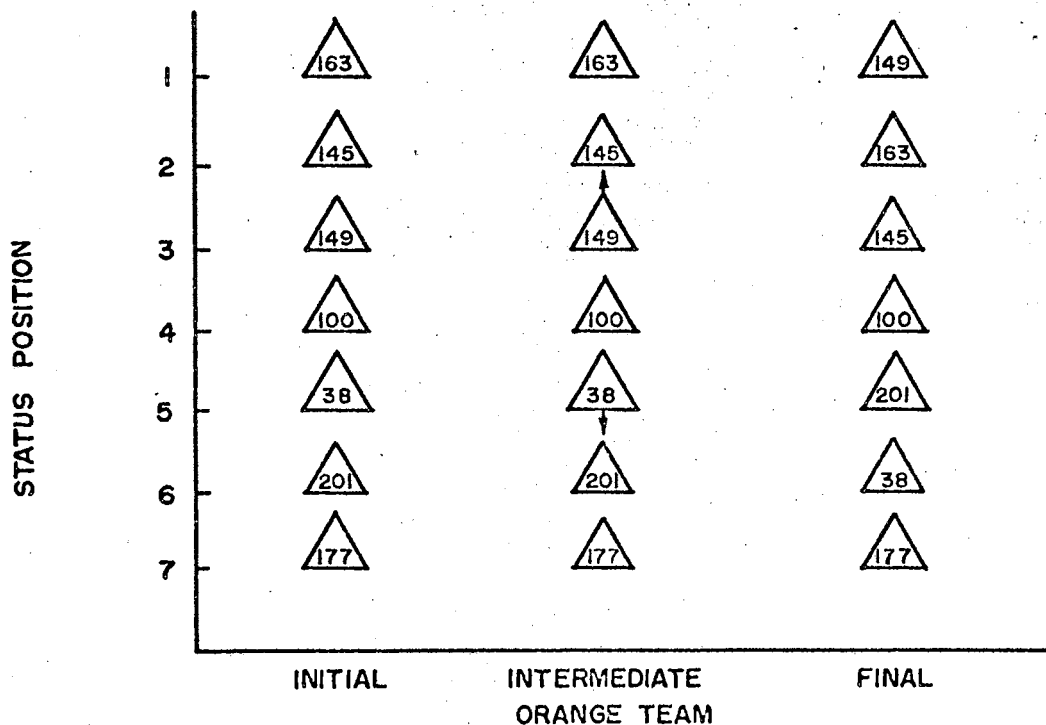
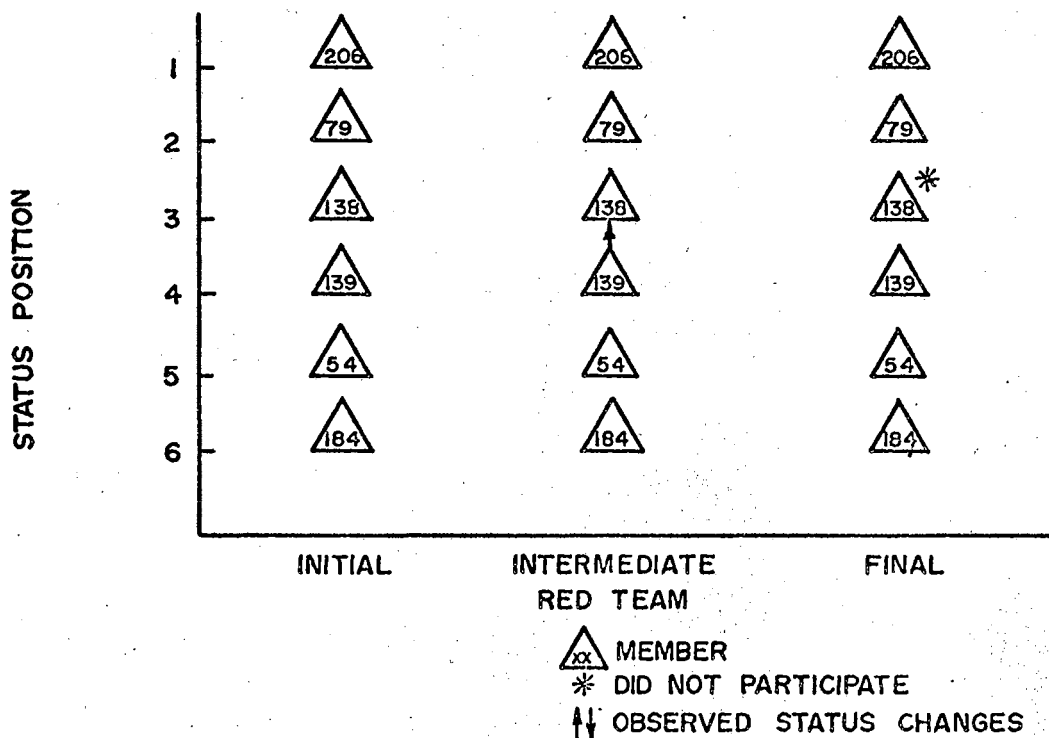


Figure 5. Status Determination in High Solidarity Groups at Three Stages of Observation

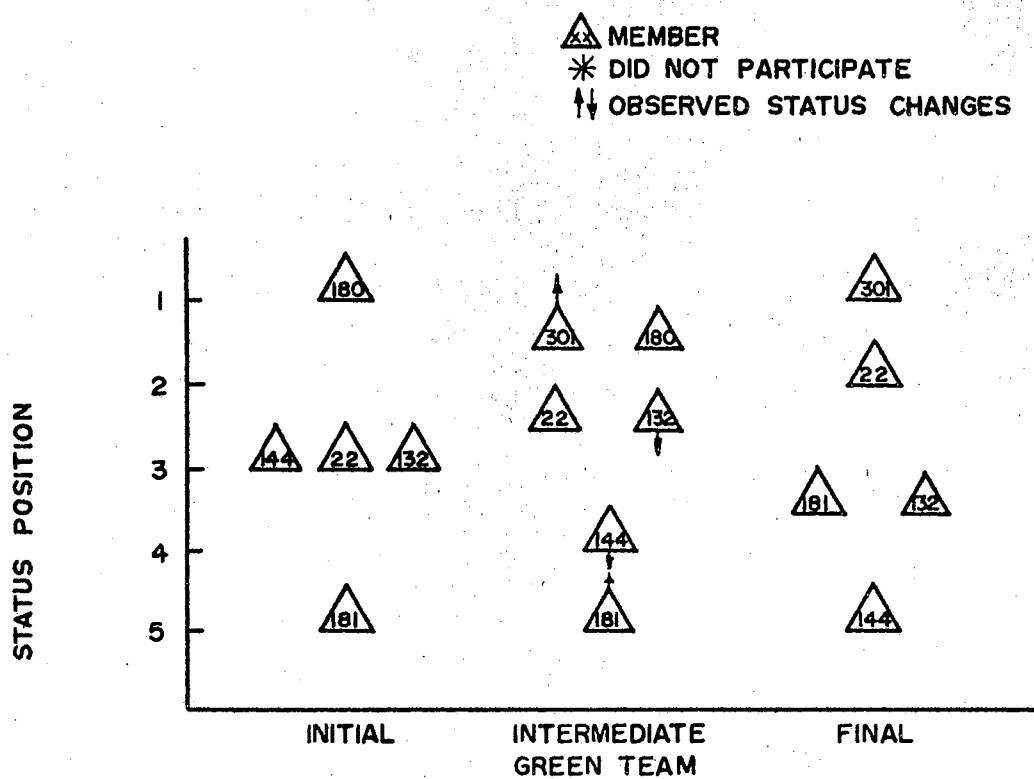
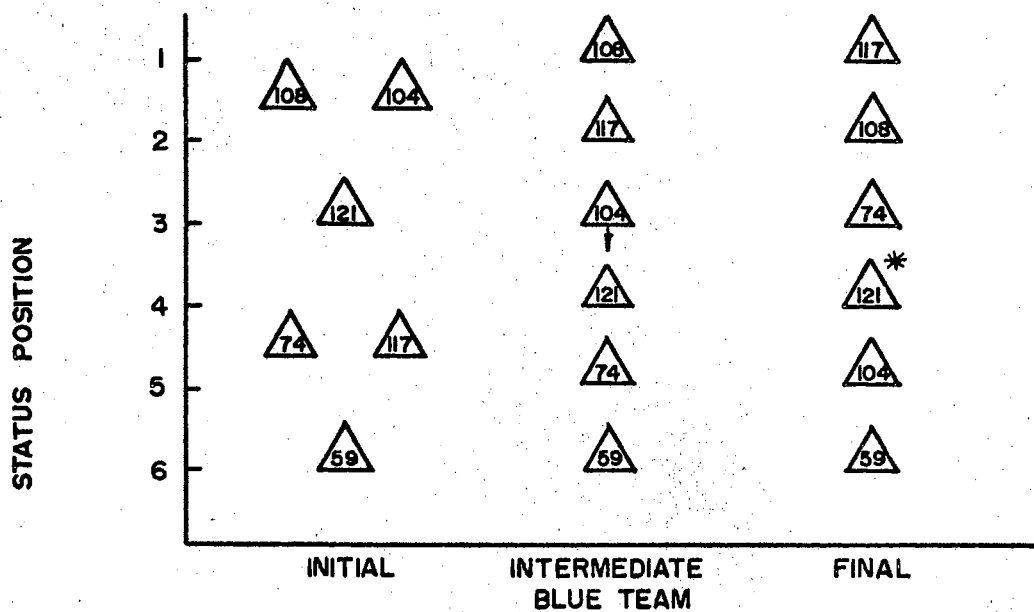


Figure 6. Status Determination in Low Solidarity Groups at Three Stages of Observation

in the corner or on the edge of the strike zone; next greatest to other strikes; a small value to hits near the strike zone; and zero to all others. These scoring areas, and the dimensions for them, are diagrammed in Figure 7.

