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The Ohio State University, Ph.D., 1960

Social Psychology

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TEAM COMPOSITION AND GROUP DECISION-MAKING
IN A COLLECTIVE BARGAINING SITUATION

DISSERTATION

Presented in Partial Fulfillment of the Requirements
for the degree Doctor of Philosophy in the
Graduate School of the Ohio State
University

By

RICHARD JOHN CAMPBELL, B. A., M. A.

****

The Ohio State University
1960

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CHAPTER I

INTRODUCTION

The increasing importance of the decision-making group in the world of practical affairs has been accompanied by a proliferation of books and articles in the psychological literature concerned with the decision-making process. Diverse theoretical, technical, and experimental approaches are represented. Recent developments in both information theory (cf. Quastler, 1955) and computer technology reflect this current emphasis. Studies in these areas, ranging from the transformation of the number of alternative choices or decisions to log₂ to the use of the computer as a "rational" problem solver of simple geometrical problems, have been concerned principally with individual problem solving and decision-making. Another source of contributions is the experimental research on behavior in small groups (cf. Hare, Borgatta, & Bales, 1955; Strodtbeck & Hare, 1954; Raven, 1959; Terauds, Altman, & McGrath, 1960). Here, attempts have been made to study under controlled conditions aspects of decision-making long relegated to study by case history.

In an age of summit meetings, of action by the Joint Chiefs of Staff, of conferences within the United Nations Security Council, and of industry-wide collective bargaining with countrywide impact, social
scientists can expect the pressure for knowledge concerning the decision-making process to increase. The activities of these groups and the decisions they reach have national and international significance. A small group of negotiators, for example, who represent thousands of stockholders and union members in a critical industry may be faced with the problem of resolving the differences between the groups they represent or placing the nation's economy in jeopardy. The power and responsibility possessed by these small decision-making groups is awesome.

This study was concerned with a specific type of group decision-making, the collective bargaining conference. An experimental approach was used, drawing concepts and methodology from the area of small group research. The formulation of the problem and the hypotheses submitted to test were influenced by the data and concepts developed in P. Pepinsky's study (1959, and P. Pepinsky, Norton, & H. Pepinsky, 1960) of "productive independence." The expected outcome of the present study was the determination of the effects of team composition (based on one variable) and bargaining costs on collective bargaining decisions. Shister (1958), in a recent review of collective bargaining research, lends support to the application of theory from the social sciences to the problems of collective bargaining:

Granted that we are dealing with an applied field in the area of social relations, we should draw more heavily than we have on the theoretical concepts in some of the basic fields--psychology, sociology,
economics. Such borrowing would facilitate our work in formulating analytic frameworks. Furthermore, our own findings could then be more easily fed back to the theoretical frameworks of the relevant basic disciplines, which should contribute substantially to their enrichment. A case in point of what we are referring to is the matter of so-called pattern bargaining. Research in this segment of the field has proceeded with almost complete disregard for the useful analytic tool provided by reference group theory in sociology (1958, p. 54).

Research on Collective Bargaining

There are several types of research reports available to the investigator in the field of collective bargaining and labor relations. Economists and other contributors from the field of industrial relations have written in detail on the organizational structure of unions and management, the legal code that governs their interaction, and the methods used for resolving their conflicting demands. Shultz (1951), Shultz and Coleman (1953), and Dunlop and Healy (1953) present detailed case histories encompassing a wide range of bargaining issues. Analyses of the history and structure of unions as institutions may be found in the work of Shister (1949) and Kuhn (1957).

A second source of literature on collective bargaining is provided by the writings of psychologists and sociologists. Outstanding contributions on the broader topics of industrial conflict and labor-management relations are provided by Stagner (1948; 1950; 1956), Kornhauser (1949), and Kornhauser, Dubin, and Ross (1954). These
authors present detailed psychological treatments of the various forms of industrial conflict.

A number of non-empirical research reports are available that deal more specifically with the collective bargaining process. Articles by Garfield and Whyte (1950), Rose (1952), and Muench (1960) contain the observations and recommendations of mediators or participants in bargaining sessions. Dubin (1949), Kahn-Freund (1954), Kerr (1954), and Sheppard (1954), present theoretical interpretations of labor-management interaction.

The volume of studies of an empirical or experimental nature dealing with the psychological aspects of collective bargaining is hardly impressive. Weschler (1950) found that age, political affiliation, religious preference, and "impartiality" of the mediator were related to rated success as a mediator. Osterberg (1950) developed a technique for rating the emotional content of bargaining conferences. The raters checked one of 8 possible categories of behavior along one dimension between the two extremes of "frustration inducing behavior" and "positive goal orientation." Some evidence was found for successful conferences to be marked by more "positive goal orientation" behavior. Lansberger (1955) noted that with one exception (Osterberg, 1950) no empirical study of the collective bargaining process appeared to have been made that employed quantitative methods based on theories from the behavioral sciences. He then proceeded to develop
a technique, similar to that used by Osterberg, based on Bales' (1950) interaction process analysis. Twelve transcribed recordings of conferences were ranked in terms of degree of success on the basis of their approximation to a complete settlement. Lansberger found a rho of .58 between phase movement, increased emotional pitch as the conference progresses, and the rankings of success. Neither Osterberg's nor Lansberger's study involved manipulation of the bargaining conference; they were attempts to measure the type of activity that occurred and to relate these measures to ratings of success.

Hepler's study (1953) of the relationship between the efficiency of the group decision-making process and group polarization did involve experimental manipulation of conditions. The experimental setting was one of arbitration rather than bargaining, i.e., the group was not split into contending teams but functioned as a single body in deciding the issues. The composition of six-man teams (university students) was varied from unipolar to bipolar on the basis of labor-management attitude as initially measured by a questionnaire. Hepler predicted that bipolar groups would require more time to arbitrate the conflicting demands of the union and company, and that the bipolar groups would produce more workable solutions. The hypothesis concerning time was supported; the hypothesis concerning workability of the contract was not supported.
Underlying Rationale

Although this study is concerned principally with the collective bargaining conference, the characteristics of this type of decision-making appear to be similar to a number of the characteristics found in other important types of group decision-making. This section represents an attempt to make explicit some of the characteristics found in the collective bargaining situation for the dual purpose of guiding the development of the experimental task and experimental design and facilitating generalization to related types of decision-making. The function of the bargaining conference is the negotiation and resolution of differences between union and management. The negotiators, as representatives of these groups, are charged with the responsibility of defending their respective group's demands or standards, resolving the intergroup conflict, and setting the standards or rules to be followed under the contract. In view of the function of the conference, some consideration should be given to the broader context of union-management relations within which the bargaining conference takes place.

This particular type of bargaining has a unique feature: the two groups involved in the conflict form a larger organization, the company. Both groups are dependent on the company for the satisfaction of their needs, and both groups are committed to company progress in the competitive struggle with other companies. This
phenomenon of allegiance to both the union and the company has been discussed in the psychological literature under the concept of "dual allegiance" (Stagner, Purcell, Kerr, Rosen, & Gruen, 1954), and empirical data have been gathered showing its existence (Gottlieb & Kerr, 1950). Under these conditions, mutual survival (Bakke, 1947) becomes essential. If a contract or the lack of a contract results in disintegration of one of the two groups, it often also means eventual collapse for the larger organization. The conflict arises because, in Kerr's words, "organized labor and management are primarily engaged in sharing between themselves what is, at any one moment of time, a largely given amount of income and power. The more that one gets or keeps, the less the other has" (1954, p. 231). Although Kerr sees intergroup conflict as a natural result, he does not believe the conflict must necessarily be detrimental in its effect.

Two such detrimental consequences, however, may occur. First, the new standards may not allow for mutual survival, and second, the "largely given amount of income and power" is reduced when prolonged conflict leads to work stoppage. In the first case, if one side is in a stronger bargaining position and wins "unreasonable" demands, the long-term result may be detrimental to both groups. In the second case, disputes over the cutting of the pie can result in a greatly reduced pie with both groups losing more income than they can hope to recoup through bargaining.
This situation is similar in some respects to the non-zero sum game (Luce & Raiffa, 1957) in that the decisions of two sets of opposed players can alter their combined total winnings, depending on whether they use a cooperative or competitive strategy. If either set of players attempts to maximize its gains at the expense of the other set, that is, plays competitively, then the combined winnings will be less than maximum. Yet the likelihood that competition will occur under these conditions is supported by a recent study (Scode et al., 1959), which showed that college students consistently used competitive strategies on the non-zero sum game. That is, in the view of the players themselves, in contrast to the view of the experimenter, the game was constituted as a zero-sum game, an "I win—you lose" proposition.

The labor-management conflict is similar also to the bilateral monopoly situation (Siegel & Fouraker, 1960). Bilateral monopoly is defined as a situation of bargaining between two rivals in which an agreement must be reached if either party is to maintain itself. Siegel and Fouraker point out that the bilateral monopoly problem is similar to that of the relation of the individual to the group. What price is the individual willing to pay to remain in the group and receive its rewards? Union and management are faced with the same problem; how much are they willing to give in order to receive the rewards of cooperation?

