THE RELATIONSHIP BETWEEN THE EFFICIENCY
OF THE GROUP DECISION-MAKING PROCESS
AND GROUP POLARIZATION

DISSERTATION

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J. William Hepler
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CHAPTER I

HISTORICAL INTRODUCTION TO THE PROBLEM

BEGINNING OF SMALL GROUP RESEARCH

Since the establishment of the first psychological laboratory in Leipzig, Germany, in 1879, scientific psychology has advanced at an almost incredible rate in both the number of investigations and in the number of fields of investigation. In a short eighty years, psychology has proceeded from the dependency characteristic of infancy to the inquisitiveness and independence characteristic of adolescence. Shortly after its inception, psychology gave notice that it intended to become a science of import by rapidly broadening the scope of its investigations. It began asking questions of all its fellow sciences, holding few, if any, boundaries sacred; and asserting the right, and even the privilege, of investigating almost any problem dealing with the behavior of organisms.

One of the first domains to be penetrated by the psychologists was that of the sociologists. Prior to this time, the differentiation of the two fields had been based on the fact that the psychologist used individuals as the basic unit of measurement, whereas the sociologist used groups as
the basic unit of measurement. This intent to expand the field of psychology was revealed primarily through the pioneer works of Le Bon, Tarde, Ross and McDougall. However, these early works were almost entirely at a theoretical level with little experimental bases. With the entrance of a new emphasis of controlled experimentation together with an increased tendency to use learning instead of instinct as the explanatory concept of social behavior, the writings of McDougall fell into disrepute. This degradation of McDougall was augmented by a partial misinterpretation by some of his readers and also by the lack of an experimental foundation for his writings. Even during this early period, however, there was evidence that a firm experimental foundation could be laid for social psychology, especially at the small group level.

The early evidence that a solid experimental base for social psychology could be established was founded on the research in progress in the small group area during this period. One of the first problems to be investigated in this small group area was concerned with the effect of the group situation on the individual's performance. This problem created considerable interest and was the subject matter for numerous articles during the first three decades of the present century. Allport (1) has published a bibliography of these studies prior to 1920. The length of this bibliography attests to
the importance which was attached to this problem during these early years. Later Shaw (74) took the project forward to 1932 which added another six references. By and large, these early studies affirmed the fact that the individual performed with more speed in a group situation than in isolation although it might have adversely affected the accuracy of his performance under certain conditions.

Another problem which gained much attention during these formative years was group efficiency vs. individual efficiency in problem-solving. The conclusion reached in these studies on this program seemed to confirm the old adage that "two heads are better than one."

Since these early studies, psychology has strengthened its hold on the social area by broadening its field of investigation to include almost every problem involving the interaction of two or more persons. The area of small group research has been particularly enhanced in later years. With these early studies, the distinction between sociology and psychology on the grounds that the former used groups as their unit of measurement while the latter used individuals as their unit of measurement became less distinct. With continuing studies in this field, this distinction was almost completely eradicated.

Later Developments in Small Group Research

In these early studies, little attempt had been made
to study what Lewin had later called "group dynamics."
At the same time there was little attempt to use the group as the unit of measurement. The investigators were usually interested in the individuals in a group situation, or, if interested in the group, the interest was centered on the results of the group processes and not in the processes themselves. The psychologists of this early era did not consider groups as "psychological entities," to use Hemp-hill's phrase (45).. It remained the task of Kurt Lewin and his students to focus attention on the group processes and to show that a study of these processes was amenable to investigation at the scientific level. This implies that a considerable amount of research and thought had to be directed toward devising techniques, methods, and theories suitable for the study of group processes. Lewin and his students were well qualified for this task. Aside from these contributions, this group also contributed considerable experimental information on specific problems in the area of group dynamics. Smith (75) pays homage to this group, especially to Lewin, in one of the recent articles by saying:

One of the milestones in the development of social psychology was the still recent achievements of Lewin and his students when they brought complex group processes under experimental investigation. . . . Since Lewin's death, studies of the small groups have burgeoned rapidly, not only among his followers in the Research Center for Group Dynamics at Michigan, but among workers of divers theoretical persuasions, and have shown a steady trend toward greater theoretical sophistication.
Another milestone in the field of group dynamics was also contributed during the same period. This was Moreno's contribution of the technique of sociometrics (64). This particular technique allowed the investigator of small groups to describe the group in terms of the internal interaction of its members. Its subsequent development and use has given much impetus to the study and theory of group dynamics. Loomis and Pepinsky (57) have written an historical review of this technique from 1937 to 1947 which includes most of the major developments of this technique during this period.

**RECENT DEVELOPMENTS IN THE FIELD OF SMALL GROUP RESEARCH**

The recent publications in the area of small group research have been so voluminous and diverse that it is necessary to categorize them in order to achieve any semblance of order at all. The following classification system has been devised for this purpose. It is by no means a complete systematism of the works in this area but will serve the purpose of pointing out the recent advancements. A fuller discussion of each heading will follow the listing of the categories.

1. Methodological and Technical Advancements
   a. Application of factor analysis to group research
   b. Interaction recording
   c. Nomination technique
   d. Use of interdisciplinary approach
2. **Extension of groups studied**
   a. Laboratory groups
   b. Action or live groups

3. **Theoretical Advancements**
   a. Hampbell's contribution
      (1) Theory of leader behavior
      (2) Dimensions of groups
   b. Lewin's contribution
   c. Cattell's contribution
   d. Recent theoretical discussion on various phases of group research

4. **Empirical Advancements**
   a. Studies using individual measurements in group situations
      (1) Leadership
      (2) Group therapy
      (3) Effect of the group on individual performance
      (4) Effect of group on learning
      (5) Effect of group on reasoning and decision making
      (6) Effect of group on attitude and attitude change
   b. Studies of internal group processes
      (1) Communication
      (2) Interaction between group members
   c. Studies using group measurements
      (1) Effect of leader on the group
      (2) Efficiency of group problem solving
      (3) Investigation of group variables

**METHODOLOGICAL AND TECHNICAL ADVANCES**

There are several other recent methodological and technical advances in the field of small group research which warrant attention. The first of these is the extension of factor analysis technique to small group research. One of the more vigorous proponents of this technique is Cattell. He (25) criticized much of the recent research in this field by saying:
Some of the early group research has got off to a false start by arbitrarily assuming such dimensions as degree of sociability, of democratic organization, of democracy, strength of morale, general group ability, degree of aggressiveness, etc. It may seem enough if such variables are sufficiently operationally defined to be reproducible in other experiments but (1) they are generally lacking in precision . . . . (2) even when precisely defined, it is questionable whether a certain dimension of factor loads the same way in different groups . . . . (3) a variable may avoid both of the above objections and still be of no particular value or predictive value to group behavior.

Cattell has attempted to rectify this situation by "determining by factor analysis what functionally unitary traits exist for groups of a given size and organization." The factor analysis approach has also been used successfully elsewhere. The group at the Personnel Research Board at Ohio State University has made extensive use of this technique for predicting the effectiveness of bomber crews. A technical report of one of the factor analyses is now in the process of being written.

Another technical tool which has been advanced and refined in recent years is the interaction recording procedures of Bales (6). By the use of this particular technique or its subsequent modifications (3, 4, 21), it is possible to record with almost any degree of accuracy the interaction between the individuals comprising the group. This particular technique has been invaluable in the studies of the communication of the group or in any study where the interactions between the group members must be determined.
Another methodological development has been made in recent years in response to the realization that group research is too broad and complicated to be studied from only one viewpoint. This advancement has been called the interdisciplinary approach to the study of small groups. Both the University of Michigan and the Ohio State University groups are adherents of this point of view. To illustrate this approach, one might note the fields of specialization of the members of the Personnel Research Board at Ohio State University. The staff includes several social psychologists, an industrial psychologist, several sociologists, an educator, an economist and several statisticians. Morris and Seeman (65) have recently written an article lauding this approach and noting the reasons why it should be used in the study of leadership.

Another technique which has been developed in recent years is the nomination technique developed by Jenkins (47). This is really only an extension of the sociometric technique introduced by and perfected by Moreno. It is used primarily in the study of leadership. Wherry has found that this technique was one of the best predictive devices for selecting efficient leaders.

Also to be included in this list is the development of group dimensions. Hemphill and Westie (45) have surveyed the literature on this subject and identified fifteen
dimensions which can be used for group research. Katz (48) has praised this article as a "genuine advance to the field." Cattell (24, 26, 27) using a factor analysis approach to this problem has written several recent articles on this subject of small group dimensions.

EXTENSION OF THE GROUPS STUDIED

In recent years, there has been much criticism of writings in which the results of group study in one experimental situation have been generalized to groups working under another set of experimental conditions. Halpin (41) emphasized this in one of his articles when he stated that there has been in recent years a "sharper awareness of the danger of extrapolating conclusions from one group situation to another." Cattell (25) also recognized this by his statement that his work would be completed on groups of a "given size and organization." Much of the small group research has been completed with laboratory groups of various compositions. Early in group research, however, there were examples, such as the famous Hawthorne studies (69) where non-experimentally formed groups had been studied. This trend has been continued in recent years, pushed forward primarily by the Michigan group (25) with their "action research" and by the recent interest of the military in group research with its subsequent study of "live" military groups. Osterberg (66) attempted to
study a "live" union-management group in the process of collective bargaining but was unsuccessful because of the unco-operative attitude of the group. So fast has this trend developed that today one would have to do a complete and minute study to determine whether more studies have been completed on laboratory groups than on "live" groups.

THEORETICAL ADVANCES

Undoubtedly one of the greatest weaknesses in social psychology has been the lack of a firm theoretical system for the prediction of group behavior. Several recent writers have been cognizant of this particular weakness. Bruner (18) stated this fact in a precise manner when he said, "The greatest problem which is faced by the social psychologist at the present time is the construction of an adequate theoretical model which can guide in the formation and selection of hypotheses worth testing. Without such a model or models, social psychology risks become a highly precise form, either of social tinkering or social engineering." Cattell (25) implied this by saying, "The field of variables need to have some of its structures revealed before we can profitably make tentative hypotheses and theories." French (37) also recognized this when he said, "Group productivity is not well understood. Very little research has been done, no solid body of theory has been developed and even the methods
of measurements and investigation are in a pioneering stage." One can also see the reason for this lack of theory implied in the last two of the above quotations. The persons working in this area do not feel there is, as yet, adequate knowledge available to develop a sound theoretical system.

In spite of this fact, there has been an increase in recent years in the theoretical output. On a large scale are the works of Lewin (52, 54) who has attempted to predict social behavior in small groups, as well as in large complex social systems, by the use of field theory applied to the social field. Rashevesky (67, 68) has also evolved a theory of group action based on higher mathematics.

Although these theoretical systems have been of some help in the prediction of small groups, especially the field theory of Lewin, they have the disadvantages of most all-encompassing theories, namely, that they cannot be used for accurate prediction at a lower level. There is evidence that the problem of a theoretical system for small group behavior is receiving a great deal of thought in recent years. Homan (46) has recently attempted a social theory of small groups in his book THE HUMAN GROUP. This is the only overall attempt at predicting small group action. For the most part, this work has been concerned with the prediction of some specific aspect of group behavior. Hemphill (44) has developed a theory of leadership which has not as yet been
published. Cattell (25) has also been interested in this problem in some of his more recent articles. Festinger (33) has written a theoretical article on the communication in small groups. It is his contention that communication arises from (1) pressures toward conformity (2) desire to locomote in the group (3) emotional states. Bogardus (15) and also Deutsch (30) have been interested in competition and co-operation aspects of groups behavior and have recently published theoretical articles on this subject.

One might summarize this portion of the chapter by saying that although there is a definite need for a sound theoretical system for the prediction of small group behavior, the persons who are working in this area are cognizant of this need and that the deficiency may be remedied in a relatively short period of time.

**EMPIRICAL ADVANCES**

*Studies using individual measurements in a group situation.* Of the more recent advancements in the field of small group research, the area of leadership is one of the more prominent, at least in terms of the number of publications centered on this topic. Ohio State University has set up a ten-year program for the study of this problem. From such a program a considerable increase in the knowledge of leader behavior has resulted. The publications of
Shartle (71, 72), Shartle and Stogdill (73) Stogdill (76, 77, 78), Fleishman (36), Bass (7), and Hemphill (42, 43), are only a part of the work which is a direct outgrowth of this particular research program. The study of leadership has been carried on in many diverse areas by this group, the most notable of which are education, industry, and more recently in the armed forces. Aside from this group, the field of leadership has been the center of interest elsewhere. Carter, Haythorn, Shriver and Lanzetta (23) concentrated on the problem of leader behavior vs. group behavior and concluded that (a) "the unique behavior of leaders for all situations and tasks was concerned with analyzing the situation, and (b) initiation of the action required." In another investigation of the criteria of leadership, Carter and Nixon (22) found low intercorrelations between the four such criteria used, the highest being between the ratings of supervisors and the nomination by classmates. In a second study of the same problem, Carter, Haythorn and Howell (24) concluded that "the generality of studies of leadership is limited by the volume of the particular criteria used."

Bass (7, 8, 9, 10, 11) has focused most of his attention on the problem of predicting efficient leaders from the leaderless group situation and also of identifying the group and individual factors which allow for the least amount of prediction error. In another study of the leaderless group
situation, French (38) found that the verbal output of an individual was related to the criteria of leadership used but that the correlation between the two was rather low. The area of the leader's perception of the group's problem has also created some interest. Chowdhry and Newcombe (28) found that "the leaders of the group are significantly superior to non-leaders in their ability to judge group opinion on familiar and relevent issues." This they found was a necessary condition for leadership in some groups. Hemphill (43) investigated the situational factors in leadership and concluded that they were extremely important in determining the leader's behavior. On the other hand, Bell and French (13) found that the leadership status of an individual seemed to be rather highly consistent despite the situational changes involved.

Another area of investigation around which considerable interest and controversy has been centered in recent years is the field of group therapy. Leslie (50) noted four steps in the group therapy process and identified five stages on an individual basis by which a cure is effected. Luchins (58), in a more recent article, has discussed the methods of evaluating the group therapy programs. Blockman (16) has discussed at length the role of the leader in group therapy and has concluded that there is no one leader role which is best. In recent years this technique of group
therapy has been shown to be extremely effective in the treatment of children. Slavson (81) has published a bibliography of the work in this area through 1946 and has made an addition to this list in 1950 (79). More recently, Moreno (63) has given an historical resume of the high points and trends in group therapy. The conclusion reached in most of the discussions in this area is that group therapy can be a useful tool in the hands of a trained person.