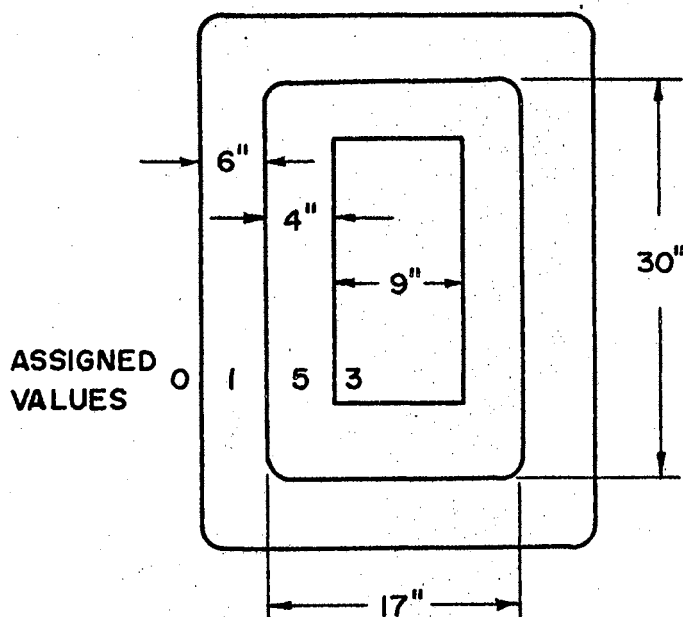


Figure 7. Baseball Sociogame-Backstop

The physical layout of the sociogame is shown in Figure 8. An indoor location, in a gymnasium, was selected to permit standardized light conditions, and to avoid interference by weather. A dozen baseballs were provided so that ball retrieval occurred only during normal breaks in the activity, as in rotation of performers.

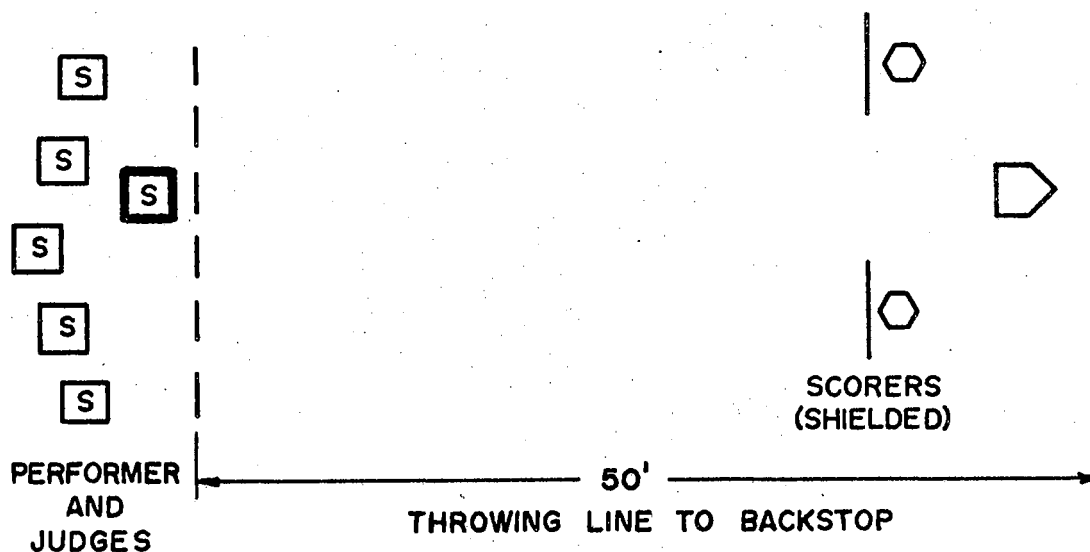


Figure 8. Baseball Sociogame-Physical Layout

Experimental Procedure

The sociogame was conducted so that only one team at a time participated, with no other teams or spectators present. Care was taken that no team arrive before the preceding team had finished. Each team was given treats after its participation--in another area under the experimenter's control--so that its members could not mingle with subjects awaiting their turn. These precautions were considered necessary because of the findings of Harvey (1954), who demonstrated differential judgmental behavior by group members in the presence of different outgroups.

Upon arrival of each team, in turn, the researcher explained the "purpose" of the activity. He told them:

Fellows, you all know what I am studying--you've all helped me with my interests before; some of you twice now.

I'm studying ways of doing Civil Defense planning, forming teams of boys who can get an emergency job done when all else breaks down. That was my basis for forming this team. You possess, together, all the knowledge and skills required; you have the ability to see after yourselves; and you can function in that capacity any time you might be needed. And you know each other well. ~~Last sentence was omitted when addressing Gold and Silver (N) Teams.~~ There's no doubt that you are a good and effective Civil Defense unit, I don't have to wait for a tornado or something to tear up the countryside to know that.

But my interest now is to learn how well teams formed for one purpose can function together in a completely different situation. And I can't think of any situation more completely different from a tornado disaster than a game of baseball. So that is what we are going to be doing today. Now you know that there are two aspects to any job or activity where you work with others--doing your own job, and knowing whether or how well the other fellow is doing his. So that's what you are going to do--take turns throwing for a score, and scoring yourself and each other. I know you can't see the scoring areas from where you will be, but that's a lot the way any job is--you have to size up what the other fellow is doing, but mostly by guess.

Fellows, I really appreciate your doing this. And just one other thing. Please do your best, in throwing and in scoring. You've all helped me before, and the main reason you are here--and invited to the steak dinner tonight--is that I know I can count on you.

The team was then given necessary instructions for carrying out the sociogame. The experimenter explained the scoring areas and gave instructions for recording and collecting the judgmental scores. Performers were allowed a limited number of warmup throws initially, but recorded trials consisted of consecutive pitches.

Each member, in turn, made five pitches after each of which he and his fellow team members judged and recorded a score. After each member had thrown five balls the throwing order was changed and each made five more pitches. Data were based on ten scorable pitches made by each team member. Misses which were obvious to the experimenter and which he determined would probably not allow subjects to err in judgment were

ruled "no pitch" by the researcher, and the ball was thrown again.

Objective scores were recorded independently by two experimental assistants on master scorecards, with each entry being identified by name of performer, number of the throw, and value. Judgment scores, similarly identified, were collected by the experimenter from each subject after each five pitches. With final results based on ten pitches by each member, total judgments equaled $10N^2$ for each team.

Immediately upon conclusion of the sociogame, the situational sociogram (Appendix B) was administered to those teams which were, in fact, groups. This instrument, designed and pretested for this purpose, relates to the ongoing activities of the sociogame. It includes requests for verbal judgments summarizing the completed performances for use in making comparisons which may be of interest. Responses also relate to solidarity, membership, and status structure, and were used as a final confirmation of these attributes.

CHAPTER V

RESULTS

The concept of status, as employed in this research, required measurement of judgments of performance made by persons who have varying degrees of established social relationships. In groups, the members of which possess normatively derived reciprocal expectancies developed over extended periods of goal directed interpersonal interactions, it was pointed out that such expectancies, to a great extent, dominate individuals' perception of performance. Normative expectancies related to group status structure operate as weighty internal attitudinal factors in each member's psychological structuring of related events. Judgments of performances in situations of less than compelling objective structure are systematically displaced, away from objectively valid performance scores, toward scores directly reflecting status rank. The degree of such displacement was seen as a means of determining the relative solidarity of groups concerned.