Although these related studies present some interesting possibilities for analysis of the collective bargaining conference, the
problem does not reduce to a simple one. In some cases the conflicting demands may result from basic differences in value orientations which cannot be reconciled. When the groups find their norms or standards challenged or threatened, they are willing to accept the loss that accompanies a work stoppage. The result is a test of strength, or bargaining power (Kuhn, 1957), with a survival of the fittest under the conditions prevailing at that time. In other cases, one side may estimate that it has superior bargaining power and attempt to use this position to win as many concessions as possible. Despite these pessimistic comments, most companies survive the conflict, but with varying success. All work stoppages are not a result of basic value differences, nor are the groups always correct in the estimate of their bargaining power. There appear to be alternatives to the acceptance of "staying power" as the determiner of the norms for interaction of the groups.

The analysis presented in this section indicates that there are two major outcomes of the collective bargaining conference: the quality of the solutions or standards produced, and the speed with which these solutions are reached. In the present study two major variables were selected for experimental manipulation in order to determine their influence on these outcomes. One is concerned with the composition of the negotiating teams; the other is a task or situational variable.
Team composition is defined in the present experiment as the level and direction of the team members' investment in or identification with the groups they represent. Shurtleff (1949) states that negotiators are selected by each side only if they are highly identified with the group they are to represent, and selection of negotiators who are hostile to the opposed group is not uncommon. He asserts that the result is negotiators who are not able to understand and appreciate the problems of the other side. This selection factor may partially account for the inaccuracy of management and labor groups in communicating with one another (Weaver, 1958) and in evaluating one another (L. Remmers & H. Remmers, 1949; Miller & H. Remmers, 1950).

These findings indicate that one alternative for manipulation of the bargaining conference is to vary the composition of the negotiating teams or the strength of identification of the team members with the group they represent. The underlying hypothesis is that the degree of personal identification of the negotiators with the groups they are to represent is related to their persistence in holding out for their group's demands and also to their ability to negotiate "good" solutions. Two conditions of team composition were used in addition to the one of high identification of team members with the group they represent. The first condition was the use of negotiators who do not strongly identify with one group vis-a-vis the other group. The expected
result of this manipulation was less commitment of the negotiators
to their group's demands with a reduction in the time required to reach
solution. It should also result in a solution which is more dependent
on the "facts of the case" than those produced by teams composed of
negotiators with high identification. Blake's (1960) results illustrate
that strong identification of representatives with their groups makes
intergroup problem solving more difficult because the representatives
fail to recognize differences in factual aspects of the conflict that
exists between them. Stagner (1948) also reports differential perception
by pro-management and pro-labor groups of the same set of facts.

A second manipulation of team composition is suggested by
P. Pepinsky's preliminary field studies (1959) of "productive inde­
pendence." One of the inferences drawn from these field studies was
stated as follows:

a member whose behavior is independent of the standards of one group may contribute toward accomplishment of its tasks when two conditions exist: (1) he is placed in the role of agent in transactions between that group and another group in the social system, and (2) his behavior conforms to the standards of the other group, but the transactions conducted are of instru­mental value to the ultimate objectives of the first group (1959, p. 99).

The bargaining situation provides a specific illustration of the
kind of situation in which this inference would be expected to hold.
The implication of this hypothesis for the bargaining situation is that
each experimental negotiating team should contain one man for whom
the opposing team represents a more appropriate reference group than his own team. As a result of this manipulation, each negotiating team is composed of one man who identifies with the union and one man who identifies with the company. The "cross-assigned" team members (members for whom the opposing team represents a more appropriate reference group) could be considered less strongly identified with, or more independent of the norms of the groups they are assigned to represent.

P. Pepinsky's analysis of field studies (1959) illustrates several types of task situations in which psychological independence of the actor can lead to productive behavior. The analysis of the bargaining situation presented in the present paper indicates that this could be a situation in which independence of the agent from the standards of the group he represents could lead to productive behavior. The prediction is that teams including one cross-assigned negotiator will produce solutions closer to the "facts of the case" than solutions produced by teams with members who are strongly identified with the group they represent. Since the teams with a "cross-assigned" member also contain a member who is highly identified with the group represented, deviations from the "facts of the case" which occur should be balanced and not consistently in favor of one team or the other. A second prediction is that the teams with cross-assigned members will produce more balanced solutions and, therefore, solutions more acceptable.
to the groups represented than the solutions produced under the other conditions of team composition.

Although the "cross-assigned" team members could be considered to be less strongly identified with, or more independent of, the norms of the group they represent officially, such teams were not expected to achieve more rapid solutions than teams composed of members with high identification. Teams with cross-assigned members could be regarded as more heterogeneous in composition than the teams composed of members with high identification. Previous research (Hepler, 1953; Schutz, 1955) indicates that heterogeneous teams require more time to reach agreement or solution in problem solving situations. In view of these counteracting factors of degree of commitment to the issues and heterogeneity of team composition, the prediction is that teams with one member cross-assigned will not differ significantly in time to reach solution from teams composed of members with high identification.

The other major variable experimentally manipulated in this study was the cost to each group of the time spent in collective bargaining. The importance of this variable is illustrated by Quill's television address during the 1960 Pennsylvania Railroad Strike. Mr. Quill, president of the Transport Workers Union, pointed out to his union members that the cost of the work stoppage would be much greater for the union than the company. A special appeal was made
to the union members to maintain the strike despite the difficulties
this cost differential would produce. Some indirect experimental
evidence is available in the work of Blake (1960) on intergroup con-
flict. In Blake's research one important component of many real
life situations was omitted: no penalties were involved for failure
to reach agreement, and the group representatives viewed any con-
cession from their group's position as a "sell out." It appears that
the cost of negotiation must be included in the experimental task at
least as a control variable if the task is to include the basic char-
acteristics of the real life bargaining conference.

Two levels of cost of negotiation were used in this experiment
to test the hypothesis of an inverse relationship between the time
required to reach a solution and the cost of negotiations. The under-
lying rationale was that there would be more productive task oriented
behavior under conditions of high cost resulting in more rapid solu-
tions. No interaction effects were predicted between cost of nego-
tiation and team composition.

In order to test the experimental hypotheses it is necessary
to have some method of classifying or ranking the solutions. The
determination of what constitutes a "good" contract or outcome of
collective bargaining is a complex problem. Although there is no
one ideal or best way to evaluate the contracts, operational definition
of some standard of evaluation is required if progress is to be made
in this area. When a contract is evaluated as good by a given assessor, the question must be answered, good in whose view (cf. H. & P. Pepinsky, 1960)? It would not be surprising to find that ratings of the quality of solutions by union and management groups are inversely related. The same question may be raised of a third rater, in the role of an outside or "objective" expert. His ratings may well vary as a function of identification with one of these groups, or with some other interest group not directly involved in the negotiations, for example, the government or body of consumers.

In this study two methods were used to evaluate the results of the bargaining conferences. The basic approach used in these two methods was suggested by two professional economists with practical experience in the field of labor-management conflict. After noting that the ratings of experts would vary as a function of their philosophy or value orientation concerning labor-management relations, they gave "approximation to the going rate" as the most generally accepted or "objective" evaluation in current use. This assessment is basically a comparison of the contract with those presently existing between comparable unions and companies. The usual procedure is for the rater to consider the plant, product, financial status, etc., of the company relative to other companies in the same community. After making allowances for any unique characteristics of the company, he compares the provisions of the contract with those of the
comparable companies. Contracts that deviate from the going rate are considered "poor."

The two methods used to evaluate the contracts were based on deviation of the contract from the "going rate" (the positions of comparable companies on the issues presented). The first method, which will be called "absolute deviation," is the sum of the deviations of the positions accepted in the contract from the "going rate," regardless of whether the accepted position deviates toward the management or union position. This method provides a measure of the extent to which the terms of the contract agree with the "going rate." The second method, which will be called "algebraic deviation," is the sum of the deviations from the "going rate" with direction of deviation taken into account. This method provides a measure of the degree to which the contract favors the union or the company in its deviations from the "going rate." This method was used to measure one of the most frequently espoused characteristics of a "good" contract, mutual acceptability. Mutual acceptability (Shister, 1958) refers to the willingness of the two parties represented in the negotiations to accept and abide by the rules and regulations stipulated by the contract. The assumption is that contract terms that consistently favor one group over the other in deviations from the "going rate" will not be as acceptable to both parties to the contract.
Although the bargaining conference requires compromise on the part of both parties, or some deviation by the negotiators from the norms or demands of their own groups, these criteria require conformity to the community norm for assessment as "good." Independence on one level thus becomes conformity on another level. Conformity to the "going rate" will tend to have a leveling effect upon the behavior of the bargaining teams and reduce their capacity to produce novel solutions. Criteria were adopted in this study on the basis of current practice or evaluation rather than as some ideal or "best" solution to the criterion problem.

Hypotheses to Be Tested

Definition of Terms

Before restating the hypotheses under test, the following key terms will be defined.

Independent Variables. The two major independent variables under study were team composition and cost of negotiation:

1. Team Composition is the level and direction of the team members' identification with the group they represent. The three types of team composition used in this experiment were

   a. Low Identification. Neither member of either negotiating team identifies strongly with the groups involved in the negotiations.
b. **High Identification.** Both members of each negotiating team identify strongly with the group they represent.

c. **High Identification, cross-assignment.** Each negotiating team is composed of one man who identifies with the group he represents and one man who identifies with the opposing group.

2. **Cost of Negotiation** refers to the amount of money each group loses per unit of negotiating time required to reach solution. Two levels of cost were used, designated as Low and High.