Even before the famous Hawthorne studies (69), the problem of the groups effect on the individual's performance had received considerable attention. As mentioned in a previous paragraph, the generalization that was made from these studies was that the individual produced more in a group situation than in isolation, although some studies, such as that of Dashiell (29), showed that this increased production was positively correlated to the number of errors made. Although this problem has not received the same amount of attention as it did in earlier days, it has still been the basis of some recent investigations (62). These studies have corroborated the earlier generalizations that individuals work more rapidly in group situations.

The use of the group situation as a learning technique has also been in vogue in recent years. Levine and
Butler (51) demonstrated that group discussions were more profitable, at least at the supervisory level, in teaching the theory and techniques of merit rating than was the lecture technique. The experiences of the personnel of the Bethel project reporting on the First National Training Laboratory in Group Development have also pointed out the significance of group discussion as a training technique. One complete issue (17) of the Journal of Social Issues has been devoted to articles originating in National Training Laboratory. Barron and Krulee (12) have written the experiences of one of these groups into a summary case history.

Along the same line are the studies reporting the use of the group discussion technique as a means of changing social attitudes. Again it has been reported that this technique is better than the lecture technique (53).

This is by no means an exhaustive review of the recent research involving individual measurements in a group situation. This is not its purpose. It does, however, give an indication of the amount and diversity of the research which has been centered on this area.

Studies in internal group processes. Since the work of Lewin, there has been considerable interest directed toward intragroup processes. Much of this research has centered around the communication and interaction within the group. In one of these studies of communication, Festinger
(34) found that communication in the group was directed mainly toward the non-conformists in the group. Steiner (82) found that the actual interactions which took place in the group were determined, on a large part, by the spacial distance that existed between the members of the group. Back (2) also was interested in these interpersonal relationships and made a study which was concerned with the amount of participation of the members of the group as well as the kind of participation and the direction of participation which took place. Benne (14) classified the participation of these group members into three categories: (1) those facilitating accomplishment of the particular task, (2) those of building and maintaining the group and, (3) those of satisfying individual needs. In another study, Green (40) was interested in the effect of verbal intelligence on the participation in the group discussion. He found the two factors were related but only to a small extent.

Studies measuring group variables. In recent years the study of group variables has created considerable notice in the field of small group research. In these studies the group is used as the unit of measurement. To demonstrate the difference between this approach and individual approach, one might give hypothetical experimental designs of the measurement of some variable such as productivity in both instances. In a study involving individual measurement in
a group situation, the production of each individual in the group would be compared with his production in a non-group situation. The "N" in this instance for statistical purposes would be the total number of individuals. In a study of productivity as a group variable, the dependent variable would be the total of the individual's performance in the group situation or some measure of the group productivity as a unit. The "N" for statistical purposes in this instance would be the number of groups used. Since the number of persons becomes quite large in these studies, one can readily understand why this type of research is not as widely used as the preceding.

Of these studies investigating group variables, the most notable, especially in terms of the number of investigations, has been centered around the variable which has been called cohesiveness. In one study, Thibaut (83) found that group cohesiveness seemed to hold up or improve during times of group frustration or stress. Marquis, Guetzkow and Heyns (61) concluded in a study of effective conference proceedings that "member satisfaction with the meeting increases with the cohesiveness of the group." In another study concerning this particular variable, Schacter, Ellerton, McBride and Gregory (70) found that group cohesiveness was related to group productivity.

There has also been a number of studies in which the
relationship between some group variable and some leadership variable has been investigated. The best known of these studies is probably the one of Lewin, Lippitt and White (55) on the behavior of the group under democratic, autocratic and laisse-faire types of leadership. More recently, Maier (60) found that skilled democratic leaders could influence the group in such a way that the group could achieve higher quality and more widely accepted group decisions. Hemphill (43) has spent considerable effort in investigating the situational factors in leadership. In one of his more recent studies (42) he investigated the relationship between the size of the group and leader behavior and found that the leader behavior which is demanded by the group is, in a large part, a function of the size of the group.

Much of the work of Cattell and his associates can also be classified in this section on studies dealing with group variables. It is Cattell's opinion that group dimensions cannot be determined on an a priori basis, but must be empirically determined through a factor analysis procedure if they are to be of any use in the prediction of group behavior. This has been his aim in several of his more recent publications (26, 27).

The work in the field of group dimensions can be briefly summarized by saying that although it has shown an
increase in recent years, this increase has not been proportional to that of other small group research. This fact can undoubtedly be partially attributed to the large number of subjects needed for investigations of this kind.

OVERVIEW OF CHAPTER

In this chapter an attempt has been made to trace briefly the history of small group research as well as to point out its significance in modern psychological research. Admittedly there would be a multitude of ways in which this could be accomplished. The method chosen in this chapter might not even be the best, and surely it is not an all-inclusive one. However, it is sufficient to point out the development of small group research as well as to show the diversity, amount, and importance of this research in modern psychology.
CHAPTER II

THE PROBLEM

INTRODUCTION TO THE PROBLEM

Cattell (25) begins one of his recent articles with the statement that "any attempt at scientific prediction of group behavior must employ some scheme of measurement of group characteristics and performances, i.e., traits of the group as a whole." One might well add to this statement that before any attempt can be made at scientific prediction of group behavior, the relationships between these group characteristics and group performances must be investigated. Hemphill and Westie (45) have recently written an article on these group characteristics. In this article they have listed ten dimensions which can be used to describe characteristics of the group and five additional dimensions that can be used to describe characteristics of the group members.

Certain of these dimensions, such as group size or group cohesiveness, have already been the focal point for considerable attention. Some of the studies pertaining to these variables have been described in a previous section on page 14. The present study is also one which is attempting to ascertain the relationship between a group characteristic and some measure of group performance.
STATEMENT OF THE PROBLEM

The group characteristic in the present problem is the polarization of the group. The group performance is the process of reaching a group decision. In short, this study will attempt to ascertain the relationship that exists between the degree of polarization of the group and the efficiency with which the group can make a solution to a problem. According to the directions, this decision must be a unanimous one. This problem can be stated more simply by the question, "Does the degree of polarization of a group affect in any way the efficiency with which the group reaches a unanimous decision on a mutual problem?"

CLARIFICATION OF TERMINOLOGY

If the problem is to have the same meaning for all readers, the usage of the term "polarization" must be made explicit. Hemphill (45) discusses this term in the following manner:

Groups vary in the degree to which they are orientated toward a definite goal. Highly polarized groups have a definite single purpose toward which each and every member works. Groups in which polarization is low (a) have goals which are not clear to any of the members of the group (b) have a number of goals toward which each of some members work.

Furthermore, Hemphill believes that the dimension can be measured by asking such questions as:

1. Were there small groups of cliques within the
group?

2. What was the group's stated problem?

3. What other group did your group fight with or compete against?

4. Did each member have a job to do?

5. What were your reasons for joining the group in the first place?

6. How effective was the group in advancing its purposes?

7. How interested were you in the purpose of the group?

Although this discussion gives some enlightenment on the term "polarization," it does not completely clarify this concept because of the ambiguity of the word "goal." Does goal refer to the immediate goal or goals of the group, or to some intermediate or long-range goals of the group? For example, consider the collective bargaining group. They have as their immediate goal the negotiation of a contract which is agreeable to both the union representatives and the management representatives. In this respect, this group must be considered to be a highly polarized or unipolar group since all its members are working toward "a single purpose." On the other hand, the union representatives of the group have as their long-range goal the maximizing of benefits to the worker, while the management representatives have as their long range goal the maximizing of the benefits to the stockholder. Viewed in this perspective, the degree of polarization
is lower although the same group is still being considered. In this case, the group may be considered a bipolar group. It would undoubtedly be possible to describe this group in terms of some other set of goals such that the group would be even less highly polarized or a multipolar group. The point that the writer wishes to stress is the fact that the polarization of a group is, at least partially, a function of the goals of the group which are being described at any particular time.

Another deficiency is also notable in the definition as it was stated in a previous paragraph. According to this definition, the polarization of the group depends upon only one factor, i.e., the number of goals of the group. This does not take into consideration the divergency that might exist between the goals in those groups which have multiple goals. In one such group the goals might supplement each other, whereas in another group the goals might be in complete opposition to each other. Yet, according to the stated definition the polarity of the two groups would be the same if they had the same number of goals, regardless of the divergency between the goals. It would seem to be both more realistic and parsimonious to include both the factors of number and divergency as co-determiners of this dimension of polarity. With this expansion of the term, polarization could now be conceived as a two-dimensional plane. The one
dimension would be the number of goals; the second would be some measure of the divergency of the goals. The polarization of the group would be a function of the interaction of these two factors.

Without a doubt, this term has now been expanded beyond the usage intended by Hemphill. To Hemphill, polarization referred only to the immediate goals of the group. In the previous paragraph, it has been expanded to include the intermediate as well as the long range goals of the group and also the divergency which might exist between these goals. It will be in this all-inclusive manner that this term will be used throughout the remainder of this paper.

In the problem under consideration, polarization will refer to the long-range goals of the group. There will be two experimental conditions. In one of these conditions the groups will be highly polarized, i.e., only one long range goal; hence no divergency. These will be called the unipolar groups. In the other experimental condition the groups will have two long-range goals which are highly divergent. These groups will be called the bipolar groups. A fuller discussion of this topic will be found in Chapter III on methodology.

The term "efficiency" which is used in the statement of the problem is always in need of some clarification. The question always arises, "Efficiency in what respect?" In a
recent study of group productivity, which is analogous to the dependent variable in this study, Marquis, Guetzkow and Heyns (61) observed:

that it did not seem feasible to design an external objective criterion measure of the quality of the group decision applicable to all the groups. Our observation . . . . that there seemed to be no single over-all criterion of conference effectiveness which could be easily obtained and generally accepted.

In these studies three criteria were used--(1) satisfaction of the conference (2) productivity of the conference (3) amount of residual disagreement.

In the present study there were also three criteria used to measure the efficiency of the group decision-making process. The first was the length of time necessary for the group to reach a unanimous decision. The second was the satisfaction of the group members with this decision. The last criterion was the workability of the decision as judged by a group of experts.

By way of summary of these last two sections, the problem can be restated in light of the discussion in the preceding paragraphs. The present problem is to determine whether or not the polarization of the group, defined as the number and divergency of the group's goals, has any effect on the efficiency by which the group reaches a unanimous decision when the efficiency is measured in terms of (1) time to reach decision (2) satisfaction with decision (3) workability of decision.
AIMS OF THE STUDY

As stated previously, a knowledge of the relationships between the group characteristics and the group behaviors must be established before any attempt can be made to develop a theoretical system to predict group behavior. The primary aim of this study is to gather some preliminary data on the relationship between the group characteristic of polarization and the group performance of reaching a group decision on a mutual problem.

A brief survey of the theoretical literature on small group behavior indicates that the final system of predicting group behavior will undoubtedly be made up of a group of interconnecting miniature systems. Bogardus (15) and Duetch (30) have already advanced such a miniature system to predict competition and co-operation in small groups. Hemphill (44) is now in the process of developing such a system for the prediction of leader behavior. Since the multipolar, especially the bipolar, groups play such a large part in world affairs, (witness the "peace conferences" and the labor management negotiations), one might readily use such groups as the basis for building a system to predict their success or failure. The preliminary data gathered in this study might indicate the feasibility of such action. This, therefore, serves as the second purpose for this study.

The third reason for the study is to develop
instruments, techniques, and procedures which can be used for the study of bipolar groups. The development of such instruments is demanded by the fact that the "live" groups, such as the negotiations between union and management, are not as yet available for scientific study. It is virtually impossible at this writing to study these groups directly. This study should give ample indication as to whether or not it is feasible to study one of these groups, i.e., the collective bargaining group, in the somewhat unnatural surroundings of the laboratory situation. In the course of this study an instrument was developed by which one could identify the position of persons on the labor-management attitude continuum and thereby form groups of a desired combination. Aside from this, instruments were also developed to measure the effectiveness of the group's activity.

The fourth and least important reason for this study was to acquaint the writer with the techniques and literature in the field of small group research. The experience which has been gained from this study should prove invaluable and should show its effects in any future studies pursued along similar lines.
CHAPTER III

METHODOLOGY

SELECTION OF DISCUSSION TOPIC

In order to investigate the problem stated in the preceding chapter, it was necessary to choose a discussion topic in which there was considerable disagreement on the long-range goals among the subjects. The field of labor-management relations was chosen because it seemed to fulfill this prerequisite. It was also chosen because this seems to be the area in industry which has received the smallest amount of attention by the psychologist. Most of the writings on this subject have been of the "armchair philosophy" type, based upon the experience of some individual rather than upon any controlled study. The only recent attempt to make a scientific study of this group was completed by Osterberg (65). Little information was gained from this effort, however, because the investigator was asked to leave before the active sessions began.

The discussion problem which was set up for the groups consisted of negotiating a union-management contract from a hypothetical case history which was given to them. This discussion problem was developed with the help of a union leader and a plant manager. It includes facts on both sides of the argument. It specifies the general
conditions of the country; such as the financial conditions, the commodity market, cost of living, etc. It also includes facts about the particular community in which this company is located; such as its size, cost of living, labor market, etc. There were also facts given which were specific to the company itself; such as its wages, kind of work required, general financial condition, size, personnel policies, etc. This case history ended with a resume of the first negotiation session for the present contract. This resume included a list of the current union demands as well as the management counter-proposal to these demands. The groups were placed in the role of a mediation board and asked to negotiate the contract which they felt would be most justifiable under the existing circumstances and would best satisfy the two parties.

The original discussion problem contained eighteen separate union demands and a considerable amount of general information which was helpful but not pertinent to the presented problem. When this was presented to several practice groups, it was found that the groups began to argue on the facts that were given in the material rather than on the issues. Aside from that, the problem was too long and the groups became bored toward the end of the session. This problem was then shortened in both the amount of information that was presented and the number of issues involved, and it proved
more satisfactory. The final form of the problem, as well as the directions which were given to the groups, can be found in appendices B and C should the reader desire any further information on this topic.