The empirical test of these concepts required a quantifiable measure of judgmental error and an operational determination of solidarity of participating groups. The raw data were judgments rendered in response to hits by a thrown baseball on an unmarked (to the subjects) target.

Subjects were 32 members of six treatment groups, with each group in one of three solidarity categories. Of primary interest were the

direction and magnitude of judgmental errors which occur, and the relationships thereof to the specified group properties of status and solidarity.

After determination of group status and structure by empirical study, participating teams were formed of aggregates classified as high solidarity groups (H), low solidarity groups (L), and nongroups (N). Members of each team recorded their judgments of their own and of fellow team members' performances in the baseball sociogame. Each member took two turns, each turn consisting of five consecutive pitches. Each participant gave from 50 to 70 judgments, depending on the number of participants on his team.

A true score, or actual value of each pitch, was needed to establish the existence and nature of judgmental errors. Objective scores were recorded separately by two experimental assistants. The reliability coefficient of the scores recorded by the two assistants was .82 ($N = 320$). Discrepancies in the objectively determined recorded scores were attributed to hits on a scoring line, and recorded as the average of the two values.

The complete matrix of objective and judgmental scores for every subject is presented, by team, in Appendix C. All judgments were considered valid except those of member 69 of the Gold Team (N). This member visibly failed to cooperate in the judgment task, and his recorded results revealed a near total lack of discrimination. For these reasons, the performance and responses of this subject were excluded from all analyses of the data.

The data produced in this study were based on ordinal measures (ranks) and did not meet the assumptions underlying the use of

parametric expressions of degrees of association such as Pearson product moment coefficient of correlation (r). Spearman rank order correlations (r_s) were therefore used. Guilford (1965) states "We may . . . treat an obtained rho [r_s] as an approximation to r " (p. 307). The patterns of findings among solidarity categories were tested by assuming r_s to be an approximation of Pearson r , transforming the observed values to z' , and calculating the k -sample test of homogeneity of correlation coefficients, or the test of significance of difference between two r 's, as appropriate (Edwards, 1960). One-tailed tests of significance, based on directional hypotheses, were used in all instances.

Judgmental Rank and Status

Hypothesis 1 states that a direct relationship exists between status position within group and judgmental rank, the strength of which varies directly with group solidarity. Judgmental rank was operationally derived from the assigned position in the rank ordering of members according to direction and magnitude of judgmental error. The observed relationships are graphically presented in Figure 9. Total judgmental errors received, and the judgmental rank derived therefrom, are shown by status position, team, and solidarity category, in Table II.

Spearman rank order correlations (r_s) between judgmental rank and status for the two teams in the high solidarity category were found to be 1.00 ($N = 5$) for the Red Team and .93 ($N = 7$) for the Orange Team. In both teams, these correlations are significant at the .05 level. In the low solidarity category, this correlation was .40 and .25 for the Blue and Green Teams, respectively. These direct relationships, of less magnitude than in the high solidarity groups, were predicted and, as

expected, were not significant. The difference in correlations between judgmental rank and status in high solidarity and low solidarity groups is significant ($\chi^2 = 9.914$; $df = 3$; $p = .02$), and supports hypothesis 1.

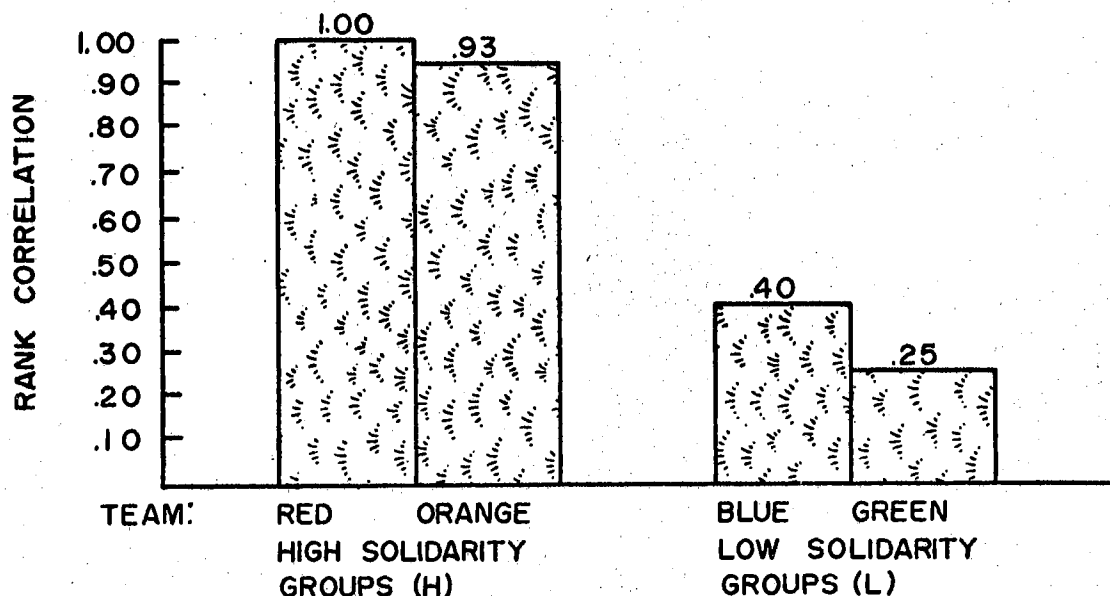


Figure 9. Correlations (r_s) Between Judgmental Rank and Status

Judgmental Rank and Self Rank

Hypothesis 2 predicts that when a team member's ranking of himself is compared to judgmental rank derived, as above, from sociogame ranking of the member by the team as a whole, the degree of agreement varies systematically with solidarity. Each subject's self rank was determined by rank ordering the team members according to only his judgmental errors; his judgmental placement of himself in that ranking in his self rank.

TABLE II

RELATIONSHIPS BETWEEN JUDGMENTAL RANK AND STATUS IN
HIGH AND LOW SOLIDARITY GROUPS

<u>High Solidarity Groups (H)</u>							<u>Low Solidarity Groups (L)</u>					
<u>Red Team</u>			<u>Orange Team</u>				<u>Blue Team</u>			<u>Green Team</u>		
Mem- ber	J. Error	J. Rank	Mem- ber	J. Error	J. Rank	Status Position	Mem- ber	J. Error	J. Rank	Mem- ber	J. Error	J. Rank
206	+36	1	149	+52	1	1	117	+43	1	301	+39½	2
79	+ 6½	2	163	+17	2	2	108	+16	3	22	- 2	5
139	- 3	3	145	+13	3	3	74	- 7	4	181*	+41½	1
54	-14	4	100	-21	4	4	104	-15	5	132*	+ 7½	4
184	-48	5	201	-20	5	5	59	+35	2	144	+24	3
			38	-22	6	6						
			177	-24	7	7						
N = 5 r _S = 1.00 p = .05			N = 7 r _S = .93 p = .05				N = 5 r _S = .40 ns			N = 5 r _S = .25 ns		

*Denotes tie in status rank

Relationships between judgmental rank and self rank in the three solidarity categories are presented in Figure 10 and Table III. Examination of the patterns of self ranks reveals that in both high solidarity groups, members generally judged themselves in agreement with the position assigned them by the team. In the Blue Team (L), three members judged themselves to be ranked first; and the Gold Team (N) had no member who, by his judgments, placed himself in the upper half of the team.

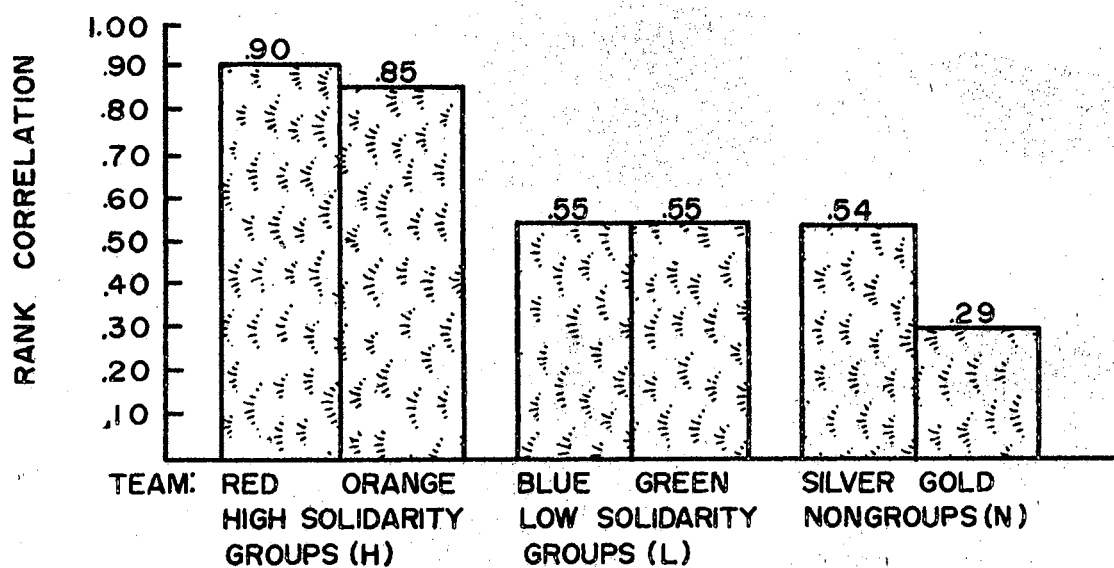


Figure 10. Correlations (r_s) Between Judgmental Rank and Self Rank

Findings with respect to the relationship between judgmental rank and self rank generally supported predictions made in hypothesis 2. In high solidarity groups, rank order correlations were .90 ($N = 5$) and .85 ($N = 7$) for the Red and Orange Teams, significant at the .05 and .02