**Dependent Variables.** The two major classes of dependent variables were time required to reach contract solution and quality of solution:

1. **Time:** the period of time required to reach settlement on all issues of the contract.

2. **Quality of Solution:**

   a. **Absolute Deviation.** The degree of deviation of the decisions reached in the negotiations from the community standard for similar companies, regardless of the direction of deviation.

   b. **Algebraic Deviation.** The tendency for deviations from the "going rate" to favor consistently one group over the other.

**Hypotheses**

Given:

a. three types of team composition, LI, low identification of negotiators; HI, high identification of negotiators; and HI, c, high
identification of negotiators with one member cross-assigned; and

b. two levels of cost of negotiation, LC, relatively low money cost per unit of time in negotiation; and HC, relatively high money cost per unit of time in negotiation;

then the following specific hypotheses are to be tested in respect to the performance of 18 four-man groups in the experimental bargaining session:

Hypothesis I. Time to Solution of Contract

IA. Less time will be required to reach solution of the contract under condition LI than conditions HI and HI, c.

IB. Less time will be required to reach solution of the contract under condition HC than LC.

Hypothesis II. Quality of Solution

IIA. Contracts negotiated under condition HI will show greater absolute deviation from the "going rate" than those negotiated under conditions LI and HI, c.

IIB. Contracts negotiated under conditions LI and HI will show greater algebraic deviation from the "going rate" than contracts negotiated under condition HI, c.
CHAPTER II

METHOD

Experimental Design

The experiment was conducted in two parts. Phase I consisted of the administration of a screening questionnaire. Subjects then were classified on the basis of their total scores for assignment to four-man experimental groups.

Phase II consisted of a 90-120 minute experimental bargaining session. The four participants in each session included two subjects assigned to a labor team and two to a management team, with the task of reaching a contract settlement in a collective bargaining situation.

Two major variables were manipulated forming a $2 \times 3$ design. There were two variations on the cost of bargaining dimension and three on the team composition dimension, yielding the following six cells:

<table>
<thead>
<tr>
<th>Team Composition</th>
<th>Cost of Negotiation</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Low Identification</td>
<td>LI-LC</td>
</tr>
<tr>
<td>High Identification</td>
<td>HI-LC</td>
</tr>
<tr>
<td>High Identification,</td>
<td>HI, c-LC</td>
</tr>
<tr>
<td>Cross-assignment</td>
<td></td>
</tr>
</tbody>
</table>

20
In all, 18 groups were run, three groups in each of the above six cells. This provided six groups for each condition of team composition and nine groups for each condition of cost of negotiation. Experimental sessions were held in the morning, afternoon, and evening, with time of day counterbalanced among conditions insofar as subject attrition and subject scheduling convenience permitted. No one condition was systematically favored.

Selection of Subjects

The subjects employed in Phase I of the experiment were 132 male students enrolled in university elementary psychology courses. These subjects (Ss) volunteered, as one way of meeting a partial course requirement, or for a nominal fee, to participate in "a study of group decision-making." Seventy-two of these Ss were used to make up the 18 groups for the experimental phase of the study. Each S was assigned to a four-man group for the experimental phase, on the basis of his score on the questionnaire administered in Phase I and his scheduling convenience. All 72 subjects used in Phase II were 25 years of age or less. The age restriction was imposed when it became apparent during trial runs that the use of obviously older Ss produced uncontrolled, extraneous variation in the discussions.
Development of Questionnaire

Since "identification with a reference group" (Stouffer et al., 1949) was used as the basis for a major experimental manipulation, it was necessary that the screening questionnaire developed for measurement of this variable possess adequate validity and reliability. It was assumed that identification by an S with either the management or the union would be indicated by his consistent agreement with one position or the other on such items as:

1. Unions are more to blame for inflation than are managements.
2. White-collar workers should not be unionized.

Hepler (1953) had constructed a questionnaire for similar purposes of inference. His scale showed adequate reliability (test-retest reliability = .86) and discriminated quite well between union stewards and members of a Junior Chamber of Commerce. Since the item analysis and validation of Hepler's scale had been conducted seven years prior to the present study, some revision in content seemed advisable. Thirty-nine of Hepler's items were selected, on the basis of their current applicability, for use on the pre-test. Eighteen new items were written and the revised scale, containing 57 items, was administered to 114 students enrolled in university introductory sociology courses. Discrimination indices (DI's) were computed for each item following the technique used by Sisson (1948). A slight modification was introduced in the procedure; total scores rather
than ratings were used as the criterion for partition of the sample into three groups—high, medium, and low scorers. A high DI is obtained if most of the set of high scorers score higher on the item than the set of low scorers. Forty-two items showed adequate DI's for inclusion in the final form. All but three of the 42 items correlated .30 or higher with total score when administered to the psychology sample. The internal consistency of the questionnaire was computed with the Kuder-Richardson (1937) Formula No. 8:

\[ r_{tt} = \frac{\sigma_t^2 - \sum \sigma_i^2}{2 \sigma_t^2} + \sqrt{\left( \frac{\sigma_t^2 - \sum \sigma_i^2}{2 \sigma_t^2} \right)^2 + \frac{\sum \sigma_i^2 r_{it}^2}{\sigma_t^2}} \]

where \( \sigma_t^2 \) = variance of total scores
\( \sigma_i^2 \) = variance of item \( i \)
\( r_{it} \) = correlation of item \( i \) with total score

The coefficient of reliability was .89. A copy of the final form of the questionnaire is included as Appendix A. (Uncorrected item-total score correlations for the psychology sample are found in the parentheses following each item.)

**Assignment to Experimental Teams**

The distribution of total scores on the questionnaire for 132 Ss is given in Figure 1. The range and distribution of scores was considered adequate to satisfy the requirements for experimental
manipulation. The mean score was 120.95, slightly below the theoretical mean of 126.0. The standard deviation was 21.27, with a standard error of measurement of 7.02. The formula (Adkins, 1947) used for computation of the error of measurement was:

\[ e = t \sqrt{1 - r_{tt}} \]

where \( e \) = standard deviation of error
\( t \) = standard deviation of total scores
\( r_{tt} \) = reliability of the questionnaire

The distribution was split into six categories for purposes of experimental assignment, three categories on the labor side of the distribution and three categories on the management side. The six categories and their specific ranges were:

- 73 < high identification, management < 99
- 98 < moderate identification, management < 110
- 111 < low identification, management < 124
- 120 < low identification, labor < 128
- 129 < moderate identification, labor < 139
- 141 < high identification, labor < 160

Ss were assigned to experimental groups in the following manner:

1. **LI Groups.** Two Ss from the low identification-management category were assigned to the company team, and two Ss from the low identification-labor category were assigned to the union team.
Mean = 120.95
= 21.27

TOTAL SCORE ON QUESTIONNAIRE

Fig. 1 Distribution of total scores on the Labor-Management Questionnaire for 132 male, undergraduate students.
2. **HI Groups.** One S from the high identification-management category and one S from the moderate identification-management category were assigned to the company team, and one S from the high identification-labor category and one S from the moderate identification-labor category were assigned to the union team.

3. **HI, c Groups.** One S from the high identification-management category and one S from the moderate identification-labor category were assigned to the company team, and one S from the high identification-labor category and one S from the moderate identification-management category were assigned to the union team.

The category of moderate investment was inserted for two purposes. First, under condition HI, it served to keep the scores of the Ss assigned to company teams approximately equal from team to team and the scores of the Ss assigned to union teams approximately equal from team to team. This eliminated the possibility of the two most extreme scores in a given direction, for example, being assigned to the same negotiation team. Secondly, since the hypotheses might not be given a good test if the cross-assigned S held extreme views, the selection of cross-assigned Ss was restricted in each case to Ss in the moderate identification category.
Experimental Task

Criteria for Selection of Bargaining Issues

In order to provide an adequate test of the experimental hypotheses, it was required that the issues used in the experimental task--

1) Be relatively familiar to the Ss.

2) Be placed on a continuous, rather than yes-no scale, wherever possible.

3) Vary as to whether the management position, union position, or neither agreed with the "going rate." This was essential to maintain the plausibility of the initial positions assigned to the negotiating teams.

4) Be capable of assessment in dollar value (at least half of the issues). This would provide the teams with a frame of reference with which to evaluate the cost of negotiation.

5) Permit objective scoring for quality of solution.

Description of the Task

The experimental task consisted of the negotiation of nine issues of a labor contract by two teams of negotiators. Initially, each subject was given an appointment notice which told him of his assignment as a negotiator for a group involved in a labor-management dispute. The appointment sheet instructed him "to do the best
possible job you can to get a good settlement of the contract for the company (or union). After stating that a good settlement of the contract for the company (or union) was highly important, instructions on the sheet granted the negotiator power to carry out binding negotiations and urged him to get the contract settled in the bargaining period.

Each S also received (1) background information on the company and the union and their interaction, (2) a graph listing the nine issues to be resolved, and (3) a brief note on the reason for his group's stand on the issues. Each group was given a contract form which was to be checked and initialed by all four of the negotiators when they had reached agreement on an issue. A copy of each of these forms may be found in Appendix B.