THE EXPERIMENTAL DESIGN

The design of this experiment was a relatively simple one in which one variable was manipulated in order to measure its effect on some other variable. In this problem the polarization of the groups was manipulated in order to determine its effect on the efficiency of the group in reaching a unanimous decision. Within this relatively simple experimental framework, however, there were several alternate designs which might have been chosen. The first of these alternate designs would have been one in which the investigator would use many degrees of polarity with only one or several groups in each of these degrees. This design would have the advantage of gaining a great deal of information about the polarization continuum. At the same time, it has the disadvantage of giving the investigator unreliable data because of the large chance factor involved in using such a small "N".

The second alternative was one in which the investigator would use a minimum number of degrees of polarization with a large number of groups in each instance. This design would reverse the advantages and disadvantages of the above
design; i.e., the information gained about the dimension of polarization would be decreased, but the reliability of this information would be increased. Since this was an exploratory study of this particular problem and there was no advance information available, the second design was the one which was chosen.

SUBJECTS

In such a study as this, the ideal situation would be one in which one would study a "live" group in the act of negotiating a contract. However, at the present time, this procedure is virtually impossible. It was necessary, therefore, to select another population and duplicate the conditions as closely as possible in a laboratory setting. The subjects that were chosen for this investigation were the male students of psychology 401 and 402 at Ohio State University. These two courses were represented by all the undergraduate classes, as well as all the various colleges of the institution. The ages of these students range between seventeen and thirty-five with a mean probably between nineteen and twenty. The greater majority of these students would be included in the age group between eighteen and twenty-one.

DEVELOPMENT OF QUESTIONNAIRE AND FORMATION OF GROUPS

The next logical step in this investigation would
be to find some way of identifying the long-range labor management goals of these individuals. There would be several alternate methods by which this might be accomplished. First of all, one might simply ask the person whether he were pro-labor or pro-management. In instances such as this, however, experience has shown that such an approach is not always successful since the individual is often unaware of his position on such a topic. A second alternative would be to ask the person for his opinion on several sub-goals which would be necessary for the attainment of the long-range goal. In essence, this would be an attitude questionnaire method. This second procedure was the one chosen for this study. The success of this method rested on the assumption that the answers to these questions on specific issues in the labor management realm would measure the individual's long-range goals toward labor and management.

At present there is no instrument available which could be used for the purpose of determining attitudes toward labor management. It was, therefore, necessary to build one.

In order to accomplish this task, it was first necessary to discover the issues on which the labor and management forces might disagree. These issues were determined by interviewing experts in the field of labor-management relations concerning the problems which they felt were most critical at the present time. These experts included both
men who were in concrete contact with this situation as well as persons who were primarily interested in this problem from an academic viewpoint.

The group consisted of individuals from four distinct disciplines. The representatives of the first of these disciplines were individuals who held top level positions in union organizations. One of these persons was a Director of Education for a district CIO headquarters. The second individual was a president of a local union affiliated with the CIO.

In order to achieve a balance of viewpoints, two individuals who were considered to be high level management personnel were also consulted. One of these individuals was an owner of a small industrial concern, and the second was a plant superintendent of one of the local companies.

The third discipline represented in this group of experts consisted of persons who were primarily interested in this problem from an academic or theoretical standpoint. One of these individuals was a labor economist. The other an industrial management economist. Both of these individuals taught courses in their specialties at the college level.

The individual representing the fourth discipline was one who was considered an expert on union-management affairs. This individual is well known throughout this region as a
labor arbitrator.

During the interviews with these experts the writer took notes on the relevant points which were discussed. Special attention was given to the experts' opinion as to the position of the labor and management forces on each of the issues which were expressed. These notes were transformed into statements at a later time, and these statements formed the basis for the original questionnaire.

The original questionnaire was made up of 118 items. The following statements would be representative of the type of statement used throughout the questionnaire:

1. Unions weaken individual initiative.

2. The motives governing the action of top union officials are prestige and financial gain and not the welfare of the worker.

3. Management must preserve the sole right to govern the company's pricing policy if industry is to survive.

4. The recent spiral in prices is due to price hikes on the part of management after which the unions demand pay hikes to keep up with the cost of living.

5. Individual initiative is more important than collective bargaining.

The complete questionnaire can be found in Appendix A should the reader desire any further information. The items whose number is circled in red are those which had the highest discriminating value, and the ones which were used in the final form of the questionnaire.

To each of these items, the respondents could make one
of five choices. These choices ranged from strongly disagree with the statement on the one end of the scale to strongly agree with the statement at the other end of the scale. Each item had been tentatively keyed according to the opinion of the experts as to the relative position of the labor and management forces on the issue. The key was so arranged that a strongly pro-management answer was always keyed one, and a strongly pro-labor answer was always keyed five.

The fact that all of the items would not be discriminating items was fully recognized. In order to determine the most valid items, the questionnaire was administered to 120 male students of the psychology 401 class at Ohio State University. The completed questionnaires were then scored on the basis of the tentative key which had been previously developed. A low score on the questionnaire indicated that the individual was pro-management in his viewpoint while a high score indicated that the person was pro-labor in his viewpoint. The distribution of scores from this first administration of the questionnaire showed the usual normal distribution which is found in similiar studies. The median score, 354 was coincidently also the score that a person would have received had he given a middle-of-the-road answer to every statement.

This distribution was then divided into three equal
parts. An item analysis was completed to determine the items which discriminated between the high and low groups by a method which Wherry calls the discrimination index. He has found that the results of this method correlate highly with the results obtained by using a $r_{bis}$, although it entails only a fraction of the work. By this method, one adds cumulatively the difference between the high and low scoring groups for each item. If the item has no discriminating power, the difference between the two groups will be zero. The higher the discriminating power of the item, the higher the index will become with the total "N" of the two groups being the limit. If this limit were attained, the item would be discriminating perfectly, and there would be no overlap between the two groups. By the use of this procedure, the thirty-six items showing the greatest discrimination values were chosen to be the final form of the questionnaire.

In order to be assured of the validity of these questions, the final form was administered to two groups which were assumed to hold positions on the opposite ends of the labor-management continuum. In this cross-validation, no attempt was made to cross-validate on individual items but only on total scores.

The group which was assumed to be on the management end of the continuum was the Jay Cee's. This group is composed primarily of local business and professional men.
Unfortunately, there is only a very small representation on the part of industry in this organization, primarily because of an inconvenient meeting time. Fifty questionnaires were handed out to this group. Of this number, twenty-six were completed and returned. These were scored according to the key which had previously developed.

The labor group consisted of union leaders and stewards. There was a total of thirty-five questionnaires handed out to this group. Of this number, nineteen were completed and returned.

The Jay Cee group had an average score of 91.46 and a standard deviation of 20.3. The group consisting of the union leaders and stewards had an average score of 138.42 and a standard deviation of 26.84. Since the groups had different N's, the ordinary computation of t could not be followed.

The procedure suggested by Edward's (32) for handling such a problem was the one used in this study. By this method the t was found to be 6.41 which is significant beyond the .01 level.

The reliability of the questionnaire was determined by the test-retest method. The questionnaire was given to fifty persons ten weeks after the first administration. The reliability coefficient was found to be .86 by the test-retest method.

The final form of this instrument was then administered to 511 male students of the 401 and 402 psychology courses.
This group constituted the subjects for this study. The questionnaires were scored in accordance with the established key. These scores were arbitrarily divided into three equal sections. The high scoring group was operationally defined as pro-labor; the intermediate group was operationally defined as the middle-of-the-roaders; the low-scoring group was operationally defined as pro-management.

In a previous section concerning the design of this experiment, it was stated that the present experiment would use the maximum number of groups available in minimum of experimental conditions. In this manner the reliability of the results would be enhanced, although the amount of information gained per group used would be diminished.

Thus there were two sets of groups created. The first set was made up of the highly polarized or unipolar groups. This means that the group was congruent with respect to their opinions on the eventual positions of labor and management. In order to control for any effects of position along the labor-management continuum, three points were chosen from which the individuals comprising the groups were selected. The first were those who were low on the continuum, or pro-management. The second were those in the middle of the continuum, or middle-of-the-roaders. The third were those who were high on the continuum, or pro-labor.

The groups in the second experimental condition were
lowly polarized or bipolar groups. These groups were made up of three persons who were pro-labor in their viewpoint and three persons who were pro-management in their viewpoint. There were twelve groups in each experimental condition.

In the formation of these groups, certain controls were enforced in an attempt to eliminate the effects of certain irrelevant variable on the group's behavior. The following is a list of such variables and the attempt which was made to control or eliminate their effects.

1. Group Size - This was eliminated by using groups of six in both experimental conditions.

2. Individual prestige or status variables within the group - This was controlled for in a number of ways. In the first place, the group members were unacquainted with each other. Secondly, no campus celebrities were allowed to participate in this study. As a third precaution, the groups were matched as closely as possible on age and education.

3. Knowledge of possible solutions - This was partially controlled by equating the group on age and education. It was also partially controlled by the very nature of the subjects in that they had had relatively little work experience. Again it was partially controlled for by the fact that only male participants were used.

4. Sex - Controlled for by using only male subjects.

These groups convened in the group research laboratory in the Personnel Research Board building. This room is well-adapted for the study of group processes since it is equipped with one-way screens, a microphone and recording apparatus and a large conference table. The group could thus be
observed and heard without the interference of the observer being personally present. The groups were told of these conditions since the location of the instruments made them obvious and their use could be easily deduced by the participants. This seemed to have little, if any, effect on the discussion. All discussions of the groups were recorded for future analysis.

The groups were given preliminary directions about the problem and then given approximately fifteen minutes in which to read the case history which was given to them. At the end of this time, they were given their final instructions and the investigator left the room. He did not re-enter the room until the subjects had completed their negotiation. This was violated in two cases when the groups were going overtime and were cautioned that they were nearing their time limit. When this was completed, the members were given a list of rating scales which were designed to measure certain aspects of the group's performance, primarily, their satisfaction with the contract which had been negotiated. Before filling out the rating scales, the group members were asked to complete them with absolute honesty. They were told that there would be no reproccussions for any answers and the only person who would have access to the scales was the experimenter.

With the completion of the rating scales, the experiment was terminated.
CHAPTER IV

RESULTS OF THE STUDY

QUALITATIVE RESULTS

Before relating the quantitative results of this study, it might be desirable to give some of the more qualitative aspects in order to allay some misgivings about various phases of the problem which had been voiced during the formative stages of the dissertation. Many of the uncertainties expressed during the early discussions of the problem could be checked during the practice groups’ sessions and remedied before the experimental groups’ sessions began. However, there were other criticisms, some of basic importance, which could not be pretested. These misgivings will constitute the subject matter for the subsequent paragraphs.

The first of these misgivings was expressed in various terms by different people. One spoke of the self-involvement of the group members in their task. Another spoke of the intent of the individuals. Basically, these were pointed toward a single question. Would the groups be orientated toward getting out of the experimental situation, or would they be orientated toward solving the problem which was presented to them? If the groups chose the former alternative
as their goal, the study would have been invalidated since
the groups in both experimental situations would have been
unipolar, i.e., all orientated toward the single goal of get-
ting out of the situation. Although no objective criterion
was set up to test the validity of this proposal, the direct
observation of the groups offered evidence of a subjective
nature which would make such a hypothesis doubtful. The
single exception to this generalization was a group which
was scheduled on Saturday afternoon. This group, a bipolar
group, seemed to be definitely orientated toward getting out
of the experimental situation as quickly as possible. The
group was definitely atypical in terms of time to reach a
solution, taking only thirty-two minutes to reach an agree-
ment on the problem, whereas the mean for the bipolar groups
was 54.8 minutes. However, there was no objective basis for
this conclusion, and the group was therefore retained.

As a further check on the problem orientation of the
groups, the results could be examined on the scale by which
the groups rated the experiment in terms of its interest to
them. This scale was as follows:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>0</th>
<th>5</th>
<th>61</th>
<th>77</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It was a boring and distasteful experience</td>
<td>I would rather have done all</td>
<td>I didn't it was interesting</td>
<td>most anything too much of the time</td>
<td>enjoyable experience</td>
</tr>
<tr>
<td></td>
<td>It was an extremely mind it esting most</td>
<td>experience</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


The number above each statement indicates the number of persons choosing that alternative. The average rating for this item was 4.48. This information, though indirect, in addition to the subjective evaluation of the groups' performance, is enough to invalidate the hypothesis that the groups in both experimental situations were unipolar since they were primarily orientated toward getting out of the experimental situation.

A second criticism raised by persons with whom the problem was discussed concerned the difference of the degree of polarity between the pro-labor and the pro-management groups. It was pointed out that the college population was composed primarily of the upper class strata and would, therefore, be biased toward the pro-management viewpoint. From observation of the groups, this hypothesis would seem to be partially substantiated. More pro-management individuals seemed more willing to expound and fight for their convictions than were the pro-labor individuals. This fact was not as extreme as some persons would have predicted, however. There were many individuals who were willing to expound and fight for the labor, or at least for that of the workers' point of view. This evaluation will be elaborated further in the next chapter. Even assuming the plausibility of the tenet, however, it would seem to have little bearing on the problem at hand since the problem was stated in terms of polarity,
and not in terms of pro-management or pro-labor. The poles of this situation were operationally defined in terms of the upper third and lower third of the group. Being thus operationally defined, would invalidate this criticism as a critical factor in this study.

A third misgiving that was expressed concerned the effect of personality variables on behavior of the groups. A suggestion was made that certain of these should have been controlled. Such a procedure, though laudable, would have complicated the experiment to such an extent that it would have been virtually impossible to carry it out. Aside from this fact, there is no way of telling what or how many personality variables would be important in this situation. This, however, is no justification for ignoring these as possible complicating factors. There is a more valid reason for the procedure which was followed. First of all, there are a multitude of factors in any experiment which are uncontrolled and unless there is some selection factor operating in the situation, these factors are assumed to cancel out in the two experimental situations according to the laws of chance. This was the logic of the dismissal of these factors from consideration. If, however, there was some selective factor involved which was inherent in the selection of the pro-labor and pro-management groups, this would be a serious error of the experiment. Since there is no evidence,
pro or con, on this dilemma, any statement as to the effect of these personality variables would be highly speculative, and could be verified only by future research directed to this problem.