TABLE III

RELATIONSHIPS BETWEEN JUDGMENTAL RANK AND SELF RANK

Judgmental Rank	Team:	S E L F R A N K					
		<u>High Solidarity Groups (H)</u>		<u>Low Solidarity Groups (L)</u>		<u>Nongroups (N)</u>	
		Red	Orange	Blue	Green	Silver	Gold
1		1	2	1	3	1	3
2		2	3	1	2	5	5
3		4	4	1	2	2½	4
4		3	3½	4	4	4	4
5		5	4	3	3	5	4½
6			4				
7			7				
	N =	5	7	5	5	5	5
	r _s =	.90	.85	.55	.55	.54	.29
	p =	.05	.02	ns	ns	ns	ns

levels, respectively. In the low solidarity groups, correlations were, as predicted, direct, lower than in high solidarity groups, and non-significant. The observed values were .55 for each of the two low solidarity teams. Correlations in the nongroup category were .54 for the Silver Team and .29 for the Gold. These values were in general agreement with the expected pattern, but with less than the predicted difference in magnitude between these nongroups and the other categories.

A z' transformation was made and the k-sample test of homogeneity was used to test differences in observed values among solidarity categories. Due to the unexpectedly high correlation in the Silver Team (N), the data failed to demonstrate a significant overall relationship between group-self agreement and solidarity ($\chi^2 = 3.641$; $df = 2$; $p = .15$). Using the test of significance of difference between two r 's, the difference between high and low solidarity categories approached significance ($z = 1.42$; $p = .077$), and the difference between high solidarity groups and nongroups was significant ($z = 1.77$; $p = .038$).

Judgmental Accuracy

Hypothesis 3 states that judgmental accuracy varies inversely with solidarity categories. The data of interest were the total number of judgmental errors made by subjects, in relation to the number of opportunities to err. These data, plus accuracy percentages, are presented, by category in Table IV.

Observed values were in the direction predicted, but failed to demonstrate a significant difference in accuracy between low solidarity

group and nongroup categories. The Mann-Whitney U test (Siegel, 1956) revealed significant differences in all other combinations of categories: between high solidarity groups and low solidarity groups ($U = 28$; $p = .02$); between high solidarity groups and nongroups ($U = 24$; $p = .01$); and between high solidarity groups and all the teams in the other two categories ($U = 52$; $p < .01$).

TABLE IV
JUDGMENTAL ACCURACY BY CATEGORY

Category	N	Number of Errors	Opportunities to Err	Accuracy Percentages
High Solidarity	12	372	609	38%
Low Solidarity	10	142	285	50%
Nongroups	10	146	305	50%

An alternate analysis, suggested by Sherif et al. (1961), of variation in judgmental accuracy according to solidarity category considers the relationship between rank based on judgment scores and rank based on the actual skill of the performer. Combined group judgments of each member's performances indicated the judgmental rank of each member, and his actual performance in the task was the objective score. Relationships between these variables for the three solidarity categories are shown in Figure 11.

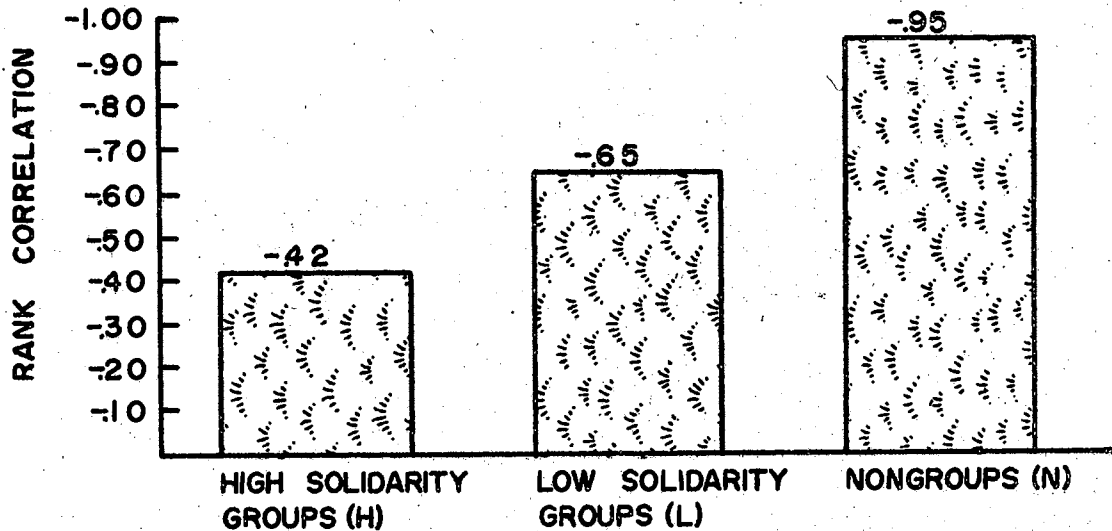


Figure II. Correlations (r_s) Between Judgmental Rank and Skill in Three Solidarity Categories

Observed values for rank correlations (r_s) between judgmental rank and skill were $-.42$ in high solidarity groups, $-.65$ in low solidarity groups, and $-.95$ in nongroups. Only in the nongroup category were judgments significantly related to actual skill in the task ($N = 10$, $p < .05$). Following a z' transformation the k-sample test of homogeneity revealed this overall pattern of findings to be significant ($\chi^2 = 7.917$; $df = 2$; $p < .02$). This finding indicates that judgments are a function of skill in nongroups, and more a function of status rank with increasing degrees of group solidarity.

CHAPTER VI

SUMMARY AND CONCLUSIONS

When a number of persons perform together in a common task and judge each others' performances on that task, errors will occur. Errors are especially likely in situations in which there is a lack of compelling objective structure. To take the greatest experimental advantage of this phenomenon, the activity must be meaningful, realistic, and important to participants. These requisites are attainable by the creation of a task situation of a recreational or competitive nature. The judgment situation used in the present experiment was derived from the game of baseball. It is offered as an example of a suitable task for the study of social relations among individuals in social units. The term "sociogame" is applied to such experimental task situations.

The relationship of group solidarity to patterns of judgmental errors which occurred in the baseball sociogame was investigated. Systematic variations in judgment were found in relation to the status position of the performer; in degree of agreement between the group's judgmental ranking of each individual and his self rank; and in overall accuracy of judgment. These relationships were found to vary systematically under differing conditions of group solidarity.

The baseball sociogame is a modification of the Sherif et al. (1961) handball throw experiment. Members of high solidarity groups, low solidarity groups, and nongroup teams made judgments of their own

and other members' performances in pitching a baseball at an unstructured, but scorable, mockup of a regulation strike zone. Over a series of trials, subjects observed and scored each thrown ball according to values assigned--a maximum score (5) for a hit on an edge or corner of the strike zone; a high score (3) for a center hit; a low score (1) for a near miss; and no value (0) for a wide miss. Objective and judgment scores were recorded for each trial. Net error scores, as well as the total number of errors, were computed. The direction, magnitude, and patterns of errors were analyzed.

Subjects were male upperclassmen at an Indian boarding high school in Oklahoma. Groups were identified from sociometric information obtained under the guise of Civil Defense planning. Intensive observation and study by techniques set forth by Sherif and Sherif (1964) provided information relative to the status structure and solidarity of the groups, and the identity of persons who did not have established social relations with other local students. Objective checks on these properties were secured by readministration of the disguised sociogram a month before the conduct of the baseball sociogame, i.e., the experimental task situation. The objective basis for classifying groups; and for selecting individuals for nongroup participation, was the degree of reciprocity of choices on this instrument.