The background information given to each team was identical. It provided information on the product manufactured, number and skill level of the employees, wage level, labor market, financial status of the plant, personnel policies, a brief history of the union and its past conflicts with the company, and the status of the present conflict. The final page was a table of "data" supposedly compiled from an "independent survey" giving the present position of other companies in the community on each of the nine issues under negotiation and other items of general interest. The purpose of this information was to give the negotiators a frame of reference or standard
with which to compare their own positions on the issues under discussion. The background data were constructed so that the two teams' positions differed by approximately the same amount from the community standard over the nine items. This was an attempt to give each team equally plausible grounds for argument. The community standard, however, was not always midway between the two team positions. The equality in degree of deviation of the original positions from the "going rate" was established over the total nine items, not for each item.

The graph of the issues defined the issue under debate, the position of each side on the issue, the position held under the last contract, possible compromises, and estimates of the money to be gained or lost by either side over the two-year period of the contract if a new position was accepted. Some of the issues were primarily concerned with status or power (e.g., plant seniority vs. departmental seniority) and were not given a money value. Money values were computed from the data given in the background information for the hypothetical company in order to keep the scale of money values realistic.

The Ss were informed by the experimenter (E) before the negotiations began that they would be notified periodically of the amount of time being consumed in the negotiation. They were also told that at the end of each five minutes (five minutes was to be considered by the Ss as equivalent to one full day of negotiation) the E would notify each team of the loss that its group had suffered that day as a result of lost
wages, reduced sales, etc. These periodic reminders were used to increase the salience of the cost of the bargaining and the time being consumed. The cost per day of bargaining was established at a rate that would result, under the lowest cost condition, in a loss of money greater than that which could be gained by the two groups through bargaining if the negotiations consumed the maximum number of days allowed for solution. This was an attempt to make all teams complete the contract during the experimental period.

One contract form was given to each group. When agreement was reached on an issue, the position was circled and each negotiator initialed the contract in a prescribed place. The negotiations were completed when all nine issues were resolved, circled, and initialed. The total negotiation time, according to pre-session instructions, was limited to "12 days." If negotiations were not completed in "12 days" (60 minutes), E stated that the company and union had noted the progress of the negotiators and granted them two final days of bargaining. The bargaining session was completed when all nine issues were resolved, or when the "14-day" period had terminated. Only one team failed to complete the contract within the "14-day" period. (Since this latter group, run under condition LI, did not reach solution of the contract, another group was run to complete the requirements of the experimental design.)
Experimental Procedure

The experiment was conducted in a small-group laboratory equipped with a one-way vision mirror. Ss were conducted to the laboratory, given their team assignments, and seated at the conference table. Each team sat at one end of the long table behind small, identifying placards. The labor negotiators were identified as LABOR 1 (or 2); the management negotiators were identified as COMPANY 1 (or 2). The purpose of the spatial arrangement was to increase the salience of the assignment of each man and the opposition of the teams.

The E, designated as "legal aide," sat at a small desk in the corner of the room and out of the direct line of sight of the negotiators. E's function was to pass out materials to the negotiators, record their decisions, announce the cost of negotiation at each five-minute interval, and answer any procedural questions. Otherwise, E did not intervene in the discussion.

E followed a prepared script (Appendix C). The order of procedure specified by the experimenter's script was as follows: (a) assignment of Ss to negotiating teams, (b) distribution of materials, (c) reading of the procedures or rules governing the negotiations, (d) explanation of the materials and forms, (e) timing of individual study periods and the planning conference, (f) announcing the cost and time at each five-minute interval, and (g) recording the decisions. At the conclusion of the session, E read aloud the final positions accepted
by the groups and the cost of the bargaining for each group. The subjects then were led to separate cubicles where they completed a post-session questionnaire (Appendix D). The post-session questionnaire was designed to serve principally as a check upon the Ss' view of the experimental task and the positions they were to defend. It also was used to obtain some indication of the Ss' own assessment of their performance and the contract they had produced. The Ss were encouraged to express their frank reactions, identifying their papers only by noting their assigned positions for the laboratory session.

Measurement of the Dependent Variables

The two types of major dependent variable, the time required to reach solution of the contract and the quality of the contract produced, were measured as follows:

Time to Reach Contract

Timing of the bargaining session began with the E's instruction to begin negotiations and ended when all nine issues of the contract had been circled and initialed by each S or 70 minutes had elapsed. The contract was designed so that each S could check an issue and initial it in a few seconds. This eliminated the need for stopping the clock during the session.
Quality of Solution

The position of each group and of the "going rate" was built into the experimental task. Quantitative measures of approximation to the "going rate" were based on deviations of the final positions in the contract from the "going rate" position. Initially, the interval between each set of adjacent positions on an item was expressed as a percentage of the total range of the item. The deviation value was the sum of the interval values between the position endorsed in the contract and the position of the "going rate." On issue No. 6, for example, the company did not want an increase in the night shift differential, whereas the union wanted a five cent per hour increase. According to the "going rate," five cents per hour was the "correct" position. The deviation (percentage value for each position was as follows:

<table>
<thead>
<tr>
<th>cents per hour increase</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>deviation value</td>
<td>100</td>
<td>80</td>
<td>60</td>
<td>40</td>
<td>20</td>
<td>00</td>
</tr>
</tbody>
</table>

When the "going rate" position fell between the company and union positions, as on issue No. 1, the percentage of company payment for the hospitalization plan, the deviation values were:

<table>
<thead>
<tr>
<th>percentage of company payment for hospitalization</th>
<th>1/4</th>
<th>2/4</th>
<th>3/4</th>
<th>4/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>deviation value</td>
<td>-67</td>
<td>-33</td>
<td>00</td>
<td>33</td>
</tr>
</tbody>
</table>
On this issue the positions were: 1/4 for the company, 4/4 for the union, and 3/4 for the "going rate." The sign of the deviation was used for identification of direction of deviation; the choice of positive for union and negative for company was arbitrary.

Since the five items directly concerned with money (1, 2, 3, 6, and 7) differed in the maximum amount of money involved, these items were weighted according to their total possible monetary value. This was accomplished by determining the percentage contribution of each item to the total money value of the five items, then multiplying the deviation on the item by this weight. The total money contribution was set equal to 500 before determining the individual weights. This device maintained the contribution of the money items to the total possible deviation for the nine items at an average of 100, the value of each of the four status-power items (4, 5, 8, and 9). The deviation values for each item are presented in Appendix E.

The two measures of quality of contract were based on these deviation values. Absolute deviation was the sum of the absolute values of the deviations for the nine items. Algebraic deviation was computed by taking the algebraic sum of the deviations for the nine issues. For both measures, an index of 00 would indicate an optimum solution.

It was also possible to compute the deviation values using the initial position of the company or union as the reference point rather
than the "going rate." This index is a measure of the group's deviation from its original position. The characteristics of the task required that company teams deviate a total of 471 units and union teams deviate 429 units in order to settle on the "going rate" position for all nine items. These values were designed to be approximately equal in order to place the teams in relatively equivalent bargaining positions.
CHAPTER III

RESULTS

The experimental results will be reported in two sections: checks on the experimental procedure and tests of the hypotheses. The first section consists of an analysis of the Ss responses to items included in the post-session questionnaire. The second section presents the results of analysis of variance for the three major dependent measures.

Checks on Experimental Procedure

Two types of checks on experimental procedures were made: first, a check on correspondence of the phenomenal properties of the experimental task to its given operational characteristics, and second, checks upon the manipulation of group identification as the basis for variations in team composition. Examination of these data will facilitate interpretation of comparisons between the experimental conditions.

Check on Experimental Task

One criterion established for the design of the experimental task was that the demands made by the groups would be equally plausible or defensible. If the labor and management teams differed in their assessment of the relative defensibility of their assigned positions,
that perception could distort or attenuate the experimental results.

Although data were presented earlier (pp. 33-35) indicating that the degree of deviation of each group's initial position from the "going rate" was approximately equal, the following item was included in the post-session questionnaire as a check on the Ss' view of their own side's position.

In general how defensible did you feel your own assigned positions were on the issues presented?

<table>
<thead>
<tr>
<th>( )</th>
<th>( )</th>
<th>( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>more defensible</td>
<td>just as</td>
<td>less defensible</td>
</tr>
<tr>
<td>than the positions of the other side</td>
<td>defensible</td>
<td>than the positions of the other side</td>
</tr>
</tbody>
</table>

Responses of the Ss were collated separately for union and company teams for each category. This 2 x 3 table, containing the responses of 72 subjects, was submitted to a Chi-square analysis (Siegel, 1956). A Chi-square value of 4.75 was obtained, yielding a $p > .05$ for 2 degrees of freedom. There was no indication that the union and management teams differed in their views of the relative defensibility of their own side's positions.

Checks on the Manipulation of Team Composition

Group Identification. Individual Ss' responses to one of the post-session questionnaire items provides some evidence of the validity of the inference that identification with the union or company group could be predicted from total scores on the screening questionnaire.
Responses to the following item in categories 1 and 2 were pooled and compared with pooled responses in categories 3, 4, and 5:

How well did your assigned role in the experiment coincide with your own general beliefs and attitudes?

<table>
<thead>
<tr>
<th>( )</th>
<th>( )</th>
<th>( )</th>
<th>( )</th>
<th>( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>completely</td>
<td>highly</td>
<td>somewhat</td>
<td>slightly</td>
<td>not at all</td>
</tr>
</tbody>
</table>

(1) (2) (3) (4) (5)

A test of association between conditions (LI vs. HI and HI, c) and the observed frequency of response in each of these combined categories yields a Chi-square value of 28.57 (p < .001 for 1 df).