**QUANTITATIVE RESULTS**

As mentioned in the chapter on Methodology, there were three criteria for measuring the efficiency of the groups' decision-making behavior.

1. Time to reach a unanimous decision
2. Satisfaction with the decision.
3. Workability of the decision.

The results found with each of these criteria will be discussed separately in the following sections of this chapter.

**Time.** The hypothesis with regard to time stated that the bipolar groups would take longer to reach a decision than would the unipolar groups. The data gathered in this study tends to corroborate this statement. The following table gives the length of time taken by each group to reach a decision of the problem.
TABLE I
TIME TAKEN BY GROUP TO
REACH UNANIMOUS AGREEMENT

<table>
<thead>
<tr>
<th>UNIPOLAR GROUPS</th>
<th>MINUTES</th>
<th>1 2 3 4 5 6 7 8 9 10 11 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIPOLAR GROUPS</td>
<td>MINUTES</td>
<td>13 14 15 16 17 18 19 20 21 22 23 24</td>
</tr>
</tbody>
</table>

*These two longest groups were asked to speed up their discussion since their time was running short.

Before ascertaining whether or not the difference between the two experimental conditions was significant, it was first necessary to show that there were no significant differences between the groups comprising the unipolar condition, i.e., the pro-management, the middle-of-the-road, and the pro-labor subgroups. The mean time to reach a decision for the pro-management groups was 43.75; the mean time for the middle-of-the-road group to reach a decision was 44.75; and the mean time for the pro-labor groups to reach a decision was 45.0. None of the differences between any of the means approached significance. It could, therefore, be assumed that these three subgroups were from the same population and could therefore be treated as a unit. The mean time for all of the groups in the unipolar condition was 44.5. The standard deviation of their time scores was 10.4.

The mean time of the bipolar groups to reach a solution to the problem was 54.8. The standard deviation of
these time scores was 11.8. A t-test was used to compute the significance of the difference between the means. In this instance, the t was found to be 2.29. The value of t which is necessary for the difference to be significant at the .05 level is 2.20. Since the obtained value exceeds this figure, it is necessary to reject the null hypothesis and assume that the difference between the two groups was not due to chance.

Even though it can be concluded from the preceding analysis that the results on the time criterion are not due to chance, the analysis does not give any information about the deviant groups in the study. It gives only information about the average group in the two experimental conditions.

Some leads for future research and a better understanding of the group decision-making process might be discovered by a further analysis of some of the atypical groups. Such an analysis will necessarily be of a subjective nature since the evaluation was completed, for the most part, after the study had been concluded. The data for these evaluations were gained from two sources. The first source consisted of notes which were taken during the group discussion. The second source consisted of notes which were taken at a later time from the recording of the group sessions.

It can be noticed from Table I that the first of the unipolar groups are atypical in terms of the length of time taken to reach a decision, since the group used 62 minutes to
arrive at a unanimous decision. The time in this instance is somewhat misleading. The group actually took much less time than to reach their decision. However, one individual in the group, even though he stated that he believed that the decision was a just one, would proceed to go over the facts and discussion of the facts after the issue had been decided just to be sure that it was the best solution to the issue. Usually these orations lasted almost as long as the original discussion of the demand. He seldom said anything which had not been said before. Rarely did any of the other members make any verbalizations during these orations. In no case did this affect the group's decision since this extremely conscientious individual always summarized his speech by reiterating the group's original decision and asking for the approval of his fellow members. This behavior pattern was followed on seven of the seven issues which were discussed. During the latter part of the session, some signs of aggression which were directed toward this individual were apparent. This behavior pattern seems to account for deviation of this group in regard to the time necessary to reach a decision.

Group No. 6 was also somewhat atypical in terms of the time taken to reach a unanimous agreement. This group used fifty-seven minutes in this process. In this group the conscientiousness factor which was mentioned in the discussion
of the preceding group seemed to be characteristic of the entire group. The fact that the directions stated that each issue should be decided in a manner which would be just to both parties was brought into the discussion by various group members on numerous occasions. There was, however, another outstanding feature of this group which also complicated the decision-making process. Even though this group was supposedly pro-labor, several members of the group seemed to be orientated toward a management viewpoint. This fact, together with the group's conscientiousness, would partially account for the deviant position of this group on the time criterion.

The reader has probably noticed that group No. 7 also took considerable time to reach a unanimous decision. As in the preceding group, there seemed to be several members of the group who were orientated toward a management position. In effect, both this group and the preceding one acted as bipolar groups.

Since this discrepancy between the attitudes and actions appears in both groups No. 6 and No. 7, as well as in several other groups, some uncertainty is cast on the questionnaire as a method for choosing the pro-labor members from the population used in this study. No discrepancies were noted in the selection of the pro-management individuals.

Group No. 11 also took considerable time to reach a
decision which was satisfactory to all of its members. The outstanding feature of this group seemed to be the lack of a strong leader. In most of the groups, some type of leadership usually emerged sometime during the session. In this case, no consistent leadership appeared. Consequently, the group tended to drift from topic to topic with no decisions being made on any of the issues. The lack of leadership also lead to further complications in the discussion. One of the functions of the leader seemed to be that of suggesting possible compromises to an issue. Since there was no strong leadership in this group, the issues were decided on an all or nothing basis. When two members of the group had divergent opinions on an issue, they attempted to solve it by out-talking their opponent. Seldom were any compromises introduced into the discussion. The issue was finally settled when one person capitulated completely, usually for the sake of expediency. There was seldom any indication that the surrendering side was convinced of the opponents arguments. A third outstanding feature of this group was the naivete of several of its members. Considerable time was spent in just clarifying several of the issues to these persons. With the knowledge of the factors, the deviation of this group from the average becomes more understandable.

In the bipolar condition, there were several of the
groups which were also atypical with regard to the amount of time needed to reach a satisfactory solution. One of these groups, No. 19, has already been discussed in a preceding chapter (page 43) and will need no further elaboration.

Group No. 13 was also somewhat atypical by virtue of the fact that they took less time than average to reach a solution. In this group, both forces seemed to be well represented on the first issue. The labor side, was made to surrender almost completely on this issue. Their efforts on behalf of labor became more feeble as the session progressed. After the fourth issue, this labor point of view was seldom expressed with several minor exceptions when the worker's viewpoint was examined briefly. The union, however, was damned from stem to stern without drawing any fire from the labor side.

The time that group No. 22 needed to reach a decision must also be considered as deviant, although in this instance the deviation is in the opposite direction to the group mentioned above. This group took 74 minutes to reach a decision. They were also asked twice to speed up their proceedings when their time began running short. This group consisted of subjects who were older than most of the subjects used in this study. The group was seemingly the best informed group in either of the experimental conditions. They recognized their differences immediately and set about looking for
suitable compromises for the issue. This task proved to be exceedingly difficult. As the session progressed, the pace of the discussion and also the emotionality of the discussion seemed to increase. This emotionality, however, seemed to be of a general nature. It seemed to be directed toward no individual or group of individuals. During the latter stages of the session, two or more persons were talking at the same time almost continuously. One of the features of the compromise procedure which was unique with this group was the fact that the concessions were made a little bit at a time. One side would make a slight concession and then wait for the other side to do likewise. In the other groups, someone would interject a reasonable compromise into the discussion which would be accepted by the members. There are other features of this group which will be discussed in a later session. The information given here should, however, aid in understanding the dynamics of this particular group.

In group No. 23 the outstanding feature was the lack of pro-union representation. This group took only 38 minutes to reach a decision and acted, in effect, as a unipolar group. The pro-management individuals expounded their viewpoint first, and, if there were any labor men in the group, they made no attempt to outline their position. The only time that the labor group was heard in any sense of the word was
on rare occasions when they gave the worker's point of view on some issue. This probably accounts for the speed with which this group reached a unanimous solution to the problem.

**Satisfaction.** With regard to the criterion of group satisfaction, there were several hypothesis to be tested. The first of these concerned the level of satisfaction that would be expressed by the individuals in the two experimental situations. It had been hypothesized that the unipolar groups would be more satisfied with their contracts than the bipolar groups. The measure of satisfaction that was used in this study was obtained by the use of graphic rating scales.

The questionnaire containing these scales which was given to the practice groups, contained scales for every issue, in addition to several other scales concerning the friendliness of the group, sociability of the group, and interest in the experiment. The assumption for these latter scales was that satisfaction might have been more readily expressed to an indirect question than to a direct question. This procedure proved too tedious from the subject's point of view, and they resented the repetition in the task. It was, therefore, decided to ask for over-all satisfaction and satisfaction on the wage issue in addition to the scales for possible friendship, group manners, and interest in the experiment. The wage issue was chosen since the practice groups believed this demand was the only one of importance; the other issues being of secondary importance or bargaining points for one side
or the other. However, the experience with the latter experimental groups showed the pattern of the early groups was not a representative one. There were three issues instead of one which seemed to be fundamental—vacation and hospital and medical plan in addition to the wage issue. The latter two scales should have been kept in the questionnaire. The average rating for each on the scale is summarized in the following table. In this table, as well as all succeeding tables, the first twelve groups are the unipolar groups and the last twelve groups are the bipolar groups.

**TABLE II**

AVERAGE GROUP SATISFACTION AS EXPRESSED ON RATING SCALES

<table>
<thead>
<tr>
<th>Group</th>
<th>Overall Satisfaction</th>
<th>First Wage Satisfaction</th>
<th>Second Wage Satisfaction</th>
<th>Manners</th>
<th>Possible Friendship</th>
<th>Interest</th>
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TABLE II (continued)

AVERAGE GROUP SATISFACTION AS EXPRESSED
ON RATING SCALED

<table>
<thead>
<tr>
<th>Group</th>
<th>Over-all Satisfaction</th>
<th>First Wage Satisfaction</th>
<th>Second Wage Satisfaction</th>
<th>Manners</th>
<th>Possible Friendship</th>
<th>Interest</th>
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<td>4.17</td>
<td>4.50</td>
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<td>4.67</td>
</tr>
</tbody>
</table>

The scale used to measure the over-all satisfaction with the contract is given on the following line.

OVER-ALL SATISFACTION

Both parties would be dissatisfied with the contract. Neither party would be completely satisfied with the contract. The usual amount of dissatisfaction would exist with the contract. Both parties would be reasonably satisfied with the contract. Both parties would be dissatisfied with the contract.
The mean over-all satisfaction rating for the unipolar groups was 3.53 with an S.D. of .60. The mean over-all satisfaction rating of the bipolar groups was 3.51 with an S.D. of .67. The difference between was not significant.

In the unipolar conditions, there were no groups which were outstanding deviants on this measure. There was, however, one group, No. 22, in the bipolar condition which should have some special consideration because it may hold some implications for future research. This group, a bipolar group, was more satisfied with their contract than any other group in either of the experimental conditions. The reader will remember that it was this group which took the longest time to reach a decision and on a subjective basis, seemed to work the hardest to reach a satisfactory compromise. The group factions recognized their differences in opinion immediately and began seeking an adequate solution. Even though the discussion became quite emotional toward the latter portion of the session, it seemed to have little effect on their attitude toward their final solution. It should also be noticed that this group was higher than average on all of the rating scales.

Two scales were used to measure the satisfaction with the wage issue. The first scale attempted to use an impersonal approach by having the individuals rate the satisfaction and dissatisfaction of the union and management with this contract.
This scale is as follows:

**WAGE SATISFACTION I**

<table>
<thead>
<tr>
<th>One party</th>
<th>One party</th>
<th>Both parties</th>
<th>Both parties</th>
<th>Both parties</th>
</tr>
</thead>
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<td>would feel</td>
<td>would be re-</td>
<td>would be com-</td>
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<tr>
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<td>better of</td>
<td>that it was</td>
<td>sonably sati-</td>
<td>sibly sati-</td>
</tr>
<tr>
<td>satisfied</td>
<td>the deal.</td>
<td>the best that</td>
<td>satis-</td>
<td>satis-</td>
</tr>
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<td>at the ex-</td>
<td>fied with</td>
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<td>pletely</td>
<td>pletely</td>
</tr>
<tr>
<td>pense of</td>
<td>the fied</td>
<td>the fied</td>
<td>satis-</td>
<td>satis-</td>
</tr>
<tr>
<td>the other.</td>
<td>could be</td>
<td>with the</td>
<td>sated</td>
<td>sated</td>
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<td>done</td>
<td>the fied</td>
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<td>with the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>contract.</td>
<td>fied</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

The mean rating for the unipolar groups on this item was 3.42 with an S.D. of .85. The mean rating of the bipolar group on this item was 3.19 with an S.D. of .66. The t for the difference between the means was 1.64 which was not significant.

On this particular scale, there were two groups which were exceedingly low in the unipolar condition, and none which were exceedingly high. The first of these groups was group No. 6. This group had been mentioned previously because it had taken so much time to reach a solution. It was also noted at that time that this group did not appear to be a unipolar group as far as the discussion was concerned since there were several members who seemed definitely orientated toward a management viewpoint. This complicating factor may have had its effect on the satisfaction of the group on this scale.

The second unipolar group which was low on this rating scale was group No. 12. The discussion of this group was extremely rapid and sometimes a little heated, but there seemed
to be no outstanding characteristic of this group which would have lead one to predict such a result.

In the bipolar condition, groups No. 16, 17, and 21 were comparatively low with regard to the first wage satisfaction scale. As with group No. 12, there seemed to be nothing unusual about the manner in which the group handled the wage issue. They stuck to the facts of the case, were not emotional, and seemed well-informed. The latter part of the session became somewhat more heated, which may partially account for the observed result.

In group No. 17 the outstanding factor seemed to be the lack of leadership in the group. As a result of this, the group tended to skip around so frequently that it was impossible to get any times on the discussions of individual items. One indication of dissention was the fact that one individual refused to sign the contract. After the session, he stated that he thought the worker was given a raw deal, but didn't get a chance to say so because the group was discussing some other issue before he could make his point.

Group No. 21 had the same procedure for handling this problem as did group No. 17, in that they did not take up the issue in order but tended to jump from issue to issue in an inconsistent manner. There was only one other group that handled the problem in this fashion. The most outstanding feature of this group was the naivete of several of the group
members. The information seemed to be centered in the hands of the management members of the group who used it to their own advantage. On the wage issue, the group agreed on a 5 per cent increase which was the absolute minimum which could be given since management had already offered this amount. The labor side seemed to agree only because they didn't know enough about it to protect their own views and as a result were completely overwhelmed, though not convinced, by the arguments on the management's side. The fact that the management members seemed to be dominant in the session and force a contract which was one-sided may be the factor which lead to the extreme dissatisfaction of the group.