Discussion of Experimental Results

As expected, a large number of judgmental errors occurred in the sociogame. The judgmental alternatives available, in addition to the relative lack of objective structure in the sociogame, provided ample opportunity for the operation of internal attitudinal factors in the

assignment of judgment scores. Enthusiastic interpersonal interaction and mutual encouragement during the experimental activity confirmed that the sociogame was a matter of importance to these subjects. Only one subject, a member of a nongroup team, refused to "play the game." His judgmental scores were excluded from all data analyses. No participant, including the uncooperative member, gave any indication before, during, or after the sociogame that he suspected any hidden purpose in the activity.

Hypothesis 1

All findings with regard to relationships between judgmental variation and status position within groups supported hypothesis 1. Generally, group members tended to overestimate the performance of high status members of their group, and to underestimate the performance of all others in their group in direct association with descending status position. Only one group, the Green Team (L), exhibited the widely accepted pattern, based largely on studies of anticipation of future performance, of overestimation of lower status members to a lesser degree than of high status members. It is suggested by the writer that the predominance of underestimation might be a function of the low prestige level of these Indian groups in the larger society.

Judgmental rank and status were directly and significantly related in high solidarity groups; directly but nonsignificantly related in low solidarity groups; and the strength of the relationships was associated with the solidarity category. These findings are interpreted to be the visible operation of the group norms that define the status--hence the expectation of value of contribution--of each member. Once accepted

and agreed upon in the course of interpersonal interaction, these status defining norms exist, for the individual, as weighty internal factors operating in the immediate frame of reference. In unstructured judgment situations, internalized group norms become a measurable influence by distorting judgments which the individual is otherwise capable of making with greater objective accuracy. That these, group norm derived, internalized individual factors operate with measurably less intensity in low solidarity groups is interpreted as supporting and reflecting the operational classification of groups according to solidarity. Low solidarity groups were so classified on the basis of their possessing fewer established reciprocities. Consequently, there were fewer and less powerful normative influences operating to superimpose biased patterns on the objective perception of member related observed events.

Hypothesis 2

Findings supported the prediction of a direct relationship between self rank, derived from each member's placement of himself through his own judgments, and judgmental rank, which is the composite of all judgments rendered, in reference to a particular member's performance, by the group. This relationship was significant in high solidarity groups, and is interpreted to be a function of (1) the degree of stabilization and reliability of status position assignment within the group; (2) the degree of acceptance and internalization, by each member, of that norm relating to the group status hierarchy. To the extent that the status norm exists; to the extent that each member knows the group assessment of his own status; to the extent that each member accepts and agrees with the group view of his contributonal dependability; to that

extent will each member's judgments of his own performance be directly associated with group judgments of the same event.

This interpretation is further supported by findings that in low solidarity groups the association of these variables was direct, of less magnitude, and nonsignificant. Self judgmental ranking and the ranking derived from the judgments of others were found to be least correlated in the nongroup category. However, due to an unexpectedly high correlation between self-ranks and ranks by others in the Silver Team (N), a significant difference between the strengths of the relationships in low solidarity groups and nongroups was not demonstrated. The correlation of .54 cannot be accounted for, except that it is, as expected, nonsignificant, and is, therefore, a chance finding.

Except as noted, the strength of the association of self and other group members' judgments of individuals' performances varied systematically with differences in group solidarity, and supported predictions. The difference between high and low solidarity groups approached significance, and observed values did differ significantly between high solidarity groups and nongroups.

Hypothesis 3

Analysis of the total number of judgmental errors, by solidarity category, in relation to the number of opportunities to err, revealed that members of high solidarity groups judged less accurately than did those of other categories. This findings is interpreted as support for the idea that group properties, operating as internal psychological factors within individual members, function as distorting influences in the patterning of experience related to the judgmental behavior.

Further analysis was made of the relationship between judgmental rank and skill. Correlations between judgmental rankings and rankings according to skill were negative in all cases, and varied systematically with solidarity category (N > L > H). Examination of the data revealed a general and uniform tendency to underestimate high scoring members, and to overestimate members who scored low. This uniform tendency to avoid extremes accounts for the inverse association of judgmental and skill rankings. Operating beyond this uniform variation is the systematic variation in the degree of association with solidarity category. This finding is consistent with the hypothesis of Sherif et al. (1961) which states:

Judgments will be more a function of actual performance in the task in the case of strangers, and progressively more a function of existing status relations and less of skill with the increasing degrees of stability of group structure (p. 20).

Implications for Future Research

Continuing validation studies are recommended to determine whether use of the sociogame, alone, is warranted as a method for status and/or solidarity measurement.

The direct relationship between judgmental variation and status within groups seems well established, at least in groups of high solidarity. It seems reasonable to propose acceptance of this behavioral measure as an operational determination of status position within groups--one capable of providing a degree of quantification not previously obtainable. A relatively simple and straightforward sociogame could substitute for, and possibly improve upon, months of painstaking observation and study for status determination.

In addition to the use of the sociogame for status determination, the degree of association between judgmental rank and status could be used as an empirical measure of group solidarity. Such a procedure would require an independent measure of status. The two variables explored in the present research which seem most capable of providing empirical evidence of group solidarity are (1) accuracy of judgment, and (2) strength of the relationship between judgmental rank and self rank. The former should not be ignored because of the very simplicity which recommends it to many experimental usages. However, the latter--degree of agreement in group rank and self rank--seems to promise greater capability for assessment of more precise rankings of groups according to solidarity.

Although the present undertaking did not clearly demonstrate differences in accuracy of judgment between low solidarity groups and nongroups, observations were in the predicted direction. It would be reasonable to expect that in similar studies statistical significance may be found to support the practical significance of this test. It should be emphasized that an empirical method of quantification of group solidarity and/or group structure would represent a major methodological breakthrough, and all reasonable leads should be explored. The present research is, at least, another step toward that goal.

In addition to status and solidarity determinations, the baseball sociogame seems ideally suited for the study of two problems raised in the course of this research. Investigation of a possible relationship between the general prestige level, or esteem, of a group and its judgmental behavior is suggested. In addition, there were indications

during pretests that there may be important cultural differences in the internal factors that influence judgmental behavior elicited by sociogames.

Resumé

A baseball sociogame was conducted in which members of high solidarity groups (H), low solidarity groups (L), and nongroups (N), performed in a mockup baseball pitching game and rendered judgments of their own and other group members' performances. The patterns of errors which occurred were found to be systematic and related to group status ranks and solidarity. Findings were:

1. Judgmental rank, derived from the direction and magnitude of judgmental errors, is significantly related to the status position of individuals in high solidarity groups. A direct relationship of less magnitude exists in low solidarity groups. The strength of the relationship between judgmental rank and status position varies directly with group solidarity ($H > L$).

2. Self judgment rankings are significantly related to group judgment rankings of individuals in high solidarity groups. A direct relationship of less magnitude exists in low solidarity groups, and one of least magnitude in nongroups. The strength of the relationships between self and group judgmental rankings varies significantly between high solidarity groups and nongroups ($H > N$).

3. Members of high solidarity groups commit a greater percentage of judgmental errors than do members of low solidarity groups or of nongroups. The relationship of judgments to skill of the performer being judged varies inversely with degrees of solidarity ($N > L > H$).

Within the conditions specified, varying degrees of group solidarity are associated with different strengths of relationships between judgmental variation and group status. In high solidarity groups, judgmental rank is related to status position in the group; members' judgments of themselves agree with judgments of the group as a whole; and judgments rendered are least associated with skill of the member being judged. In low solidarity groups, relationships of intermediate strengths exist in all associated variables. In nongroups, agreement between self and team judgment is least. Members of nongroups make fewer judgmental errors than do those of high solidarity groups, and only in nongroups, which lack interpersonal reciprocities, is judgmental behavior related to the skill of the performer being judged.

BIBLIOGRAPHY

- Abrahamson, Mark. Interpersonal Accommodation. New York: D. Van Nostrand Co., 1966.
- Asch, Solomon E. "Opinions and Social Pressure." Scientific American, 193 (November, 1955), 31-35.
- Backman, C. W., and Secord, P. F. A Social Psychological View of Education. New York: Harcourt, Brace, and World, 1968.
- Banton, Michael. Roles. New York: Basic Books, 1965.
- Breer, P. E., and Locke, E. A. Task Experience as a Source of Attitudes. Homewood, Ill.: Dorsey Press, 1965.
- Coleman, James S. The Adolescent Society. New York: The Free Press of Glencoe, 1961.
- Combs, A. W., and Snygg, D. Individual Behavior. Rev. ed. New York: Harper and Bros., 1959.
- Cooley, Charles H. Social Organization. New York: Scribner, 1909.
- Davis, James H. Group Performance. Reading, Mass.: Addison-Wesley, 1969.
- Edwards, Allen L. Experimental Design in Psychological Research. Rev. ed. New York: Rinehart & Co., 1960.
- Faris, R. E. L. Social Disorganization. New York: Ronald Press, 1948.
- Glanz, E. C., and Hayes, R. W. Groups in Guidance. 2nd ed. Boston: Allyn & Bacon, 1967.
- Guilford, J. P. Fundamental Statistics in Psychology and Education. 4th ed. New York: McGraw-Hill, 1965.
- Harvey, O. J. "An Experimental Approach to the Study of Status Relations in Informal Groups." American Sociological Review, 18 (June, 1953), 357-367.
- Harvey, O. J. "An Experimental Investigation of Negative and Positive Relationships Between Small Informal Groups Through Judgmental Indices." Unpublished Ph. D. dissertation, University of Oklahoma, 1954.