This comparison supports the inference that Ss assigned to conditions HI and HI, c on the basis of questionnaire scores (excluding cross-assigned Ss) express higher identification with the group and investment in the issues they are assigned to defend than Ss assigned to condition LI.

Ohio State Psychological Examination (OSPE). It is quite possible that variables extraneous to the present study may be correlated with questionnaire scores. If this is the case, these variables may vary systematically with conditions along the team composition dimension since these conditions were established by systematic variation of questionnaire scores. Since performance in the bargaining session might have been partially a function of verbal facility or ability, for example, OSPE scores were correlated with questionnaire scores for 128 Ss. If the assumption of a positive relationship
between bargaining performance and verbal ability were supported, this particular variable could influence the results in two ways: first, a linear correlation would indicate that one of the teams was in an advantageous position in condition HI, and second, a curvilinear relationship would indicate that those assigned to condition LI would be in an advantageous position relative to condition HI and HI, c. The latter check was made to test the possibility that those who do not accept the general position of either reference group are more "discriminating" or intelligent and would, therefore, produce the best solutions. The Pearson product-moment correlation was -.10, a non-significant correlation with 128 cases. A scatterplot of the two measures revealed no tendency for curvilinearity. Thus the obtained results are not attributable to systematic differences in measured scholastic aptitude.

Biographical Data. Although the following relationships are not directly relevant to the hypotheses under test, they are presented here because of their possible implication for interpretation of the experimental results.

1. College. A multi-serial eta was computed between scores on the screening questionnaire and the college in which the Ss were enrolled. The sample included students from five different colleges. Mean scores for the colleges ranged from 113 for Engineering to 129
for Education. The obtained value of eta is .24, a non-significant relationship with df = 4 and 127 (Peters & VanVoorhis, 1940).

2. Union membership. Point biserial correlations (McNemar, 1954) were computed for the relationship between total score on the screening questionnaire and (1) whether the S had ever been a member of a union, and (2) whether the occupation of the S's father was classified as a labor or management position. Father's occupation did correlate significantly (117 cases), .38, whereas union membership of the S did not (118 cases), .01. Both relationships coincide with general expectation for a youthful, college student sample.

Tests of Hypotheses

The major hypotheses that this experiment was designed to test may be briefly restated as follows: (a) the time required to reach solution would be greater under condition LC than HC, and greater under team composition conditions HI and HI, c than LI, (b) absolute deviation from the "going rate" would be greater in condition HI than conditions LI and HI, c, (c) algebraic deviation from the "going rate" would be greater under conditions LI and HI than condition HI, c. The intercorrelations (n = 18) of the three major dependent variables, time to solution, absolute deviation, and algebraic deviation, are presented in Table 1. None of the correlation approaches the value of .47 (df = 16) required for demonstration of a significant relationship between the variables.
TABLE 1

Intercorrelations of the Three Major Dependent Variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Time to solution</td>
<td>-03</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2) Absolute deviation</td>
<td>-03</td>
<td>-16</td>
<td></td>
</tr>
<tr>
<td>3) Algebraic deviation</td>
<td>10</td>
<td>-16</td>
<td></td>
</tr>
</tbody>
</table>

Time to Reach Solution

The means of the time scores for the three experimental groups run under each of the six possible conditions are presented in Table 2.

TABLE 2

Mean Time (in Minutes) Required to Reach Solution under Three Conditions of Team Composition and Two Levels of Cost

<table>
<thead>
<tr>
<th>Condition</th>
<th>Low Cost</th>
<th>High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>53.2</td>
<td>52.8</td>
</tr>
<tr>
<td>HI</td>
<td>47.7</td>
<td>47.1</td>
</tr>
<tr>
<td>HI, c</td>
<td>51.9</td>
<td>55.0</td>
</tr>
</tbody>
</table>

The results of the 2 x 3 analysis of variance of the time scores are presented in Table 3, and they clearly show that no mean differences among conditions exist. Both the large within groups variance and direct observation of the groups suggested, however, that there might
TABLE 3

Analysis of Variance of Time Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>152.61</td>
<td>5</td>
<td>30.52</td>
<td>0.17</td>
</tr>
<tr>
<td>Within Group</td>
<td>2155.79</td>
<td>12</td>
<td>179.65</td>
<td></td>
</tr>
</tbody>
</table>

be consistent differences of another type among the conditions. Observation of the experimental sessions indicated that under condition LI sessions were either very short or very long (rather than all sessions relatively short, as predicted). Since this relationship is of interest for interpretation of the tests of the hypotheses and the nature of the experimental task, the Moses Test of Extreme Reactions (Siegel, 1956) was applied to the data. The Moses test is designed to test the significance of extreme scores, regardless of direction. In this case low investment groups (LI) were compared to the high investment groups (HI, and HI, c) and the effect found to be significant, \( p = .022 \). The results suggest that length of session under conditions of low investment (LI) varies as a function of uncontrolled individual differences, whereas high investment (conditions HI and HI, c) reduces task relevant heterogeneity of the teams.
Quality of Solution

The mean scores for the two measures of quality of solution, absolute deviation and algebraic deviation, obtained by the experimental groups under each condition are presented in Table 4.

TABLE 4

Mean Scores for Absolute Deviation and Algebraic Deviation Obtained under Three Conditions of Team Composition and Two Levels of Cost

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Absolute Deviation</th>
<th>Algebraic Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Cost</td>
<td>High Cost</td>
</tr>
<tr>
<td>LI</td>
<td>287.7</td>
<td>237.7</td>
</tr>
<tr>
<td>HI</td>
<td>236.0</td>
<td>359.7</td>
</tr>
<tr>
<td>HI, c</td>
<td>275.0</td>
<td>269.3</td>
</tr>
</tbody>
</table>

*Positive values under Algebraic Deviation indicate a solution favoring the company and negative values indicate a solution favoring the union.

Results of the 2 x 3 analysis of variance of the scores for absolute deviation are presented in Table 5. The mean differences are small and non-significant. There is no support for the hypotheses concerning differences in absolute deviation from the "going rate" due to variations in team composition.
### TABLE 5

**Analysis of Variance of Absolute Deviation Scores**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>30709.8</td>
<td>5</td>
<td>6142.0</td>
<td>0.64</td>
</tr>
<tr>
<td>Within Groups</td>
<td>116008.7</td>
<td>12</td>
<td>9967.4</td>
<td></td>
</tr>
</tbody>
</table>

The results of the 2 x 3 analysis of variance for the second measure of quality of solution, algebraic deviation, is presented in Table 6. Both team composition and cost of negotiation do produce significant effects.

### TABLE 6

**Analysis of Variance of Algebraic Deviation Scores**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Composition</td>
<td>66601.0</td>
<td>2</td>
<td>33300.5</td>
<td>5.85*</td>
</tr>
<tr>
<td>Cost</td>
<td>33626.9</td>
<td>1</td>
<td>33626.9</td>
<td>5.90*</td>
</tr>
<tr>
<td>Interaction</td>
<td>1411.4</td>
<td>2</td>
<td>705.7</td>
<td>0.12</td>
</tr>
<tr>
<td>Within Group</td>
<td>68344.7</td>
<td>12</td>
<td>5695.4</td>
<td></td>
</tr>
</tbody>
</table>

*P < .05
significant mean differences for this measure of quality of solution. Although no differences were predicted for cost of negotiation, contracts that were bargained under condition LC tended to favor the company, at the expense of the union, to a greater extent than contracts bargained under condition HC. Since the quality of solution, as defined and measured here, is optimum at a value of zero, contracts negotiated under HC are considered "better" solutions than those negotiated under LC.

Results of the t tests of significance for mean differences between the three conditions of team composition are presented in Table 7.

TABLE 7

Analysis of the Mean Differences in Algebraic Deviation for the Three Conditions of Team Composition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean Difference</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI-HI</td>
<td>55.5</td>
<td>1.15</td>
<td>10</td>
</tr>
<tr>
<td>LI-HI, c</td>
<td>147.5</td>
<td>2.82*</td>
<td>10</td>
</tr>
<tr>
<td>HI-HI, c</td>
<td>92.0</td>
<td>2.13</td>
<td>10</td>
</tr>
</tbody>
</table>

*p < .05

The mean difference between conditions LI and HI are not significant. Contracts bargained under condition HI, c are significantly superior in quality of solution to contracts bargained under condition LI. The p
value for the differences between HI, c and HI is, .07 > p > .06.
Although this value exceeds the customary level of .05 for rejection
of the null hypothesis, the one-tail probability (the results were in
the predicted direction) value is less than .05.

The data are considered to lend support (Eysenck, 1960;
Rozeboom, 1960) to the hypothesis that HI, c groups would produce
"better" solutions than HI groups.

Summary of Results

The results may be summarized as follows:

1. Checks upon the phenomenal properties of the task, the
manipulation of group identification, and the relationships among
the dependent variables yielded the following results:

   a. There are no significant differences between union
   and company teams in their view of the relative defensibility of their
   assigned positions.

   b. S's assigned to conditions of high identification expressed
   significantly greater coincidence of their personal beliefs and attitudes
   with their assigned role than those assigned to low identification groups.

   c. There are no significant correlations between the
   dependent variables.

2. The hypotheses concerning mean differences in time to
reach solution are not supported by the data. Low identification
groups do show more extreme time scores (in both directions) than high identification groups.