The second scale was concerned with the individual's personal satisfaction with the wage issue. This was measured by the following scale:

**WAGE SATISFACTION II**

<table>
<thead>
<tr>
<th>Extremely dissatisfied</th>
<th>Somewhat dissatisfied</th>
<th>It was alright</th>
<th>Well satisfied</th>
<th>Perfectly satisfied</th>
</tr>
</thead>
</table>

The mean rating for the unipolar groups on this scale was 3.93, and the S. was .99. The mean rating of the bipolar groups was 3.54, and the S.D. was .99. The t for the difference between the means of the two groups was 2.41 which is significant at the .02 level.
On the second scale for measuring satisfaction with the wage agreement, group No. 12 of the unipolar groups was again low. As mentioned previously, the session seemed to have no outstanding feature which would have predicted such an outcome.

In the bipolar condition, group No. 19 was the low group. The outstanding feature of this group was the personality of one of its pro-management members. This individual was an extremely domineering individual and was definitely orientated toward getting out of the situation as quickly as possible. He used sarcasm frequently. He often resorted to the technique of getting a majority of the group on his side and then using this majority to bring the others into line with the implication always present that it would be impolite to refuse. He forced a settlement of 5 per cent on the wage issue by the use of this technique.

Although the leader's methods were effective in terms of the amount of time taken to solve the problem (32 minutes), their effects are undoubtedly reflected in the low satisfaction of the group with the settlement. It is also important to note that the group is low on every scale of the satisfaction criterion.

Again group No. 22 was the highest with regard to the satisfaction with their wage settlement. Since this group has been discussed on two previous occasions, it will not be
elaborated upon any further at this time.

Group No. 24 was also high with regard to their satisfaction with the wage settlement. As with group No. 22, these individuals seemed to be exceedingly well-informed. The one outstanding fact about this group was their tenacity in holding to the facts of the case concerning the wage issue. Outside information, though brought in, was always labelled as such. The actual decision was made only after an exhaustive review of the facts. The procedure might have been the reason for the high satisfaction expressed by this group.

As mentioned in the earlier part of this chapter, three other scales were also used in this questionnaire in hopes that they might extract some of the more subtle aspects of the satisfaction. The first of these scales involved the manners which the individuals of the group exhibited in this situation. This scale is as follows:

GROUP MANNERS

| The group lacked social manners. | Some members could have shown better manners. | It was like most groups members were on first meeting. | Most of the members were polite enough. | All of the members were extremely polite. |

The mean of the groups in both of the experimental situations was 4.15 on this scale. The S.Ö. of unipolar groups was .78, and of the bipolar group it was .66.
The second of the scales to measure satisfaction indirectly attempted to determine how the individuals in each of the experimental situations reacted to each other in terms of the possible friendship of the other group members. This scale is as follows:

**POSSIBLE FRIENDSHIP**

<table>
<thead>
<tr>
<th>66</th>
<th>/</th>
<th>/</th>
<th>/</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't think I would want any of them as friends.</td>
<td>There were I didn't form several I any opinion would want definitely on the matter.</td>
<td>Several of Any of them would have made possible friends.</td>
<td>made possible friends.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The mean rating of the unipolar groups was 4.47 with an S.D. of .69. The mean rating of the bipolar groups was 4.30 with an S.D. of .72. The difference between the means was not significant.

Two groups, one in each of the experimental conditions, were relatively low on the scale measuring the possible future friendship of the group members. In the unipolar groups, group No. 1 was the lowest. This group has been discussed previously. As mentioned at that time, the outstanding feature of the group was the extreme conscientiousness of one of its members, who became exceedingly redundant in an effort to be fair. This undoubtedly effected the marking of the friendship scale by the other group members.
The group in the bipolar condition which was relatively low was group No. 21. This group has been discussed on previous occasions with the emphasis being placed on the naivete of several of its members. The labor group was overwhelmed by technical terms used by their opponents and submitted because they could not muster enough evidence for their side and not because they were convinced of the management members arguments. This undoubtedly reflected in the friendship rating of the group.

The last of these scales was the one measuring the interest of groups in the problem. This scale has already been given in the first part of the chapter (page 43) and will not be repeated at this point. The average rating of the unipolar was 4.51 with an S.\(\mu\) of 0.58, while the average rating of the bipolar groups was 4.43 with an S.D. of 0.68. The difference between the two groups was not significant, however. As the reader has probably already noticed, the difference between the groups is in the expected directions in all cases, but in only one of these is the difference large enough to be significant.

There was also a second hypothesis to be tested concerning the satisfaction of the groups. This hypothesis concerned the variability of the satisfaction within a group and stated that there should be greater variability of satisfaction within the bipolar groups than within the unipolar groups.
The following table gives the S.D. of each group in the two experimental situations on each of the previously mentioned scales.

**TABLE III**

**STANDARD DEVIATION OF RATINGS**

<table>
<thead>
<tr>
<th>Group</th>
<th>Overall Satisfaction</th>
<th>First Wage Satisfaction</th>
<th>Second Wage Satisfaction</th>
<th>Manners</th>
<th>Possible Friendship</th>
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<td>.74</td>
<td>1.07</td>
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Mean 1: .49     .74     .69     .70     .57     .51
Mean 2: .56     .73     .80     .60     .68     .58
Diff.: .07     -.01     .11     -.10    .11    .07
Since the difference between the means of the sigmas of the two experimental situations did not differ significantly in any instance, the second hypothesis concerning the variability of satisfaction cannot be substantiated.

Even though significant quantative differences were not apparent, there are some qualitative aspects which may be worthy of further discussion. It can be noticed from Table III, that group No. 4 was below average variability on six of the seven scales. This group was an extremely congruent group. Many of the members strongly identified with management as shown by such statements as "we don't want any union in on our meetings," and "but we're only making a 7 per cent net profit." Of any of the groups which were used in this session, this one seemed to be the most rabidly pro-management, and the one which was most homogenous with respect to their attitude on this question. This gives some qualitative support to the original hypothesis that the variability of a group should increase as the polarization of the group decreases.

On the other hand, group No. 12 is high in variability on six of the seven issues. It will be remembered that this group was also one which was low on satisfaction in most of the scales. As previously mentioned, although there was considerable discussion on the part of the group members, there seemed to be nothing in the session which could be used to predict such a result.
In the bipolar group, group No. 15 was relatively high in variability on six of the seven scales. This group was very much oriented toward the facts of the case and two sides were well represented although one of the management members seemed to be the dominant individual of the group. However, the labor members were extremely tenacious and although they made fewer verbalizations, they remained adament until a solution was offered which was satisfactory to them. The group argued on almost every issue. Few points were granted outright to one party or the other but required a compromise. This lends further qualitative support to the original hypothesis.

However, group No. 22 and 23 offer contradictory evidence. These groups were high in satisfaction on most scales and low in variability. Both of the groups have been discussed previously. Group No. 22 was extremely bipolar; its members were older and better informed on the problem. The difference between this group and No. 15 mentioned above may be that the members of the former group actually believed that this was the best solution that could be made while the members of the latter group compromised just to settle the issue, still believing they were right.

Group No. 23 on the other hand acted almost like a unipolar group in that the labor side only appeared occasionally and even then showed signs of being weak. This would readily account for its showing of high satisfaction and low variability.
Workability of the Contract. The workability of the contract was determined by having two experts on labor relations, one of whom is well known throughout the state as a labor arbitrator, give a range for each of the issues in the contract based on the information given in the case history. Their decision was as follows:

1. Wages.
   Any increase within the range of 7 and 12 per cent.

2. Automatic progression to the top of the wage scale.
   This could be granted only if there was an ability clause attached to it. Otherwise, it would have to be refused.

3. Joint union-management committee for setting the piece rates.
   This is refused, although some provision might be made which would allow the union access to the time studies, although they would have no actual responsibility in setting the piece rates.

4. Sliding pay scale.
   This item would be granted, but it must be stated to go both ways.

5. Vacation.
   Any slight modification of the management's toward union's proposal would be acceptable; such as 1 week for 1 year, 2 weeks for two years, and 3 weeks for ten years.

6. Hospital and medical plan.
   Any plan which would be between management's 1/4 to 3/4 proposal and a 1/2 to 1/2 proposal would be acceptable for this issue.

7. Wash up period.
   This item would be completely rejected.

8. Rest periods.
   The management proposal of a 4 minute increase to make a ten minute rest period would be acceptable.
9. Company to furnish hand tools
   This item would be rejected completely in all probability because of the nature of the work. The skilled labor group usually take great pride in their tools.

10. Check-off system.
    Since this is already a union shop, this demand would be accepted.

11. Union representative to the Board of Directors. Under no circumstances would this be accepted.

Each of the contracts were then scored with a plus or minus on each issue, depending on whether or not the groups' decision was within or without the range or decision of the experts. The following table gives a summary of these scores of the groups in both experimental situations:
### TABLE IV

**WORKABILITY OF INDIVIDUAL GROUP CONTRACTS BY ISSUE**

<table>
<thead>
<tr>
<th>Group</th>
<th>Wages</th>
<th>Automatic progress</th>
<th>Joint unif.</th>
<th>Joint comm.</th>
<th>Joint rates</th>
<th>Sliding scale</th>
<th>Vacation</th>
<th>Med. &amp; hosp.</th>
<th>Wash up</th>
<th>Rest period</th>
<th>Co-ops</th>
<th>Hand tools</th>
<th>Check off</th>
<th>Union Bd. to Ed. or Dir.</th>
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The workability of the contracts was first examined on an overall basis by the use of a t test. The mean number of pluses for the unipolar groups was 7.00 with a t of 1.26. The mean correct for bipolar was 6.83 with a sigma of 1.46. The difference between the two groups is obviously not significant, and it is necessary to conclude that the two groups showed no difference in the workability of their respective contracts with this particular criterion on an over-all basis.

It was possible that, although the groups in the two experimental situations showed no difference on an over-all basis, there might have been some significant differences on the individual issues. In order to test this hypothesis, it was necessary to find some other method of computing probability than the usual $x^2$ since two rules for the use of $X^2$ had been violated. First of all, the total N did not exceed the minimum N of 50 and secondly the sum of several of the individual cells did not reach the minimum N of 5 required for the use of $X^2$. For these reasons the exact method suggested by Edwards (32) was used to compute the probabilities of the individual items. Because of the complexity of the method, those which were obviously not significant were not computed.

Only three of the individual issues approached significance. The wage issue reached the .10 level with the bipolar groups having the most number of plusses. The company to furnish hand tools issue reached the .10 and the check-off system
the .All level of confidence with the unipolar cases having the majority of plusses in both these latter instances.

The only factor which could be abstracted from the recording that seemed to effect this workability was the sophistication of the group members. The groups who were well informed seemed to do better, especially if both forces were well informed, than the groups who had less knowledge of the subject.
CHAPTER V

DISCUSSION OF RESULTS

THEORETICAL INTERPRETATION OF STUDY

Since no comprehensive miniature system for the prediction of the behavior of small groups is thus far available, one must resort to some of the more all encompassing systems in addition to some logical deductions not yet verified or systematized in order to account for some of the results of this experiment.

Under some form of field force theory, such as the Lewinian system, the following interpretation of the experimental situations might be given. The terminology and the emphasis of such an interpretation would differ slightly from that already used in this dissertation. Such an interpretation would undoubtedly emphasize the difference in stress produced in the groups by the forces which were compelled, by directions, to reach an equilibrium. Under such an interpretation, the following diagram might be used to exemplify two of the unipolar situations, i.e., the all labor or all management groups.

Figure 1

73
In such a situation, the small area would indicate the opposition force while the large area would represent the primary force. The arrows would represent direction and strength of the forces in the two situations and the jagged line would represent the bargaining issues. Since the opposition forces would be small, the contract should be negotiated in a relatively easy fashion with a minimum amount of stress and no major changes produced within the system. An opposing force, even in unipolar groups, would undoubtedly be present since the directions specifically stated that both sides should be considered. This diagram could be used to represent all groups which were made up entirely of pro-management or pro-labor individuals.

At the conclusion of the contract negotiation, the group structure might be schematized in the following manner:

![Figure 2](image)

The balance would be achieved when the two forces reached an equilibrium. Because of the inequality between the two forces, the equilibrium should be brought about with little change in the structure of the system and with only a minimum amount of stress being generated.
Some other diagram would have to be used for the groups composed of middle-of-the-road individuals. The fundamental structure of such a group might be diagrammed in the following manner.

Figure 3

In this situation both of the forces would be equally represented, although neither force would be very strong. The symbols in this diagram would have the same meaning as in the preceding diagrams. Again, it would be predicted that the group could arrive at an agreeable solution with a minimum amount of stress produced within the system and with little change in the structure of the group because of the weakness of both of the forces.

The pattern of the middle-of-the-road group at the conclusion of the session might be diagrammed in the following fashion.

Figure 4
The schematization of the bipolar group on the other hand would show approximately the same pattern as the middle-of-the-road group. All aspects of this particular group would be more pronounced, however. The bipolar set of groups could be diagrammed in the following manner.

Figure 5

Again the symbols have the same meaning as in the preceding diagrams. In such a situation, an equilibrium could only be accomplished after major changes within the system. The major changes within the system would create maximal stress within the group structure which would probably not be dissipated. The outward manifestation of this stress would be a dissatisfaction with the group's accomplishments. The diagram which would represent this situation, i.e., the group structure at the end of the session might be schematized in the following manner.

Figure 6
The darkness of the arrows represent the fact that, although an equilibrium of the forces has been accomplished, considerable stress still remains in the system since the equilibrium was a forced one.

**DISCUSSION OF THE RESULTS**

The results of the time criterion confirmed the hypothesis which had previously been formulated. This result could have been predicted on a logical basis. The representation of two strong points of view in the bipolar groups should have taken longer to reconcile than the representation of a single viewpoint in the unipolar groups. This is also the interpretation that would have been made according to a field force theoretical position previously expressed since it should take less time to bring about an equilibrium in those situations where one force is disproportionally stronger than the other or where both forces are weak than in a situation where both forces are equal and strongly represented.