- Jencks, Christopher. "A Reappraisal of the Most Controversial Educational Document of Our Time." The New York Times Magazine (New York), August 10, 1969.
- Jencks, C., and Reisman, D. The Academic Revolution. Garden City, N. Y.: Doubleday, 1968.
- MacNeil, Mark K. "Persistence and Change of Norms Established Under Differing Arbitrary Conditions." Unpublished M. S. thesis, University of Oklahoma, 1964.
- MacNeil, Mark K. "Power of Status in Norm Formation Under Differing Conditions of Group Solidarity." Unpublished Ph. D. dissertation, University of Oklahoma, 1967.
- McGinnies, Elliott. Social Behavior: A Functional Analysis. Boston: Houghton Mifflin Co., 1970.
- Montgomery, Robert L. "The Relation of Status and Conformity in Natural Groups Under Differing Judgmental Scales." Unpublished Ph. D. dissertation, Oklahoma State University, 1968.
- Newcomb, T. M., and Wilson, E. K. (ed.) College Peer Groups. Chicago: Aldine Pub. Co., 1966.
- Pace, Dorothy, and Davis, Loren. "Tribal Identity in Natural Groups of Indian Boys." Research in Education. (April, 1969), ED 024 516.
- Pollis, N. P. "Relative Stability of Reference Scales Formed Under Individual, Togetherness, and Group Situations." Unpublished Ph. D. dissertation, University of Oklahoma, 1964.
- Secord, P. F., and Backman, C. W. Social Psychology. New York: McGraw-Hill, 1964.
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., and Sherif, C. Intergroup Conflict and Cooperation: The Robbers Cave Experiment. Norman, Okla.: The Institute of Group Relations, 1961.
- Sherif, M., and Hovland, C. I. Social Judgment. Paperback ed. New Haven: Yale University Press, 1966.
- Sherif, M., and Sherif, C. Reference Groups. New York: Harper and Row, 1964.
- Sherif, M., and Sherif, C. An Outline of Social Psychology. New York: Harper and Row, 1956.
- Sherif, M., and Sherif, C. Social Interaction. Chicago: Aldine Pub. Co., 1967.
- Sherif, M., and Sherif, C. Social Psychology. New York: Harper and Row, 1969.

- Thrasher, F. The Gang. Chicago, The University of Chicago Press, 1927.
- Wall, Leon. "Problems in Teaching English to Navajo Children."
Unpublished Ed. D. dissertation, Oklahoma State University, 1961.
- Whyte, W. F. Street Corner Society. Chicago: The University of
Chicago Press, 1943.
- Vaughan, Kathryn R. "A Disguised Instrument for the Assessment of
Intergroup Attitudes." Unpublished M. S. thesis, Texas A & I
University, 1961.
- Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences.
New York: McGraw-Hill, 1956.

APPENDIX A

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

Many kinds of disasters might strike towns around this area.

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

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

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

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

DISASTER EMERGENCY PLANNING QUESTIONNAIRE

Name _____

Address _____

Telephone No. _____

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

1. Would you be willing to help if you were needed in an emergency?
2. Do you have a driver's license?
3. If so, what types of vehicles have you driven (tractor, truck, car, motor scooter, etc.)?
4. Do you have your own (or share with brother or sister) car, motor scooter, etc.?
5. When you are out with friends, how often do you drive? (1/4, 1/2, 3/4 of the time?)
6. Do you know how to swim?
7. Do you hold any of the Red Cross life saving certificates? Which ones?
8. Have you had Red Cross training in first aid?
9. List Cub Scout, Boy Scout, or Explorer Scout merit awards you have earned which might be useful in a crisis.

10. List any other skills you may have which would be valuable in an emergency. (Carpenter work, driving a boat, ham radio operation, etc.)

11. Do you have camping equipment? Check which ones.

small tent _____

bed roll _____

cooking gear _____

flash light _____

lantern _____

battery radio _____

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

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

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

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

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

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

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

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

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

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

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

First one _____ Second one _____

Others _____

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

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

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

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

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

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

APPENDIX B

SITUATIONAL SOCIOGRAM

Your Name _____

The teams for today's contest were based on the "Civil Defense Teams" we formed in that previous study you helped me with. To tell me how well a team set up for one purpose can work together in another situation, please answer below:

With regard to all the activities you engage in - all the things you do here at Chilocco, and all the things you like to do -

Of all the fellows here at school who do you most prefer to be with? _____

Who is next most preferable? _____

Your next choice of someone to be with? _____

Other guys you like to have around? (1) _____

(2) _____ (3) _____

In today's teams, I have tried to place you with fellows here at Chilocco that you know well, and that you like to be with. With this in mind, who else should have been on your team that wasn't?

Who was on your team that shouldn't have been? _____

What is your team's name? _____

Do any of your team members have nicknames? Go back to their names above and write the nicknames beside the real names.

What kinds of activities do you take part in, in company with any or all of the members of your team?

When you get together with time on your hands and nothing in particular to do, who has the best ideas about what to do and how to do it?

(1) _____ (3) _____

(2) _____

Who decides what the team will do?

(1) _____ (2) _____

In today's contest, who do you think made the best overall throwing score for your team? List all your team members, including yourself, in order of performance:

(1) _____ (4) _____

(2) _____ (5) _____

(3) _____ (6) _____

Including yourself, who do you think made the best overall judging score for your team today? List in order of performance:

(1) _____ (4) _____

(2) _____ (5) _____

(3) _____ (6) _____

APPENDIX C

SCORE MATRICES BY TEAM

Red Team

Performer	Judge	First Trial	Second Trial	Total	Error
206	Obj	1 3 1 0 1	1 0 1 1 1	10	
	184	5 3 1 0 5	0 0 1 5 0	20	+10
	54	5 3 1 0 0	0 0 0 1 0	10	-
	79	5 3 0 0 3	0 0 0 3 0	14	+ 4
	139	5 3 0 0 5	0 0 1 1 1	16	+6
	Self	5 3 1 1 3	1 1 5 5 1	26	+16
184	Obj	3*5 5 5 1	3*5 1 1 1	30	
	206	1 3 3 5 5	3 3 5 5 3	36	+ 6
	54	0 1 3 0 0	0 1 1 5 5	16	-14
	79	0 3 1 3 3	3 5 1 3 3	25	- 5
	139	0 1 1 0 0	3 1 0 0 1	7	-23
	Self	1 5 3 1 1	1 3 1 1 1	18	-12
	54	Obj	1 4*0 1 3*	1 5 1 1 ½*	17½
206		1 3 1 1 1	5 3 3 3 1	22	+ 4½
184		0 1 0 1 0	0 3 1 0 1	7	-10½
79		0 3 0 0 0	0 3 5 0 5	16	- 1½
139		0 1 5 0 3	1 1 3 1 0	15	- 2½
Self		0 0 0 1 1	3 3 0 5 0	13	- 4½
79		Obj	1 4*1 1 5	1 1 1 ½*3	18½
	206	1 3 5 1 3	5 3 1 1 3	26	+ 7½
	184	1 5 1 0 3	1 0 0 0 3	14	- 4½
	54	1 5 5 0 3	1 0 0 0 3	18	- ½
	139	1 5 5 1 1	1 0 0 0 3	17	- 1½
	Self	3 1 3 0 5	3 1 3 0 5	24	+ 5½
139	Obj	½*3 ½*5 0	1 4*0 1 1	16	
	206	0 3 0 3 5	3 5 1 1 1	22	+ 6
	184	0 5 0 3 1	3 1 0 1 0	14	- 2
	54	0 0 0 3 1	3 1 0 1 1	10	- 6
	79	0 5 3 5 0	3 3 0 3 0	22	+ 6
	Self	0 1 0 1 0	5 1 0 0 1	9	- 7