3. The hypotheses concerning differences in quality of solution, are supported for the algebraic deviation criterion, but not for the absolute deviation criterion. HI, c groups produce solutions with smaller algebraic deviations from the "going rate" than LI and HI groups. In addition, unpredicted but significant differences in algebraic deviation are found for cost conditions. Algebraic deviations of the contract positions from the "going rate" are smaller under high cost conditions than low cost conditions.
CHAPTER IV

DISCUSSION OF RESULTS

The discussion that follows will focus on the obtained results as they relate to: (a) the hypothesized effect of team composition and cost of negotiation upon time to reach solution and quality of solution, and (b) the implications of the findings for further research.

Effects of the Experimental Conditions

Time to Reach Solution

Although variations in team composition (level and direction of identification of group members) did not produce mean differences in time to solution as hypothesized, teams composed of members with low identification did show more extreme time scores. These groups either reached agreement very rapidly or required almost the full experimental period to reach agreement. The groups that quickly reached solution apparently viewed the task as one requiring cooperation and rapid settlement of the issues for successful negotiation. The other low identification groups seemed to view the task as a competitive game, or an "I win--you lose" situation. The lack of commitment to the issues and to the groups represented seemed to result
in a relative lack of concern for the money penalties, and successful performance was viewed by the latter teams as getting a better deal on the issues. Since successful completing of the task required agreement on all nine bargaining issues, these teams did finally yield and reach solution near the end of that time limit. Following the game theory analogy, some of the low identification groups appeared to view the task as a non-zero sum game, others, as a zero sum game.

Although the hypothesis of an inverse relationship between cost of bargaining and time to reach solution was not supported, cost of negotiation did produce significant differences in the quality of solutions reached, as measured by algebraic deviation. Part of the underlying rationale leading to the prediction of more rapid solutions under the HC condition than the LC condition was that the decisions of the negotiation teams would be based in part on the costs involved in holding out on an issue versus the gain to be achieved by winning concessions on the issue. It was expected that under the HC condition the negotiating teams would not hold out as long on an issue since the net gain to be achieved by winning concessions on an issue was smaller. Although the results suggest that negotiation costs influence the quality of solution rather than the time to reach solution, both levels of cost in this study were relatively high, and it is possible that greater differences in the cost levels would produce differences in time scores under high identification conditions.
Quality of Solution

Absolute Deviation. The results do not support the hypothesis that LI and HI, c groups would negotiate solutions with significantly smaller absolute deviation from the "going rate" than HI groups. In general, the teams did tend to use the background data as a basis for discussion of the issues, and the positions accepted did tend to follow the "going rate" (average absolute deviation for the 18 groups was 278, the maximum possible deviation was 765). Data for comparable companies were frequently used as a reference point for discussion and settlement, but the teams under all conditions made attempts to "twist the data" in order to get a more favorable settlement for their group. The lack of complete agreement between the "going rate" and the positions agreed upon by the teams indicates that the group norms were potent influences on team decisions.

Algebraic Deviation. The results lend support to the hypothesis that a member who identifies with the opposing group, i.e., is relatively independent psychologically of his own group's standards, may be an effective agent in transactions with the opposing group. Algebraic deviation from the "going rate" approached zero, the optimum value, for HI, c groups. Under the other conditions of team composition, solutions consistently favored the company teams. These results support P. Pepinsky's inference (1959) concerning the relationship between psychological independence of the group agent and
"productive independence" in a situation requiring inter-group transactions. The experimental task and the criterion of quality adopted for use in this study established a compromise solution as a successful solution, and the validity of this inference and the superiority of this type of team composition may be restricted to tasks requiring compromise solution. Erikson (1950) in his description of the American political system "as a rocking sea of checks and balances in which uncompromising absolutes must drown," indicates that acceptance of the compromise solution as the "good" solution may be a pervasive aspect of American culture.

Previous experiments (Fiedler, Meuwese, & Oonk, 1960; Hoffmann, 1959; Pelz, 1956; Haythorn, 1953) on the effectiveness of homogeneous and heterogeneous groups have yielded conflicting results. As Shaw (1960) has noted, the relative effectiveness of homogeneous and heterogeneous groups may be dependent on the type of task under consideration. The results of this experiment provide evidence for greater effectiveness of heterogeneous groups in the bargaining situation, a different type of decision-making than that studied by the above investigators.

Although the contracts negotiated under both LC and HC conditions tended to favor the company in deviations from the "going rate," the tendency was significantly greater under LC conditions. It appears that variations in the cost of negotiation produced changes
in the relative bargaining power of the union and company teams. The finding that union teams were more effective under the high cost condition than the low cost condition in winning concessions from company teams suggests that the company teams were more strongly influenced by higher costs. It was noted in observation of the experimental sessions, that company teams did more computing of relative gains and costs, and they seemed to use money gains and losses to a greater extent in their decision-making. The possibility of achieving greater gains for the union under the HC condition by holding out may account for the failure to find differences in time required to reach solution attributable to the different levels of cost.

Implications for Future Research

The optimal solution in this study was one requiring compromise by the teams from their initial positions. What the results would be if the initial positions of one side closely approximated the "going rate" or community standard remains an empirical question. It is quite possible that the results would be different under this set of conditions. The task designed for this experiment could easily be altered to study the effects of various different types of relationships between the initial positions of the teams and the "going rate."

Further study of several different aspects of negotiation costs seems warranted. One line of study concerns the level of costs and the difference in costs for the two sides. In this study, the costs for
each side were set equal. If unequal costs were assigned the two sides, the bargaining power of the teams should be altered producing changes in the outcomes. The levels of cost used in this study were relatively high. Wider differences in costs may produce different outcomes, particularly if the costs under one condition are negligible.

The second line of study is the timing of the notifications concerning negotiation costs and the operational method of notification. The schedule of the notifications appears to be highly important. The notifications given every five minutes in this experiment provided constant reminders of costs, so that cost of continued disagreement became a relatively strong stimulus. Two variations could be introduced: (a) vary the time interval over conditions, while keeping it constant within conditions, or (b) vary the time interval within conditions, with notifications coming according to a random or irregular schedule. In addition, the money penalty could vary from notification to notification within an experimental session. The money penalty appears to operate as a negative reinforcement, and different schedules and amounts of "reinforcement" should produce different outcomes. Finally, the oral announcement used in this study may be more salient than other modes of notification, e.g., a written notice.
CHAPTER V

SUMMARY AND CONCLUSIONS

This study was concerned with a specific type of group decision-making, the collective bargaining conference. It was designed to study the effects of team composition and bargaining costs on the outcomes of bargaining conferences.

The function of the bargaining conference is the negotiation and resolution of differences between union and management. The negotiators, as representatives of these groups, are charged with the responsibility of defending their respective group's demands or standards, resolving the intergroup conflict, and setting the standards or rules to be followed under the contract. This particular type of bargaining has a unique feature: the two groups involved in the conflict form a larger organization, the company. Conflict arises because the groups are primarily engaged in sharing between themselves a largely given amount of income and power. Two detrimental consequences may result. First, the new standards may not allow for mutual survival, and second, the "largely given amount of income and power" is reduced when prolonged conflict leads to work stoppage.

This experiment was designed to determine the effects of team composition and bargaining costs on the two major outcomes of the
bargaining conference: the quality of the solutions or standards produced, and the speed with which these standards are reached. Team composition refers to the level and direction of the team members' investment in or identification with the groups they represent. Three types of team composition were employed: LI, members of the negotiating teams do not strongly identify with the groups involved in the negotiations; HI, both members of each negotiating team identify with the group they represent; and HI, c, each negotiating team is composed of one man who identifies with the group he represents and one man who identifies with the opposing group. Bargaining costs refer to the amount of money each group loses per unit of negotiating time required to reach solution. Two levels of cost were used, designated as high (HC) and low (LC). Two measures of quality of solution, based on the degree of approximation of the decisions reached in the negotiations to the community standard for similar companies (the "going rate"), were obtained: absolute deviation from the "going rate," and algebraic deviation from the "going rate."

The experimental task consisted of the negotiation of nine issues of a labor contract by two teams of negotiators. Background information given to the negotiators provided them with a frame of reference with which to compare the issues under discussion and permitted objective measurement of quality of solution. Eighteen four-man groups performed on the experimental task. Ss were
assigned to experimental groups on the basis of their scores on a screening questionnaire designed to measure identification with the labor or the management group.

The following experimental hypotheses were tested:

**Hypothesis I. Time to solution of contract**

**IA.** Less time will be required to reach solution of the contract under condition LI than conditions HI and HI, c.

**IB.** Less time will be required to reach solution of contract under condition HC than condition LC.

**Hypothesis II. Quality of solution**

**IIA.** Contracts negotiated under condition HI will show greater absolute deviation from the "going rate" than contracts negotiated under conditions LI and HI, c.

**IIB.** Contracts negotiated under conditions LI and HI will show greater algebraic deviation from the "going rate" than contracts negotiated under condition HI, c.

Hypothesis I was not supported. It was found, however, that LI groups had significantly more extreme time scores, both high and low, than HI and HI, c groups combined. This result indicates that length of session under conditions of low investment (LI) varies as a function of uncontrolled individual differences, whereas high investment (conditions HI and HI, c) reduces task relevant heterogeneity of the teams. Although no differences were found between HC and LC
conditions in time to reach solution, contracts bargained under condition HC had smaller algebraic deviation from the "going rate."