The results of the satisfaction criterion did not terminate in the manner which had previously been predicted, at least not in every respect. It had been predicted that the bipolar group would be less satisfied, (on all measures of satisfaction) with their contract than the unipolar groups. This was the hypothesis which was predicted from the theoretical position expounded in the previous paragraphs. The
scale used to measure the over-all satisfaction with the contract showed a slight tendency in this direction, but this did not even approach significance. However, the bipolar groups were significantly less satisfied with the results of the wage issue since the hypothesis included all measures of satisfaction. The apparent discrepancy needs some possible explanation. Several such possibilities will be offered for consideration in the subsequent paragraphs.

In the first place, the wage issue was the one that seemed to create the greatest amount of controversy among the participants. Several other issues, notably the sliding pay scale issue, the vacation issue and the hospital and medical plan issues also created considerable discussion. Most of the discussions of the sliding pay scale demand were concerned with its definition and operation. Since this discussion is primarily with problem-solving behavior of groups and not the dissemination of knowledge, further discussion of this issue can be closed.

The negotiation of the contract seemed to be centered around the remaining three demands of wages, vacation, and hospital and medical plan. The other issues were used, for the majority of the groups, as bargaining points. It is, therefore, speculated that the bipolar groups' satisfaction would be expressed in terms of the decision on these issues for the most part. If one of the forces had gained enough on one of
the other major issues or enough of the minor issues, it
might overcome the dissatisfaction that they felt with the
loss on one of the other issues. In this case, they might
be well satisfied on an over-all basis and no apparent dif-
ference would be seen between the over-all satisfaction of
the groups in the two experimental situation.

This could be restated somewhat differently in order
to conform with the field theoretical interpretation which
has been postulated. The bipolar experimental situation is
such that, by definition, an equilibrium must be achieved,
Since the equilibrium is a forced one, stress would be generat-
ed by the forces operating in the situation. This stress
would not be a general one, but would be manifested only
at certain points. The outward manifestation of the stress
points would be a dissatisfaction with the contract where the
stress existed. With this interpretation, one can readily
account for the dissatisfaction with certain individual
issues. In order to account for the fact that there were no
differences in the two experimental conditions on over-all
satisfaction, one would have to postulate that the stresses
on the various issues counterbalance each other with a net
result that the groups might be well satisfied with the con-
tract, but extremely dissatisfied with the decision on any one
particular issue.

The same result could have been predicted on a need and
expectancy theory. According to such an interpretation, the forces represented by the arrows would indicate the common needs of the individuals comprising that particular group. The individuals could not expect to fulfill completely all their needs. If one need were not fulfilled to the degree that had been expected, it could be offset by the fulfillment of another need beyond expectation. In this manner, the overall evaluation of the contract might have been satisfactory, while the satisfaction with any one particular issue might have been extreme dissatisfaction.

Another possible reason for the failure to show any significant difference between the groups on the over-all satisfaction is concerned with the scale used to measure the variable. This fact is indicated by the data gathered from two scales on the wage issue. The first scale which showed a significant difference between the groups in the two experimental conditions was one which was directed openly toward the individual. The second scale asked them to rate what they felt would be the union and management's satisfaction with the contract and did not show any significant difference between the groups in the two experimental conditions. The single scale used to measure over-all satisfaction was in terms of the union and management's satisfaction with the contract. Had a personal approach been used, the results might have been different.
Another possible explanation along the same line would involve the adequacy with this approach as a measure of satisfaction. It may have been that some different approach for this criterion, such as a forced-choice procedure, would have been more satisfactory.

It had been hoped that if the direct measures of satisfaction did not reveal anything, that some indirect measure of the results of the dissatisfaction or correlate of dissatisfaction might possibly do so. This was the primary reason for the inclusion of the scales of possible friendship, interest in the experiment, and social manners of the group. However, these showed no significant differences between the groups either. Since their value to the experiment is dubious, they will not be discussed in detail.

The second hypothesis, concerning the variability of satisfaction, was not substantiated. However, with further thought on this subject, it has been concluded that this is not the type of variability that would have been expected. The measure of variability that was examined was the difference in group variability between the two experimental situations. Further thought has led to the conclusion that it would be the variability between the issues which would be the important aspect. Since no measures were obtained on any issue other than the wage issue, this hypothesis could not be tested. It is also noteworthy that this hypothesis follows from the previous
discussion on the results under the level of satisfaction under a field force theoretical interpretation.

The results of the third criteria, the workability of the contract did not terminate in the expected manner either. The results that were found could not have been predicted on the logical basis or on the theoretical basis previously expounded. On a logical basis one would have expected that a more workable agreement would have resulted in the bipolar group because different points of view were represented. To rephrase an old adage, "Two points of view are better than one." On the theoretical basis, one would have expected the bipolar groups to reach a more adequate solution since the representation of two equal forces would have caused the balance to occur in a center position, whereas, the representation of one strong force and a weak one would have forced the equilibrium to occur at an off-center position.

Again some basis for the apparent discrepancy is warranted. There are several alternatives available. The first of these concerns the subjects that were used in the experiment. The first reaction of a great many persons to this result is to exclaim, "Well, what could you expect from 401 students!!" Undoubtedly, the subjects were relatively naive about the subject, and their ideas about the problem, especially the needs of the management and union groups, were limited. This fact, however, was equally true of both experimental situations, and
although it cannot be dismissed as a possible factor, it seems improbable since the fact still remains that there were two naive points of view present in the bipolar group and only one naive point of view present in the unipolar groups, and two still should be better than one. Such an explanation for the results would assume that the workability was completely due to chance, while actually both sets of groups did significantly better than chance, but one group was not significantly better than the other.

A second possibility involves the directions which were given the groups for solving their problem. Since the directs specify that the groups should consider both sides of the issue and are placed in the role of an arbitration board, it is a possibility that the opposition forces in the unipolar groups would be present to a greater extent than expected and thus force a middle-of-the-road agreement which would be expected to be that taken by the experts. This seems to be an outside possibility since this would assume that the individuals could step outside their biases and assume an impartial attitude on command, and experimental evidence opposes such a viewpoint.

A third possibility for this discrepancy is concerned with the criterion which was used to measure the workability of the contracts. As stated before, the experts stated the range or qualifications necessary for the acceptance of each
individual item and the issues were scored plus or minus in terms of this criterion. However, the experts stressed the possibility that under certain circumstances, certain of the issues could be traded outright with no qualification by some other demand. If such a situation developed, it is possible that both of these issues might have been scored minus since there was no allowance made in the scoring procedure for these wholesale trades. This is a possibility warrants further investigation.

A fourth possibility and one which is basic to the whole study concerns the composition of the groups. Thus far the terms of pro-labor, pro-union, and pro-worker have been considered synonymous. It was stated previously that from observation, the pro-management group seemed more willing to expound and stand up for their views. It was stated in the chapter on results that there were fewer persons who are willing to stand up and fight for the views of the union on every and all issues. It may be that the terms pro-labor and pro-union are not synonymous with pro-worker and the persons who are considered pro-labor in this situation are actually pro-worker. Further credence to this speculation is given by the fact that the difference on the wage issue between the two experimental conditions approaches significance (.10 level) in favor of the bipolar groups. On this issue the pro-labor individuals were willing to fight for what they consider right.
However, on the check-off issue the pro-labor forces were unwilling to fight and often agreed that this was of little benefit to the worker and was only an added expense to the management. In the unipolar pro-labor groups this issue was usually accepted because there was little or no opposition to it. In the unipolar pro-management groups, this issue was accepted usually in conjunction with some statement to the effect that the union had to have something and this would be something which could be given without costing the management much. It was also stated several times that this would make the lower wage rate easier to accept. This is also an extremely plausible explanation.

A fifth possibility concerned the decision of the experts. The question is raised as to the possibility of making the judgment on the facts of the case without reference to any biasing factors. If such a bias had been contaminating the judgment, it would have necessarily reflected in the results of the criterion of workability. This is undoubtedly the weakest possibility to be offered, but it is still one which cannot be overlooked.
CHAPTER VI

SUMMARY AND CONCLUSIONS

SUMMARY OF EXPERIMENTATION AND RESULTS

The problem in this dissertation may be classified under the newer area of psychological research concerning the functioning of small groups. The problem used in this dissertation was an attempt to clarify and elucidate the relationship between the group dimension of polarity and the efficiency of the groups' behavior, specifically the groups' behavior in reaching a unanimous decision on a given problem.

Three criteria were used to measure this efficiency. The first was the obvious one of the amount of time it took the groups' to reach a desired solution, i.e., acceptable to all members of the group. The second was a measure of the satisfaction that the group members showed with their contract as expressed in several rating scales. The third criteria of this efficiency was the workability of the contract as judged by experts in the labor-management's relations field.

The experimental design was a relatively simple one in which one variable, in this case the polarity variable, is manipulated in one experimental condition and not in another. Thus there were two types of groups. The first set of groups
was designated the unipolar groups. These groups were composed of individuals who were homogeneous with respect to their goals on the problem. The second set of groups was designated as the bipolar groups. This set of groups consisted of individuals who were heterogeneous with respect to their goals to the experimental problem, i.e., composed of three individuals who were pro-labor and three persons who were pro-management. In order to dissallow the effects on the results of any irrelevant variable, the groups were equated or selected so as to control for or eliminate the effects of these irrelevant variables. Among such variables was that of status or prestige which was partially controlled by having groups of unacquainted individuals who were approximately the same age and had the same degree of education. The matching for age and education also helped to control for the knowledge of possible solutions. This was further controlled by using only male students of the 401 psychology classes. The size of the groups were held constant throughout the experiment, using only six persons in each group. Any effect that might have been due to the experimental problem itself was controlled for by using the same problem for each group.

The experimental problem used in this dissertation involved the negotiation of a hypothetical union-management contract from a given set of data that was presented in case history form. Arguments for both sides of the case were presented in this data.
The contract included eleven issues that had to be negotiated, such as wages, sliding pay scale, company paid hospital and medical plan, etc. The directions given to the group included the statement that any decision given on any one of these issues had to be unanimously approved by all of the group. These directions further stated that the groups should act in the role of a mediation board and stress was given to the fact that they should be impartial in their decisions and negotiate the contract which they felt would be best and most just under the existing circumstances.

The experiment was conducted in the laboratory of the Personnel Research Board Building. The laboratory is equipped with a one-way screen and a microphone which enables the experimenter to watch and listen to the proceedings of the groups' discussions without being physically present. The subjects were told of this fact in the directions. The room was also equipped with a conference table and chairs. In order to keep artificially at a minimum, the members were given no numbers, signs, etc. to identify the other members. They addressed each other directly. This procedure seemed satisfactory.

The results were as predicted on the time criterion. The bipolar groups took significantly longer to reach a unanimous decision than did the unipolar groups. This would have been predicted both in logical and theoretical groups as discussed in the preceding chapter since it would take longer to rectify the views in a divergent group than it would to rectify the
views of a relatively homeogenous group.

The results on the criterion of satisfaction were not nearly as clear cut. The two sets of groups showed no overall difference on their over-all satisfaction with the contract, although the bipolar groups were significantly less satisfied with the agreement on the individual wage issue. The difference was significant at the .02 level. Some possible explanations for this unexpected outcome were discussed in the preceding chapter. The first to be discussed was the fact that the satisfaction on individual items might have been the most sensitive measurement of this variable. In the bipolar group, on an over-all basis, one side might have received more than expected on one issue that would compensate for having received less than expected on some other issue.

The second possible reason that was discussed was the possible inadequacy of the method for rating over-all satisfaction. Since the scale was in terms of the groups' opinions of the union and management satisfaction with the contract, it might be different than their own personal satisfaction. This hypothesis was further substantiated from evidence from the wage issue on which data was gathered on a personal satisfaction, (their own satisfaction), and an impersonal satisfaction scale (the union and management's possible satisfaction). Further experimentation will be needed to clarify this point.

On the other scales, social manners, possible friendship
and interest, which were thought to be indirect measures or correlates of the groups' satisfaction, no differences which were significant were found, although all were in the expected direction.

The test of variability which was used in this research is not the one which was desired. The intergroup variability was the one which was tested while it was the inter-issue variability that was desired. No adequate check could be made of this hypothesis since data on satisfaction was only available for one issue.

The results of the third criterion, that of the workability of the contracts, show no significant difference between the groups in the two experimental situations. This is definitely counter to the results that would be expected on both a logical and a theoretical basis. On the analysis of individual items, the workability difference approaches significant differences on several issues. The difference between the groups on the wage issue approaches significance in favor of the bipolar groups. This difference is significant at the .10 level. The difference between the groups on the tool issue and the check off issue is significant at the same level in favor of the unipolar groups. The tool issue causes little alarm since the experts gave an outright denial of this demand whereas the bipolar groups gave a modification of the issue as would have been expected. The possible reasons for this discrepancy
between the expected results and the obtained results on
the other issues were then discussed. Five possible reasons
were given:

1. The naivete of the subjects.

2. The criterion of workability—the issue was marked
plus if within the range or qualifications given
by the experts. It was marked minus in all other
instances which do not allow for any wholesale trad-
ing.

3. The possible influence of the directions.

4. The nature of the groups. There is a possibility
that the pro-labor group was not pro-union as pre-
viously inferred, but only pro-worker.

5. The possibility of a bias on the part of the origi-
nal criterion, i.e., the opinion of the experts.

CONCLUSIONS

Even with the uncertainties remaining, there are
several conclusions which can be drawn from this study. These
will be given in the following list.

1. The subject matter of the experiment is excellent
in terms of the interest created in the experiment.
It is further noticed that it is possible to get
splits on certain of the issues, if not on all, so
that the composition of the groups can be easily
varied to conform with a multitude of experimental
problems in groups dynamics.

2. The hypothesis that the bipolar groups do take a
longer period of time to solve their problems than
do the unipolar groups has been substantiated.

3. Partial corroboration has been given to the hypo-
thesis that the unipolar group should be more satis-
fied, than the bipolar group; the evidence being
obtained from the satisfaction with the wage issue.
Further clarification of several points on this
issue is still necessary.
4. Another suggestion for future decision-making research concerns the functions of the leader in group behavior. Certain subjective data indicates that a domineering leader may be efficient in getting things accomplished, but this procedure leads to a dissatisfaction with the decision by the other group members. It would also be hypothesized that the leader who acts as an organizer, summarizer, and compromiser would be the most efficient in terms of the three criteria of this study. The whole area of the role of the leader in the group decision-making process is in need of further clarification.