*Average value when objective scorers disagreed

Orange Team

Performer	Judge	First Trial	Second Trial	Total	Error
177	Obj	5 3 1 1 5	1 5 3 1 1	26	
	38	1 5 5 0 5	5 5 5 0 1	32	+ 6
	145	1 5 1 1 0	1 3 3 5 0	20	- 6
	163	1 5 5 0 3	1 1 5 1 1	23	- 3
	100	5 5 1 1 1	1 1 3 5 0	23	- 3
	149	1 5 3 0 1	1 1 3 1 0	16	-10
	201	1 3 5 0 3	5 5 3 0 1	26	-
	Self	5 3 1 1 1	1 0 5 1 0	18	- 8
38	Obj	1 3 1 1 1	1 0 0 3 1	12	
	177	0 1 0 0 0	0 0 0 1 0	2	-10
	145	1 3 1 1 1	3 0 0 1 3	14	+ 2
	163	0 3 1 1 1	3 1 0 5 3	18	+ 6
	100	1 3 0 0 1	0 0 0 0 1	6	- 6
	149	0 0 1 0 0	0 0 0 3 1	5	- 7
	201	0 5 0 1 1	1 0 0 5 1	14	+ 2
	Self	0 1 0 1 0	0 0 0 1 0	3	- 9
145	Obj	4*3 1 3*5	3 3 1 1 1	25	
	177	5 0 1 1 0	3 3 1 1 1	16	- 9
	38	3 5 0 1 1	3 3 1 1 1	19	- 6
	163	5 5 1 5 0	5 5 5 5 5	41	+16
	100	3 5 0 1 5	1 5 5 1 0	26	+ 1
	149	3 5 1 1 5	1 5 5 5 1	32	+ 7
	201	5 3 1 1 1	3 3 1 5 5	28	+ 3
	Self	1 5 3 1 1	5 5 3 1 1	26	+ 1
163	Obj	1 1 5 1 5	1 1 0 1 1	17	
	177	0 1 5 0 0	1 1 1 0 0	9	- 8
	38	1 1 5 1 1	1 1 0 1 1	13	- 4
	145	1 5 3 1 5	3 5 0 5 1	29	+12
	100	1 1 5 1 1	1 5 0 0 5	20	+ 3
	149	0 1 1 0 1	3 3 0 1 1	11	- 6
	201	1 5 5 0 5	3 3 1 0 5	28	+11
	Self	1 1 5 1 1	3 3 5 1 5	26	+ 9
100	Obj	1 1 1 5 5	1 3 5 5 5	32	
	177	1 1 0 5 5	5 3 5 0 5	30	- 2
	38	1 1 5 1 5	5 3 5 0 5	31	- 1
	145	1 5 1 5 3	3 5 3 1 5	32	-
	163	3 5 1 1 3	5 3 5 0 1	27	- 5
	149	1 3 0 3 3	3 5 1 0 3	22	-10
	201	3 5 0 3 5	5 3 5 1 3	33	+ 1
	Self	0 1 1 5 5	5 5 3 0 5	30	- 2

Orange Team (Continued)

Performer	Judge	First Trial	Second Trial	Total	Error
149	Obj	1 1 0 3 5	1 ½*1 1 0	13½	
	177	1 1 0 3 5	1 0 1 1 0	13	- ½
	38	3 1 0 5 5	5 1 1 5 1	27	+13½
	145	3 0 0 5 3	3 5 1 5 1	26	+12½
	163	5 3 0 1 5	1 5 1 3 0	24	+10½
	100	1 1 0 5 1	1 0 0 1 0	10	- 3½
	201	3 0 1 5 3	1 5 5 5 0	28	+14½
	Self	1 0 0 5 1	1 1 5 5 0	19	+ 5½
201	Obj	5 1 5 1 3	5 5 1 1 3	30	
	177	1 1 5 1 5	1 1 0 0 3	18	-12
	38	5 1 3 1 5	5 5 0 0 5	30	-
	145	1 3 5 1 5	1 5 5 3 1	30	-
	163	1 5 1 1 5	5 5 0 0 1	24	- 6
	100	5 3 5 1 5	0 5 1 0 5	30	-
	149	1 5 3 0 5	1 5 0 0 5	25	- 5
	Self	3 5 5 3 3	5 3 1 0 5	33	+ 3

*Average value when objective scorers disagreed.

Blue Team

Performer	Judge	First Trial	Second Trial	Total	Error
104	Obj	1 5 0 5 0	5 3 1 5 5	30	
	108	1 5 0 1 1	5 5 1 1 5	25	- 5
	117	1 3 0 0 5	5 5 1 5 3	28	- 2
	74	0 1 0 0 0	5 5 1 3 0	15	-15
	59	1 3 0 1 5	5 3 5 5 3	31	+ 1
	Self	1 5 3 5 1	5 5 1 5 5	36	+ 6
108	Obj	5 3*3 0 1	5 3 3 3 4*	30	
	104	5 3 3 0 1	5 5 3 5 5	35	+ 5
	117	5 1 3 0 1	5 1 3 5 5	29	- 1
	74	5 0 5 0 0	5 5 3 1 5	29	- 1
	59	5 5 3 0 1	5 5 3 5 3	35	+ 5
	Self	1 5 3 5 1	5 5 3 5 5	38	+ 8
117	Obj	3 1 $\frac{1}{2}$ *4*0	1 1 5 1 $\frac{1}{2}$ *	17	
	104	3 5 0 5 0	0 5 5 1 1	25	+ 8
	108	5 1 0 5 0	1 5 5 1 1	24	+ 7
	74	1 5 0 5 0	1 5 1 1 5	24	+ 7
	59	5 5 1 5 0	1 5 5 1 1	29	+12
	Self	5 3 1 5 1	1 3 5 1 1	26	+ 9
74	Obj	5 3 3 1 5	3 4*5 1 1	31	
	104	5 3 5 1 5	3 5 5 1 1	34	+ 3
	108	1 1 5 0 5	3 5 5 1 1	27	- 4
	117	5 3 3 1 5	3 5 3 1 5	34	+ 3
	59	5 3 5 1 5	5 3 5 1 1	34	+ 3
	Self	5 1 1 0 3	3 1 5 0 0	19	-12
59	Obj	1 0 $\frac{1}{2}$ * $\frac{1}{2}$ *1	3*1 0 3*4*	14	
	104	5 0 0 1 5	1 5 1 1 5	24	+10
	108	1 0 1 1 5	1 1 1 5 5	21	+ 7
	117	3 0 0 0 1	1 5 1 1 5	17	+ 3
	74	5 0 0 1 3	1 1 0 0 1	12	- 2
	Self	5 0 1 1 5	5 5 1 5 3	31	+17

*Average value when objective scorers disagreed

Green Team

Performer	Judge	First Trial	Second Trial	Total	Error
301	Obj	1 3* $\frac{1}{2}$ *3 3*	1 1 4* $\frac{1}{2}$ * $\frac{1}{2}$ *	17 $\frac{1}{2}$	
	181	1 5 1 1 1	1 5 5 5 1	26	+ 8 $\frac{1}{2}$
	132	3 5 1 5 1	1 5 5 1 5	32	+14 $\frac{1}{2}$
	22	3 5 1 3 1	1 3 5 3 1	26	+ 8 $\frac{1}{2}$
	144	0 3 5 1 0	1 5 1 1 0	17	- $\frac{1}{2}$
	Self	1 3 5 1 1	1 3 5 1 5	26	+ 8 $\frac{1}{2}$
181	Obj	4*1 $\frac{1}{2}$ *0 3	3 1 1 3 3*	19 $\frac{1}{2}$	
	301	3 5 5 1 3	3 1 1 5 3	30	+10 $\frac{1}{2}$
	132	3 1 5 5 3	3 5 3 5 5	38	+18 $\frac{1}{2}$
	22	5 1 1 1 3	5 3 1 3 3	26	+ 6 $\frac{1}{2}$
	144	3 0 1 0 5	1 1 0 1 5	17	- 2 $\frac{1}{4}$
	Self	5 1 1 1 3	5 1 1 5 5	28	+ 8 $\frac{1}{2}$
132	Obj	1 4*4*1 5	$\frac{1}{2}$ *3*0 0 5	23 $\frac{1}{2}$	
	301	5 5 3 5 3	0 0 1 1 3	26	+ 2 $\frac{1}{2}$
	181	5 5 5 1 5	1 1 5 1 3	32	+ 8 $\frac{1}{2}$
	22	1 5 5 1 3	1 1 1 1 5	24	+ $\frac{1}{2}$
	144	0 0 5 1 3	0 0 1 0 3	13	-10 $\frac{1}{2}$
	Self	1 5 5 5 5	1 1 1 1 5	30	+ 6 $\frac{1}{2}$
22	Obj	1 $\frac{1}{2}$ *0 3* $\frac{1}{2}$ *	3 1 5 4*5	23	
	301	5 0 1 3 0	5 1 0 3 1	19	- 4
	181	5 1 1 5 1	5 1 1 3 3	26	+ 3
	132	5 1 1 5 1	3 1 1 3 5	26	+ 3
	144	5 3 0 1 0	5 0 0 3 1	18	- 5
	Self	1 1 1 3 1	5 1 1 5 5	24	+ 1
144	Obj	1 3 1 3 3	3 5 $\frac{1}{2}$ *5 $\frac{1}{2}$ *	25	
	301	3 5 3 5 3	5 5 1 5 1	36	+11
	181	1 5 3 1 5	3 3 3 5 1	30	+ 5
	132	5 5 1 5 3	3 5 1 5 5	38	+13
	22	1 3 1 1 1	3 5 1 5 1	22	- 3
	Self	0 5 5 1 5	5 1 0 1 0	23	- 2