This finding suggests that negotiation costs are related to the relative bargaining power of the teams.

Hypothesis II was not supported for absolute deviation from the "going rate" but was supported for algebraic deviation from the "going rate." These results lend support to the hypothesis that team composition influences the quality of bargaining solutions. More specifically, the results suggest that teams containing a negotiator who is relatively independent, psychologically, of his own group's standards (identifies more closely with the opposing group) produce "better" solutions in the bargaining situation.
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Haythorn, W. The influence of individual members on the characteristics of small groups. J. abnorm. soc. Psychol., 1953, 48, 276-284.


Strodtbeck, F. L., & Hare, A. P. Bibliography of small group research: (From 1900 through 1953). *Sociometry*, 1954, 17, 107-178.


APPENDIX A

Screening Questionnaire
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.

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. Before 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.
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

1. **Union demands of excessive wage increases are primarily responsible for large increases in prices.** (.33)

2. **Layoffs should be made on the basis of seniority.** (.31)

3. **The company should be given the right to discharge a man it considers unsatisfactory at any time during his employment.** (.36)

4. **Individual initiative is more important than collective security.** (.39)

5. **Union leaders are more interested in their own financial welfare than in the workers' financial welfare.** (.38)

6. **The union should be given equal representation with management on the Board of Directors.** (.46)

7. **Communists have infiltrated into and hold policy-making jobs in most unions.** (.14)

8. **White collar workers as well as laborers should be organized.** (.49)

9. **Since management considers the worker as just another commodity to be used in production, workers must organize unions to defend their rights as individuals.** (.46)

10. **Management must preserve the sole right to govern the company's pricing policy if industry is to survive.** (.32)
11. Unions should lobby for labor legislation. (.33)

12. Unions struggle to keep existing work rules in order to ensure the health and safety of the worker, not to make unnecessary work or to featherbed. (.42)

13. The legal minimum wage should be raised to at least $1.50 per hour. (.22)

14. Most of the violence found at picket lines is instigated by management itself. (.55)

15. In all probability, management will someday break all unions since they do not fulfill any duty which cannot be fulfilled by management itself. (.19)

16. John L. Lewis has gained much for his men, but most of the gains have been at the expense of the public. (.31)

17. In recent years, the high profits of management have been thrown away on advertising and the like when they should have been used to compensate workers for their increased productivity. (.44)

18. A closed shop (all workers must join the union) is beneficial to the worker. (.52)

19. The union does not represent the plant owners and should not attempt to participate in management's decisions on plant policies. (.40)
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Corporation profits today are excessive. (.38)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. The unions no longer represent the interests of the workingman but that of top union executives. (.43)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Management's assertion that inflation is a result of rising labor costs is a distortion of facts and degrades labor's contribution to industrial growth. (.34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. 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. (.42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. The AFL-CIO merger was another great step forward for American industry. (.56)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. There is no reason why high union officials should not be paid as much as high management officials. (.33)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Shortening the work week with no loss of pay is a sensible union solution to the problem of automation and unemployment. (.35)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. The union should help management in setting the pricing policy of the company. (.54)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. The higher standard of living that is enjoyed by the average American workingman today would have come about without the aid of unions. (.37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>----------------</td>
</tr>
</tbody>
</table>

29. Some of the union's power should be taken away from it. (.55)

30. Unions will eventually bring about the downfall of the Free Enterprise System. (.52)

31. Management's practice of discrimination against older workers makes the union's fight for seniority rules a necessity. (.36)

32. The problem in labor relations today is not that unions are too strong but management's refusal to accept labor as an equal partner in the industrial process. (.54)

33. Unions should intensify their effort to organize government employees. (.49)

34. 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. (.44)

35. The actions of top union officials are more for their own benefit than for the workers. (.52)

36. Unions should not meddle in politics. (.33)

37. The union is not interested in power itself but only in protecting the welfare of its workers. (.51)
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

38. Unions are more to blame for inflation than are managements. (.58)

39. Unions weaken individual initiative. (.60)

40. Any policy changes in personnel procedures should be worked out in a joint conference between both management and union officials. (.41)

41. White collar workers should not be unionized. (.55)

42. The motives governing the action of top union officials are prestige and financial gain, and not the welfare of the workers. (.44)
APPENDIX B

Experimental Task Materials
You have been selected by the Union to represent it as part of a two-man team in its negotiations with the Townsford Company. Negotiations for a new two-year contract broke down last week. Although no compromises were reached in either side's position, it was decided that each side should appoint new bargaining teams in an effort to settle the contract and halt the strike which began today.

You are to do the best possible job you can to get a good settlement of the contract for labor. Union members were dissatisfied with the last contract, negotiated in 1957, and there is serious danger of division in the ranks of the Union if a more satisfactory contract is not achieved in these negotiations. It is essential to labor, however, that the contract be settled in this bargaining period. We realize that this involves compromises on both sides, and you are appointed to carry out binding negotiations for us. Remember, your job is to reach a settlement, one that is good for labor, in this negotiating period.
You have been selected by the Townsford Company to represent it as a part of a two-man team in its negotiations with the Union. Negotiations for a new two year contract broke down last week. Although no compromises were reached in either side's position, it was decided that each side should appoint new bargaining teams in an effort to settle the contract and halt the strike which began today.

You are to do the best possible job you can to get a good settlement of the contract for the company. Although the company now has a backlog of orders, it is in danger of losing several major customers if increased labor costs necessitate a significant price increase. It is essential to the company, however, that the contract be settled in this bargaining period. We realize that this involves compromises on both sides, and you are appointed to carry out binding negotiations for us. Remember, your job is to reach a settlement, one that is good for the company, in this negotiating period.
BACKGROUND INFORMATION

The Townsford Company is a small textile company located in a large northern city. Townsford is highly respected for its quality work in the dyeing and finishing of raw woven fabrics. It employs approximately 250 men. Townsford's men are among the most skilled to be found in the area.

Although Townsford's wage scale, $1.94 per hour, compares favorably with most other textile firms in the area, it is 3% below those textile firms which employ workers of equivalent high skill and produce a similar high quality product. Wages in the industry have not increased in proportion to increases in the cost of living or increases in other industries. Despite occasional small wage increases, over a period of years Townsford's workers have slipped from a relatively high pay scale to a position roughly equivalent to that of lowly skilled workers in other industries. This has caused some unrest among the workers, and there is some danger of the workers shifting into these other higher paying industries. Unemployment is below normal in the area, and it has been difficult to obtain replacements who meet the skill requirements at Townsford.

Townsford gives seven paid holidays and two weeks of paid vacation to all workers with at least one year of service. The company also pays 1/4 of each employee's hospital and medical insurance and grants other minor fringe benefits. More detailed information on
Townsford and other local firms may be found in the table that accompanies this background information.

The general business conditions of the country are good and the financial conditions of Townsford are stable. Townsford is operating at full capacity and has a 6 month backlog of orders. Profits are not as high as at previous times, however, since the company has not raised its prices in several years in order to maintain a good competitive position with other sections of the country. The company has been able to maintain a 6% stockholders dividend and has made recent purchases of more modern equipment.

The personnel policies at Townsford are not the most modern but are better than those of most plants the same size. The past president of the company, who retired 3 months ago, knew most of the men personally and was well liked. He is largely responsible for the reputation of Townsford as a "good place to work." His successor is viewed with some suspicion by the workers, due mainly to his statements about changing some of the work procedures to achieve greater efficiency.

The plant was unionized (a Union Shop) in 1935. Relations with the company, for the most part, have been quite good with grievances promptly discussed and settled. The first strike occurred, however, in 1957 and lasted 15 days. The workers lost the fight for a sliding-scale wage based on increases in the cost of living index, but did get
the hospital and medical plan, a 5 cent per hour wage differential for night shift workers, and several other minor fringe benefits.

The three year contract has now expired. Negotiations broke down in the final week with both sides adamant in their positions. The only agreement reached was that each side would select a new bargaining team to represent it, scheduled to meet today (the first day of strike) in an attempt to reach a quick solution and avoid a long strike.
The following table gives information on Townsford, 4 other local textile plants, and averages for non-textile industries in the community. The Moss Plant and the Rose Plant employ highly skilled workers, similar to those at Townsford.