5. Data not reviewed in this paper also indicates that there is a relationship between the size of the group and the efficiency of decision-making process. It is further speculated that this relationship is not a straight line function, but rather a curvilinear function, and that after a certain group size is reached, the addition of new members will have no relationship to the efficiency of the decision-making process.

6. The hypothesis is also suggested from certain subjective data that those groups which tend to limit their discussion to the facts of the case and to possible relationship existing between the facts will be more satisfied than those groups which use personal experience and anecdotal material in their discussion as evidence on which they base their decision.


APPENDIX A

THE ORIGINAL LABOR-MANAGEMENT

QUESTIONNAIRE

NOTE: The questionnaire given in this appendix is the original form. From this form the thirty-six items which had the greatest discrimination value were chosen as the final form of the questionnaire which was used to choose the labor and management members of the groups. The items that were used in this final form have been marked by circling the number in red.
INSTRUCTIONS

PRELIMINARY REMARKS

The purpose of this questionnaire is to determine the importance of some of the issues in the field of labor-management relations today, as well as to determine the position that various groups will take on these issues.

In filling out these questionnaires, it is extremely important that you answer them according to your own ideas on the subject and not as someone else thinks about it or the way that you think it should be answered.

as you see, the questionnaire is completely anonymous. No one will know how you answer. Your paper will be just one among many others of your group, so please answer the questions honestly.

MARKING THE QUESTIONNAIRE

On the following pages you will find various statements concerning one phase or another of an issue of present day labor-management relations. Behind each statement are columns marked from 1 to 5. If you mark in column

-1- It means that this statement reads opposite to your attitudes on this issue; that you definitely disagree with the statement.

-2- It means that you partially disagree with the statement; that you believe it to be more wrong than right.

-3- It means that you have no opinion about the statement; that you stand on the middle of the road on this issue; that you don't know what it means.

-4- It means that you partially agree with this statement; that you agree with the statement with reservations; that the statement is more right than wrong.

-5- It means that you fully agree with the statement. that this statement fully expresses your attitude on the issue involved.

Please mark a check in the column which most clearly represents your attitude about the statement. Be sure that you have placed one and only one check mark beside each statement.
1. The company should guarantee each worker in the plant a minimum annual wage.

2. In a system of free enterprise, the right of hiring and firing workers must be kept under managerial control.

3. Unions are needed to balance the power held by management.

4. Corporation taxes are far in excess to that which is necessary for a sound economy.

5. The Taft-Hartley Act, if left unchanged, will eventually destroy the union movement.

6. Corporation profits today are excessive.

7. 6% is a reasonable expected return for management on their investment.

8. White collar workers as well as laborers should be organized.

9. In the modern American economy, labor can only be considered as another factor in production.

10. The number of paid holidays should be increased.

11. Labor has controlled the Truman Administration.

12. The length of paid vacation should be increased to a month in length.

13. Unions would be unnecessary if management would follow the correct personnel policies.

14. Management has the moral obligation to insure the health of the workers by financing adequate medical plans for the workers.

15. The employee must work overtime if the occasion arises and face possible discipline if he refuses without just cause.

16. The unions primary duty is to solve worker's problems.

17. Court injunctions are right and proper for public protection.
18. It would be possible to raise wages without raising prices.

19. In a piece-rate system of payment, management should be allowed to set the piece-rate since they have hired experts in this field to do the work.

20. Collective bargaining should be done on an industry-wide basis rather than on a plant-wide basis.

21. Recreational programs should be handled by management since they are paying for them.

22. The unions should be given some responsibilities in the industries' training programs.

23. Foremen should not be unionized since they are a part of management.

24. Since the unions represent the opinion of a large segment of the American population, they should be allowed to make campaign contributions to the man of their choice.

25. The company should be given the right to discharge a man for incompetency any time during the first year of his employment.

26. The Taft-Hartley Act should be completely repealed.

27. Management should set up unemployment plans for the protection of their workers.

28. The recent spiral in prices is due to price hikes on the part of management after which the unions demand pay hikes to keep up with the cost of living.

29. Communications to the worker should be handled solely by the plant management.

30. Layoffs should be made strictly on the basis of seniority.

31. The government should remain a neutral party in labor-management affairs.

32. The union should be given equal representation with management on the Board of Directors.
33. Pensioning plan should be left entirely to individual initiative and government planning.

34. The union should have some responsibility in determining the salaries of top management executives.

35. The two terms pro-labor and pro-union are synonymous.

36. New factory locations should be determined jointly by management and union.

37. Human rights are far more important than are property rights.

38. Management should underwrite a supplement to old age insurance.

39. The practice of call-in pay should be abolished.

40. A closed shop is beneficial to the worker.

41. Unions are more to blame for inflation than are managements.

42. The right of contract interpretation should be the right of management.

43. Since management is financing business research, they should specify the problems to be worked on.

44. In some industries the union has more say-so in management decisions than has management itself.

45. There is no reason why high union officials should not be paid as much as high management officials.

46. The union should be notified of a policy change shortly before it is announced to the workers.

47. A worker should be paid full wages during times of illness.

48. In plants where both laborers and white-collar workers have been unionized, the unions have more control over the operation of the plant than has management.
49. Industry has no obligation to hire handicapped workers because they are less productive than normal workers.

50. The only legitimate area for collective bargaining is on wages and other like problems concerning the workers financial welfare.

51. The union should help management in setting the pricing policy of the company.

52. Union demands of excessive wage increases are primarily responsible for large increases in prices.

53. Communications to the worker on plant affairs should be the joint responsibility of both unions and management.

54. The union movement is only another symptom of the chaotic world conditions and will dissipate when things become more settled.

55. The management should provide safety equipment, clothes and safety training at no expense to the worker.

56. The Democratic Party is being taken over by the unions and will soon be the labor party.

57. The union leaders are only concerned with protecting the rights and privileges of the workers.

58. Any policy changes in personnel procedures should be worked out in a joint conference between both management and union officials.

59. Unions are hastening the trend toward a socialistic form of government in the United States.

60. The Republican Party is primarily an instrument of management.

61. The worker of today must be considered as a man and not as a machine, even in a free enterprise system.

62. If management should guarantee the wages of a worker for a year's time, then the worker should guarantee his services for this period.
63. Worker discipline should be the joint responsibility of both management and unions.

64. There will be no ends to unions' demand until they are in complete control of industry.

65. The union is not interested in power itself but only in protecting the welfare of its workers.

66. White-collar workers should not be unionized.

67. Unions should lobby for labor legislation.

68. Strikes should be outlawed since everyone loses when a strike is called.

69. A closed shop is necessary for smooth running union functioning.

70. Individual initiative is more important than collective security.

71. Coffee and cokes should be available to the worker at break time.

72. The right to a job should not depend on whether or not a man will join a union.

73. Research in industry should be the joint responsibility of both management and unions.

74. If management should guarantee an annual wage to its workers, the unions should guarantee a minimum annual production to the management.

75. Government should control prices but not wages.

76. The Democratic Party is the workingman's party.

77. The income tax scale should be based on the ability to pay in a graduated tax scale.

78. The Republican Party is responsible for the great depression.

79. Government should control wages, and prices will take care of themselves through the operation of the law of supply and demand.

80. Depressions are the oversight on the part of managements.

81. Wages should be governed solely through the operation of supply and demand.
82. The Taft-Hartley Act should be amended in order to keep it up to date, but should not be repealed.

83. A company union has more advantages for the workingman than a nationalized union.

84. Unions will eventually bring about the downfall of the Free Enterprise System.

85. Unions usually make more on suggestions from workers than they give to workers for making the suggestions.

86. The unions no longer represent the interests of the workingman but that of top union executives.

87. In recent years, profits have been so high that management has been throwing much of it away on advertising, research, unneeded worker facilities, and the like in order not to pay taxes on it.

88. The actions of top union officials are more for their own benefit than for the workers.

89. Court injunctions should be made illegal because they can be the power which could eventually be used to break the union.

90. Unions should not meddle in politics.

91. John L. Lewis has gained much for his men, but most of the gains have been at the expense of the public.

92. The motives governing the action of top union officials are prestige and financial gain, and not the welfare of the workers.

93. Prices need not be government controlled, since the law of supply and demand will govern them effectively.

94. Public accounting of the unions income and expenses is right and proper since it is not their money but the workers.

95. Most union officials are interested primarily in the welfare of the working class.

96. Unions weaken individual initiative.
97. A public financial report of all companies should be required.

98. The higher standard of living that is enjoyed by the average American workingman today would have come about without the aid of unions.

99. A militant management gets a militant union; a co-operative management gets a co-operative union.

100. Management must preserve the sole right to govern the company's pricing policy if industry is to survive.

101. Management will take advantage of the individual worker whenever it thinks that this is to its own advantage.

102. Communists have infiltrated into and hold policy-making jobs in most unions.

103. Unions should be given full voice in all management decisions, should they desire it, since they represent the worker who is a part of the company.

104. In the free enterprise system, the needs of the worker must be placed second to the needs of the system.

105. Management often goads unions into striking in order to get public opinion on its side.

106. Management will someday be only a pawn of labor.

107. If a choice has to be made between individual freedom and the security to be gained by collective action, the security through collective action must be made as the first choice.

108. In all probability, management will someday break all unions since they do not fulfill any duty which cannot be fulfilled by management itself.

109. Big unionism is as bad as big management.

110. Union leaders are more interested in their own financial welfare than in the workers' financial welfare.
111. Some of the union's power should be taken away from it.

112. The rank-and-file union members would sooner do without a union but consider it a necessary evil.

113. The Taft-Hartley Act should be retained in its present form.

114. Unions should give at least three months' advance notice of a strike.

115. Time and one-half is not sufficient premium for overtime work.

116. If the present high tax on corporations continues, it will eventually ruin the American capitalistic system.

117. Rich and poor should be taxed alike since both get equal benefits from government.

118. Corporate taxes should never be allowed to exceed 25 per cent of the gross profits.
APPENDIX B

DIRECTIONS GIVEN TO THE GROUPS FOR SOLVING THE PROBLEM
DIRECTIONS FOR THE EXPERIMENT

In this experiment you are asked to reach a unanimous decision on a group problem. Your solution must be acceptable to each member of your group. There are no right or wrong solutions to the problem. There is bound to be some controversy and compromise since no two persons think exactly alike on issues such as these.

The problem which you will be expected to reach an agreement on is one in the field of labor-management relations. It involves a contract negotiation between a company and a union. The union has made certain demands and the management has replied to these demands. These demands as well as the management's reply and other pertinent information will be given later. The two parties are miles apart in their separate feelings, but neither party wants a strike. Your problem is to negotiate a contract which you feel would be best under the existing circumstances and best satisfy the two parties involved. You are to act in the role of a mediation board. You may think of yourselves as entering into the second session of the negotiation with the attitude that the contract had to be negotiated at that session.

You will be given two hours' credit for this experiment regardless of the length of time it takes you to finish it. Some groups finish in a half hour, others take an hour or more. If you have not completed the negotiation by twenty minutes to the second hour, we will assume that the two parties could reach no satisfactory agreement and a strike would ensue.

One of the members of your group should write down your decision on each issue. This will keep you from duplicating the discussion. All members will be asked to sign the sheet at the end of the session in order to show that it is unanimously approved.

At the completion of this portion of the session you will be asked to fill out a short questionnaire concerning the session. This should take you no longer than three or four minutes to complete.

(HAND OUT DATA SHEET. ALLOW 15 MINUTES READING TIME)

On page three of the data sheets you noticed the union's demands. On page four the company's reply. Your problem is to negotiate a contract which you feel would be most just under the existing circumstances. The only prerequisite is
that your decisions must be unanimous. Compromises and disagreements will be a part of the session since no two persons think alike. That's why this is called a bargaining session.

I will be in the next room. I will be able to hear you through the microphone. I can also watch you through the one-way screen. This may bother you for a few minutes but not for long. I will be back in as soon as everybody has finished signing the contract. The signing of the contract will be my signal for the end of this portion of the experiment.

On any one issue you will have three alternatives:

1. You may accept the union's demand as it has been proposed.

2. You may accept management's counter-proposal which also includes a rejection of some of the issues.

3. You may modify the issue in terms of the wishes of the group. This will probably be the one most often used.

I would suggest that you begin with the wage issue since all of you are more familiar with it.

Do you have any further questions?
APPENDIX C

THE EXPERIMENTAL PROBLEM
CASE PROBLEM

The Hobell Company is a rather small company manufacturing precision machine tools. At present there are approximately 1200 persons employed by the company, which makes it one of the largest plants in the community of 50,000 persons in which it is located. The plant is located in a fairly modern building just on the outskirts of the city.

Since Hobell manufactures precision machine tools, accuracy is emphasized with more vigor than in most manufacturing concerns. Because of the nature of the work and its emphasis on accuracy, the level of skill demanded at Hobell is higher than the level demanded for similar jobs at most of the other companies.

Hobell's wage scale is average for the community in which the plant is located. They might pay 5 or 10 cents an hour less for some jobs, but this is averaged out by paying out 5 or 10 cents an hour more for another job. These wage differentials are usually the result of an oversupply or undersupply of a certain kind of worker. These facts have been established by surveys of wages which have been conducted in the community.

However, when comparing the wages of Hobell with the wage scales of plants in a large neighboring city, it is found that Hobell's average 10% to 15% lower. This is a source of constant irritation to Hobell since these companies have been draining off the labor supply of the community. One such plant in this large city manufactures automobile hardware and employs 5,000 persons. The plant is run on a production line basis demanding relatively little skill. Their wage scale is about 10% higher than Hobell. Another Company in this city employs about 15,000 persons and manufactures ordnance equipment. Their wage scale is about 15% higher than Hobell. However, it must be mentioned that most of this company's contracts are on a cost plus basis.