*Average value when objective scorers disagreed

Gold Team

Performer	Judge	First Trial	Second Trial	Total	Error
107	Obj	5 5 3 3* $\frac{1}{2}$ *	5 5 4*1 0	31 $\frac{1}{2}$	
	84	1 5 3 1 1	1 3 3 5 0	23	- 8 $\frac{1}{2}$
	32	0 3 5 1 1	1 3 3 0 1	18	-13 $\frac{1}{2}$
	69	5 3 1 5 5	5 3 0 3 5	**	
	175	3 5 5 5 1	5 3 3 1 1	32	+ $\frac{1}{2}$
	141	3 5 3 3 1	1 3 3 1 0	23	- 8 $\frac{1}{2}$
	Self	1 5 3 0 5	1 3 3 5 0	26	- 5 $\frac{1}{2}$
84	Obj	5 5 5 3*3	1 $\frac{1}{2}$ *3*3 5	33 $\frac{1}{2}$	
	107	3 0 5 1 5	1 0 5 5 3	28	- 5 $\frac{1}{2}$
	32	5 1 5 1 3	3 1 5 5 1	30	- 3 $\frac{1}{2}$
	69	3 3 3 3 3	5 5 5 1 3	**	
	175	5 1 3 5 5	1 0 5 3 5	33	- $\frac{1}{2}$
	141	1 5 3 5 3	5 0 5 3 5	35	+ 1 $\frac{1}{2}$
	Self	3 5 5 3 3	1 0 3 3 5	31	- 2 $\frac{1}{2}$
32	Obj	1 0 $\frac{1}{2}$ *3*3*	1 0 0 $\frac{1}{2}$ *0	9	
	107	1 0 5 5 3	1 0 0 5 0	20	+11
	84	5 0 3 1 3	1 0 0 5 1	19	+10
	69	3 3 3 3 3	5 5 5 1 5	**	
	175	5 0 5 5 3	1 0 0 1 0	20	+11
	141	5 1 0 1 5	3 0 0 0 0	15	+ 6
	Self	1 1 3 0 1	0 0 1 1 0	8	- 1
175	Obj	1 5 5 $\frac{1}{2}$ *1	4*1 5 3 3	28 $\frac{1}{2}$	
	107	1 5 0 1 1	3 5 0 5 5	26	- 2 $\frac{1}{2}$
	84	5 1 1 1 1	3 5 5 3 3	28	- $\frac{1}{2}$
	32	5 3 1 1 5	3 0 5 5 3	31	+ 2 $\frac{1}{2}$
	69	5 5 5 5 5	3 3 3 3 3	**	
	141	5 1 0 0 5	5 1 5 3 5	30	+ 1 $\frac{1}{2}$
	Self	1 3 1 1 1	3 1 5 5 3	14	- 4 $\frac{1}{2}$
141	Obj	0 0 $\frac{1}{2}$ *1 5	1 0 3*3 1	14 $\frac{1}{2}$	
	107	1 0 1 5 5	1 1 5 3 0	22	+ 7 $\frac{1}{2}$
	84	0 0 0 1 3	1 0 3 5 5	18	+ 3 $\frac{1}{2}$
	32	0 0 0 1 5	3 0 5 5 1	20	+ 5 $\frac{1}{2}$
	69	5 5 5 5 3	5 5 3 3 5	**	
	175	0 0 0 0 3	1 1 3 5 1	14	- $\frac{1}{2}$
	Self	0 0 0 1 3	1 1 3 5 1	15	+ $\frac{1}{2}$

*Average value when objective scorers disagreed

**Excluded from analysis for failure to cooperate: Judgments included here to show lack of discrimination

Silver Team

Performer	Judge	First Trial	Second Trial	Total	Error
192	Obj	$\frac{1}{2}$ *0 3*1 3	$\frac{1}{2}$ *1 1 5 1	16	
	191	0 0 5 5 3	0 0 0 5 0	18	+ 2
	112	0 0 1 1 3	5 0 5 5 5	25	+ 9
	7	0 1 1 0 1	5 1 5 5 0	19	+ 3
	85	1 5 3 1 3	1 1 3 3 1	22	+ 6
	Self	1 1 5 1 5	1 3 5 5 1	28	+12
191	Obj	1 4*3*1 3	1 1 1 3 0	18	
	192	1 5 1 3 1	1 3 3 3 1	22	+ 4
	112	1 5 0 1 0	5 5 1 3 5	26	+ 8
	7	5 5 1 1 5	1 5 5 3 1	32	+14
	85	3 5 5 1 3	3 1 3 1 1	26	+ 8
	Self	0 1 0 0 0	0 5 1 3 0	12	- 8
112	Obj	0 1 4*3*1	1 3 3*1 3	20	
	192	1 1 3 1 1	1 3 5 1 3	20	-
	191	0 1 3 0 0	0 3 5 5 3	20	-
	7	1 5 3 1 1	1 5 5 5 3	30	+10
	85	0 3 3 1 1	3 5 5 3 3	27	+ 7
	Self	1 1 3 1 1	5 3 5 5 3	28	+ 8
7	Obj	5 3 3 1 3	1 3 3 $\frac{1}{2}$ *3*	25 $\frac{1}{2}$	
	192	5 1 3 1 3	0 3 5 1 3	25	- $\frac{1}{2}$
	191	5 5 5 1 3	5 3 3 0 5	35	+ 9 $\frac{1}{2}$
	112	3 5 5 0 1	0 5 3 0 1	23	- 2 $\frac{1}{2}$
	85	3 3 5 1 3	1 1 3 3 1	24	- 1 $\frac{1}{2}$
	Self	5 3 1 1 3	1 1 3 3 1	22	- 3 $\frac{1}{2}$
85	Obj	3*5 3 0 5	5 $\frac{1}{2}$ *5 5 5	36 $\frac{1}{2}$	
	192	5 5 3 1 1	5 1 5 5 3	34	- 2 $\frac{1}{2}$
	191	0 1 3 0 5	5 0 5 5 5	29	- 7 $\frac{1}{2}$
	112	0 1 3 0 5	3 3 1 3 5	24	-12 $\frac{1}{2}$
	7	0 1 3 1 5	5 1 3 5 5	29	- 7 $\frac{1}{2}$
	Self	1 3 1 1 3	1 1 1 1 3	16	-20 $\frac{1}{2}$

*Average value when objective scorers disagreed.

VITA

3

Loren Everett Davis

Candidate for the Degree of

Doctor of Education

Thesis: SOCIOGAME BEHAVIOR IN GROUPS AND NONGROUPS

Major Field: Student Personnel and Guidance

Biographical:

Personal Data: Born in Ozark, Arkansas, July 21, 1923, the son of Mr. and Mrs. Mikel S. Davis.

Education: Graduated from Central High School, Ozark, Arkansas in May, 1940; attended Quachita Baptist College, Arkadelphia, Arkansas, 1940-42; attended Municipal University of Wichita, Kansas, 1942-43; received the Bachelor of Science degree from Oklahoma State University in 1962, with a major in Military Science; received the Master of Science degree from Oklahoma State University in 1968, as an NDEA Fellow of the College of Education, with a major in Counseling and Guidance; completed requirements for the Doctor of Education degree at Oklahoma State University in May, 1970, as an NDEA Fellow of the College of Education.

Professional Experience: Private to Lieutenant Colonel, United States Army, 1943-65; including Academic Department Head, U. S. Civil Affairs School, Fort Gordon, Georgia, 1963-65; Head Counselor, Division of Student Affairs, Oklahoma State University, 1965-66; Project Supervisor, College of Education, Oklahoma State University, 1967-68; Assistant Professor, Department of Psychology and Sociology, Texas A and I University, 1969 to present.