In comparing the wages of Hobell to the wages of the precision tool industry as a whole we find that Hobell's wages rank in the bottom third of the group, so far as basic wages are concerned. Besides these basic wages, it is found that the average company of the industry pays an additional 30 cents per hour per employee for fringe benefits such as hospital plans, paid vacations, etc. Hobell pays only 22 cents per hour per employee for such fringe benefits.
At this particular time, the labor market in the community where Hobell is located is extremely tight. The unemployment rolls show only 900 persons unemployed as compared to the normal 2,000, and most of these 900 are transient between jobs. Skilled labor is at a premium and usually has to be imported from outside labor markets. Even this procedure is a highly tentative one, however, since the housing situation is extremely critical in the community. Most of the skilled labor which is imported finds jobs elsewhere within a few months because of housing facilities and higher paying jobs that are found in other places.

Hobell, itself, has found it extremely difficult to replace its skilled worker turnover. The cost of living in this community has not increased as much as the average although it is still rising. In this community, the cost of living has increased 3% since the last contract was negotiated as compared to average 5% during a like period of time. In this community, as elsewhere, the last eight years have been characterized by a lightly suppressed inflation.

The general business conditions of the country are good and the financial conditions of Hobell are extremely stable. There are no outstanding financial obligations against the company. The plant is working at 100% capacity and now has a backlog of six months’ orders as compared to the three months’ average backlog for the industry. In recent weeks, the rate of orders has seemed to increase. This greater backlog than average of orders of Hobell is undoubtedly due to the fact that the efficiency with which the plant is run and its lower labor costs allow Hobell to market its products at a slightly lower price than this type industry as a whole. There have been rumors in the plant from time to time of an expansion of plant facilities.

The profits of the company when measured in terms of gross profits were the highest in history primarily because of the high efficiency which was possible to attain in a small company such as this. Even when measuring net profits in terms of hard, cold dollars the profits shown were the highest in the history of the company, but profits after taxes when measured on a percentage of sales had gone down for the fourth consecutive year. The company’s net profit margin after taxes were taken out was a modest 7%. Most of the employees think that the company is making a 15 or 20% profit and one often hears rumors in the plant that the company is making a clean-up because of the extraordinarily good business conditions. Most of them are unaware of the fact that the government tax and surtax take 52% of the gross profits over the nominal figure of $25,000 and that there is an additional excess profits tax ranging up to an additional 30% which is applied on
a sliding scale basis. After these taxes have been paid out, Hobell's net profit remains only 7% of the total sales. Out of these profits, they have paid the stockholder a 6% dividend and plowed the remainder back into the business by buying more modern equipment, expansion of plant facilities on a small basis, etc., in order to keep their relative standing with their competitors. Until recent years, a surplus had been set aside for the proverbial rainy day. However, the company has not done this recently, claiming that the high rate of taxation made it impossible.

If the company does expand the plant facilities on a large basis, it will have to borrow the money to do it, since it would run the surplus dangerously low if money were taken out of it for that purpose.

The personnel policies and procedures of Hobell are not the most modern, but are better than those of most plants its size. The worker is given attention and training on an individual basis, something which is enjoyed in few plants in this modern age. This air of individual attention is apparent throughout the plant and is probably a vestige of earlier days when the plant consisted of eight men working in an old garage. The president of the company boasts of the fact that he can call every worker in the plant by his first name. The old gent is not the easiest person to work for as witnessed by the fact that he has been nicknamed Napoleon by both the white-collar and plant workers.

The plant was unionized in 1935 after a bitter struggle. There has been little improvement in the relationships of the two forces of labor and management since this time. Bargaining sessions have been perennially long and bitter. Contracts have been negotiated only after threats from one side or the other, and in several instances, 1947 and 1950, only after a strike had been called.

In these past sessions, the union has asked for a profit sharing plan which was refused by the company. They have also demanded to look at the company's books, but were refused. Some of the other issues that have been brought up in these past sessions are as follows:

**Granted**

Company paid $1,000 life insurance policy for each employee.
Six paid holidays.
Union shop (Worker must join the union after a ninety-day period or be fired.
Pay for balance of shift which employee is injured on the job.
Company furnish all safety tools and equipment.
A wage differential for night and graveyard shifts.
Refused

Automatic wage progression to the top rate for each job.
Plant-wide seniority based on seniority alone.
Check-off (Automatic deduction of union dues from pay
checks).
Sliding pay scale to conform to the cost of living index.

These are only a few of the issues that have been brought up in past bargaining sessions, but they show the kind of issues involved.

Because of the present business conditions, the labor shortage, the economic condition of the nation in general, etc., the union feels it is in a good bargaining position and can therefore introduce issues into the session which it has lost before as well as new issues which the management is sure to oppose bitterly. The union feels that the management will be more willing to negotiate and bargain on these issues than face the threat of a strike at this time.

1. A 15% increase in wages for all plant workers.
2. An automatic progression to the top of the wage scale for each job. (Present system of wage progression is based entirely on ability of the worker as judged by his boss).
3. A joint union-management committee for setting the piece rates for the plant. (This job is now handled entirely by the time and motion engineers).
4. A sliding pay scale to conform with the increasing cost of living. This would be governed by the cost of living index published by the government quarterly and would mean an increase in the wages as the index progressed or a cut in wages as the index fell.
5. Two weeks' paid vacation for all employees with one year of service. Three weeks' paid vacation for all employees with five years' work experience, and four weeks' paid vacation for all employees with fifteen years' work experience. (The present paid vacation is one week less in all cases).
6. A hospital and medical plan for each employee and his family to be paid for entirely by the company. (This would be a group hospitalization plan such as Blue Cross).
7. Ten minute wash-up period before lunch and before quitting on company time.
8. An increase in the rest periods from 6 to 15 minutes. (There are two rest periods a day).
9. Company to furnish all hand tools. (Under present system, the workers furnish their own hand tools such as; pliers, hammers, etc. The management claims that these are too
easily stolen, and each man will act as a policeman for his own tools. Union claims it is management's duty to furnish tools for the workers).

10. Check-off system. (A system whereby the union dues are automatically taken out of the pay check by management and given to the union).

11. The right of a union representative to sit in on the Board of Director's meetings. (This is the top management committee which decides all company policies, sets dividend rates, and, in general, handles all the top management secrets).

Upon hearing of these demands, the management spokesman became quite indignant. He characterized them as being outrageous, preposterous and on the borderline of highway robbery. He stated furthermore that if management were to grant all these requests, the company would be out of business inside of six months. This first session ended with the management spokesman giving a counter-proposal which was as follows:

1. A five per cent increase in wages.
2. An increase in the rest periods to ten minutes.
3. Giving a two weeks' paid vacation to all employees with two years' service, the other vacation schedules remaining unchanged, i.e., one week paid vacation for one year's service, and three weeks' paid vacation for fifteen years' service.
4. Granting of the medical plan if workers paid 3/4 of payments and management would pay the other 1/4.
5. All other proposals were rejected outright. The management representative was particularly incensed at the proposal for an automatic progression to the top of the wage scale for each job.

The management representative also reminded the union representatives that the company products were still under price controls until April 30 and there was a possibility of an extension of the program. He stated furthermore that there was very little hope of getting permission to increase the price of the products in the case.
APPENDIX D

A TYPICAL CONTRACT
We, the undersigned, do hereby agree that the following terms shall constitute the contract between the Hobell Company and the CIO Local Union #410. These terms shall be in operation from the 26th day of February, 1953 to the 20th day of February, 1954 unless both parties shall agree to void or continue these terms before or after said date.

1. Wages - 10% increase in wages with an investigation of the present hearing situation by management.
2. Automatic progression to the top of the wage scale - no progression automatically.
3. Joint union-management committee for setting the piece rates. no - a committee arrangement between management - engineer study.
5. Vacation - 1 week for 1 year; 2 weeks 2 years to 15 yrs.
   3 weeks 15 to 25 years; 4 weeks + 25 years.
6. Hospital and medical plan - ½ paid by employee and ½ paid by company.
7. Wash-up period - no wash-up period.
8. Rest period - 15 minutes twice a day.
9. Company to furnish hand tools - yes with a check out system for the tools.
10. Check-off system - yes.
11. Union representative to the Board of Directors. Not a representative but may look at the books.

Signed
1. [Signature]
2. [Signature]
3. [Signature]
4. [Signature]
5. [Signature]
6. [Signature]
APPENDIX E

A PORTION OF ONE OF THE GROUP DISCUSSIONS
The discussion begins with an introduction around the table of the first names of the participants. The group then spends several minutes discussing how to attack the problem with a decision being made to take in issues separately, keeping in mind the future issues, and making the decisions tentative. They then begin the discussion of the wage issue which is as follows:

First one that we have here is a 15 per cent increase in wages for all plant workers. It could be in agreement with the increase of living in the city. The management offers 5 per cent increase.

Now, here's one thing that was mentioned in the wage on the neighboring city that stated that Hobell employs 1200 workers while the other, both listed here, employed 5,000 and 15,000 employees and they also--the automobile hardware company is working on a production line which would probably have a greater increase. In other words, they are uh coming up more with quantity uh than with quality. Uh, they are---tend to make a larger gross profit than will Hobell.

Now it's understandable that the union will want the're wages to be up with the others. However, another factor to this thing is here we have a small town and in this little town, Hobell is average for the community in which Hobell is located which means that all the other company's are paying about the same thing so we can't exactly equate this company with companies in a large city because they are working under different price values in the city. They are ---

Then we can also look at the national average wage.

They are in the bottom third of the group in that.

Yeh, which it seems to me would be more to management's advantage to grant a reasonable wage increase if, since the employment situation is tight. They need to grab some of the skilled workers and they are going to have to offer something to get them or they are not going to get them.

15 per cent is awfully high with the relation of the company.

Yes, I'll agree with you on that.
What about they are only making 7 per cent profit. Looking at it from management's viewpoint, they can't afford very much at all.

Well, of course, 7 per cent profit is probably of their cost is a great deal higher than 155 average increase in their wages.

Also, we have to look at the fact that the union is also asking for other dollar and cents' increases—they want vacations and they want medical plans and so forth too.

And a small increase in wages would actually be a large increase in monetary returns to each worker.

Yes, that's it. With all these fringe benefits. See what I mean. Then with the 15 per cent. Well, say that arbitrarily this would mean 4 per cent increase with all these other things so actually the union is asking for a 20 per cent increase.

And I right now—just from looking this over—I think that the 5 per cent that management proposed—

The average wage say is $2.00 an hour for skilled labor, and a 5 per cent increase would mean that would be $.10 while a 15 per cent increase would be $.35, no, $.25 an hour.

The management must consider that granting a wage increase will help keep labor—outright—from leaving the community which has been happening.

Yes. That's what I say.

Yes, but as I said, first of all, Hobell is a good plant at which to work with it's worker relationships and something like a college.

I think that possibly a compromise in the issue would be for both parties to go half way. For both the union and the management to go half-way.

A 10 per cent increase.

Which is a fairly large increase. I would agree on giving.

I think that we ought to hold that tentative until we agree on some of these other things.

Yes, that would be tentative increase. We would have to hold all, have to be tentative until we decide.
This is something else. If a 10 per cent increase is granted, it would be necessary not to grant some of these other requests by the union.

Yes. Somebody is going to have to suffer.

Because they can't have it all.

That's right.

And this-- and this item No. 4 in the union demands, this sliding pay scale, do you think it would be wiser to incorporate plan No. 4, so that along with management's first offer a possible compromise between the 5 and 3 per cent increase plus the sliding pay scale. That way as the cost of living went up they can grant a raise since---

Now about that sliding pay scale. They have to adopt a percentage, don't they? If the index goes up they--

If the cost of living increases 3 per cent in a quarter then the wages will increase 3 per cent.

That would lessen the kind of friction between the labor and management that has been since the company has been in operation. That would lessen that situation.

Because that way if the union didn't get their way, they couldn't blame management if they didn't get an increase (Garbled)

Yes, here's another thing. When you put yourself on a sliding pay scale in an inflationary period, you get to expect that prices are going to rise and rise and rise which means that the cost of living generally over the country will rise. However, if prices of the company can not go up or are not expected to go up because of the price control situation, the management has to think that here they have a deal which is increasing and liable to keep increasing whereas they cannot increase the price of their products.

Well, the thing is the majority of the products can't rise too much because not only are the controls holding them down but also the other companies and their products, so that the cost of living shouldn't increase that much. I mean some thing such as the stable foods will increase occasionally but the majority of things won't increase any more often than the price they get for their products.

When I got through the first page and a half, I thought the union
was due for a big increase, but when I got to the place where all these taxes were taken out and showed a 75 net over-sales.

I

It could be, of course, we don't know the facts from the book, they would pay the workers more. It may take them down to a lower income bracket, top of it, and they wouldn't have to pay such a high tax if the other companies are giving wages which are 15 per cent over what Hobell's is and they are making out charging higher prices, it seems to me that there's a big loss along the line in Hobell's books which may be this high income tax.

Here's another thought on that. If the company---if they can't afford to give a 15 per cent increase because they are only making a 7 per cent profit, it might be well for both union and management to institute a bonus plan which would tend to increase production, units per man, and at the same time increase laborer's rate so that the, although the profit per unit would increase, the output would increase, and at the same time the laborer's wage would increase.

But that bonus will work very well in a large company which is using mass production but the smaller company is probably not using mass production. I didn't say they were and they remanufacture precision tools and---the added output from the payment of a bonus would not pay off.

The cost of living scale could be granted across the board or, but we could use the
AUTOBIOGRAPHY

I, James William Hepler, was born in New Bethlehem, Pennsylvania, June, 22, 1926. I received my elementary school training in this town. In 1940, my family moved to Brookville, Pennsylvania, where I received my high school education. After graduation from high school in 1944, I attended Allegheny College, Meadville, Pennsylvania, for one semester before entering the Air Force. I remained in the service for two and one-half years, during which time I attended several radio-operator-mechanics schools. Upon discharge, I re-entered Allegheny College in the Spring semester of 1947. I received my Bachelor of Arts Degree from this institution in June, 1949. In the fall of 1949, I entered the Graduate School of Ohio University, Athens, Ohio, for advanced work in the field of psychology. I received my Master of Arts Degree from this university in June, 1950. I entered the Graduate School at Ohio State University in the Fall Quarter, 1950 for still further training in psychology. While in residence at this university, I held a position of Research Assistant at the Personnel Research Board during the summers of 1951 and 1952. During the final two years of study, I held a position of Teaching Assistant in the Department of Psychology.