<table>
<thead>
<tr>
<th></th>
<th>Townsford</th>
<th>Moss</th>
<th>Rose</th>
<th>Baxter</th>
<th>Kraft</th>
<th>Average for other industries in the community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Workers</td>
<td>250</td>
<td>600</td>
<td>200</td>
<td>350</td>
<td>600</td>
<td>1000</td>
</tr>
<tr>
<td>Paid Vacation</td>
<td>2 wks. for 1 year</td>
<td>2 wks. for 1 year</td>
<td>2 wks. for 1 year</td>
<td>2 wks. for 1 yr. 3 wks.</td>
<td>2 wks. for 1 yr. 3 wks.</td>
<td></td>
</tr>
<tr>
<td>Paid Holidays</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Cost of Living Increases</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>40% Yes</td>
</tr>
<tr>
<td>Hourly Wage Rate</td>
<td>$1.94</td>
<td>$2.00</td>
<td>$2.00</td>
<td>$1.86</td>
<td>$1.88</td>
<td>$2.10</td>
</tr>
<tr>
<td>Night Shift Differential</td>
<td>$.05</td>
<td>$.09</td>
<td>$.11</td>
<td>$.08</td>
<td>$.03</td>
<td>$.10</td>
</tr>
<tr>
<td>Union Representative on Board</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>10% Yes</td>
</tr>
<tr>
<td>Type of Seniority</td>
<td>Plant-wide</td>
<td>Departmental</td>
<td>Departmental</td>
<td>Departmental</td>
<td>Plant-wide</td>
<td>65% Departmental</td>
</tr>
<tr>
<td>Checkoff</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>50% Yes</td>
</tr>
<tr>
<td>Work Rules Committee</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

76
1. **Hospital and Medical Plan:**

**Past Contract:** Company paid 1/4 of cost, employee paid remaining 3/4

**UNION:** demanded company pay full cost
**COMPANY:** refused to pay more than 1/4

<table>
<thead>
<tr>
<th>proportion of company payment</th>
<th>COMPANY</th>
<th>1/4</th>
<th>2/4</th>
<th>3/4</th>
<th>4/4</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total money value</td>
<td></td>
<td>(0)</td>
<td>(6)</td>
<td>(12)</td>
<td>(18)</td>
<td></td>
</tr>
</tbody>
</table>

2. **Wages:**

**Past Contract:** $1.94 per hour

**UNION:** demanded an increase of 16 cents per hour
**COMPANY:** refused outright

<table>
<thead>
<tr>
<th>cents increase per hour</th>
<th>COMPANY</th>
<th>00</th>
<th>02</th>
<th>04</th>
<th>06</th>
<th>08</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total money value</td>
<td></td>
<td>(0)</td>
<td>(8)</td>
<td>(16)</td>
<td>(24)</td>
<td>(32)</td>
<td>(40)</td>
<td>(48)</td>
<td>(56)</td>
<td>(64)</td>
<td></td>
</tr>
</tbody>
</table>

3. **Sliding Pay Scale to conform to cost of living:**

**Past Contract:** pay scale is fixed through the term of the contract

**UNION:** demanded pay increases in proportion to increases in the cost of living
**COMPANY:** rejected outright

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>No</th>
<th>Yes</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total money value</td>
<td>(0)</td>
<td>(20)</td>
<td></td>
</tr>
</tbody>
</table>
4. **Seniority:**

*Past Contract:* straight plant-wide seniority, workers are laid off on the basis of the number of years with the company

**UNION:** rejected any changes in the seniority principle  
**COMPANY:** demanded some flexibility in the seniority rule; wants to establish departmental seniority (seniority rule would apply within departments only)

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>Yes</th>
<th>No</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total money value</td>
<td>(0)</td>
<td>(0)</td>
<td></td>
</tr>
</tbody>
</table>

5. **Union representative on the Board of Directors:**

*Past Contract:* no union representative on the Board

**UNION:** demands one union representative be appointed  
**COMPANY:** rejected outright

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>No</th>
<th>Yes</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total money value</td>
<td>(0)</td>
<td>(0)</td>
<td></td>
</tr>
</tbody>
</table>

6. **Night Shift Differential:**

*Past Contract:* an extra 5 cents per hour is paid for night work

**UNION:** demands a 5 cent increase to 10 cents per hour  
**COMPANY:** rejected

<table>
<thead>
<tr>
<th>cents increase per hour</th>
<th>COMPANY</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>UNION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total money value

| (0) | (1) | (2) | (3) | (4) | (5) |
7. **Vacation Pay:**

*Past Contract:* 2 weeks paid vacation for all workers with one year of service

*UNION:* wants 3 weeks paid vacation for workers with 10 years of service

*COMPANY:* rejected

<table>
<thead>
<tr>
<th>2 wks. for 1 year</th>
<th>3 wks. for 20 years</th>
<th>3 wks. for 15 years</th>
<th>3 wks. for 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANY service</td>
<td>UNION service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total money value

- (0)
- (1/2)
- (2)
- (5)

8. **Establishment of a Work Rules Committee:**

*Past Contract:* no work rules committee exists

*UNION:* rejected establishment of committee

*COMPANY:* demanded establishment of a work rules committee composed of two company representatives, two union representatives, and two efficiency engineers from an industrial consulting firm to study and to be responsible for changes in work rules.

*COMPANY* Yes ________________________________________ *No* *UNION*

Total money value

- (0)
- (0)

9. **Check Off System:**

*Past Contract:* workers pay union dues to union representatives on pay day

*UNION:* demanded a check off system whereby the company deducts union dues from the workers' pay for the union

*COMPANY:* rejected the check off system

*COMPANY* No ________________________________________ *Yes* *UNION*

Total money value

- (0)
- (0)
TO: Company Negotiator

FROM: Company

SUBJECT: Issues

1. The Union demands for general wage and benefit increases are completely unreasonable. If labor costs are increased, it might necessitate price increases which could seriously hamper the company's competitive standing.

2. Departmental seniority would lead to greater efficiency when it is most needed by keeping properly trained men on the job.

3. The purpose of the Work Rules Committee is the development of greater productivity through more efficient work procedures. Increased productivity would permit higher wages.

4. The Union has no place on the Board of Directors. This is merely an attempt on the part of the Union to infiltrate into management functions.

5. A checkoff system is unnecessary. It would be improper for the Company to collect Union dues. Dues collection is clearly a Union function.
TO: Union Negotiator

FROM: Union

SUBJECT: Issues

1. The Union is thoroughly irritated with the Company's refusal to grant the workers badly needed wage and benefit increases.

2. The checkoff system would eliminate unnecessary worker inconvenience and allow for smoother Union functioning, yet require little effort on the part of management.

3. The Union feels that strikes could be avoided if it were allowed a voice on the Board of Directors. Problems could be presented directly to the Board and solved in rapid order.

4. Changes in the seniority rule are unnecessary. The seniority rule is designed to protect the older worker and is a reward for his continued good service to the company. He is capable of shifting departments or jobs and maintaining efficiency.

5. The Work Rules Committee would be used to speed up work rates and reduce the number of employees. These are at an optimum level and should not be changed. The committee is unnecessary; Townsford is noted for its high quality workers.
FINAL TERMS OF THE CONTRACT

Issue #

1. Hospital & Medical Plan:

   proportion of company payment
   1/4 2/4 3/4 4/4

   Company 1
   Company 2
   Labor 1
   Labor 2

2. Wages:

   cents increase per hour
   00 02 04 06 08 10 12 14 16

   Company 1
   Company 2
   Labor 1
   Labor 2

3. Sliding Pay Scale to Conform to Cost of Living:

   Fixed Scale  Sliding Scale

   Company 1
   Company 2
   Labor 1
   Labor 2

4. Seniority:

   Departmental  Plant-wide

   Company 1
   Company 2
   Labor 1
   Labor 2

5. Union representative on the Board of Directors:

   NO  YES

   Company 1
   Company 2
   Labor 1
   Labor 2

6. Night Shift Differential:

   cents increase per hour
   0 1 2 3 4 5

   Company 1
   Company 2
   Labor 1
   Labor 2

7. Vacation Pay:

   2 wks. for 3 wks. for 3 wks. for 3 wks. for
   1 year  20 yrs.  15 yrs.  10 yrs.

   service  service  service  service

   Company 1
   Company 2
   Labor 1
   Labor 2

8. Establishment of a Work Rules Committee:

   NO  YES

   Company 1
   Company 2
   Labor 1
   Labor 2
<table>
<thead>
<tr>
<th></th>
<th>Company 1</th>
<th>Company 2</th>
<th>Labor 1</th>
<th>Labor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check Off System:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>YES</td>
<td></td>
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</table>
APPENDIX C

Experimenter's Script
EXPERIMENTER'S SCRIPT

DIRECTIONS: ASSEMBLE Ss OUTSIDE OF LABORATORY.

EXPERIMENTER: First, let me check to be sure that I have your names correct.

DIRECTIONS: E CHECKS Ss NAMES.

EXPERIMENTER: Please follow me into the laboratory.

DIRECTIONS: USHER Ss INTO LABORATORY.

EXPERIMENTER: You are going to take part in a study of group decision-making. In a few minutes you will be assigned to one of two teams that are in disagreement on issues highly important to the groups they represent. You will be given two hours credit (or $2.00) for the 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. It would be a good idea to remember to speak up clearly and distinctly during the experiment, since an observer will be listening to you and be watching you work from behind the one way mirror at the end of the laboratory. I am reading the instructions to you from a prepared script so that each team will be sure to get the same instructions. I will now give you your team assignments.

DIRECTIONS: ASSIGN Ss TO PROPER TEAMS. E TAKES SEAT AT E'S TABLE:

85
EXPERIMENTER: I will serve as the legal aid for the conference and remain seated at this table at the end of the room. I am here to pass out printed information to you, to answer any procedural questions you might have, and to record your decisions. I will now pass out to you your Assignment and the Background Information on the problem. Please read these now. (GIVE 5 MINUTES TO READ.) You will have another opportunity to examine the background information before negotiations begin.

EXPERIMENTER: I will now read to you the procedures or rules for the negotiations. These procedures have been established by joint agreement of the Union and Company.

DIRECTIONS: PASS OUT A CONTRACT TO EACH S.

EXPERIMENTER: (WHILE PASSING OUT CONTRACT) Here is a copy of the contract that you can refer to while I am reading the procedures.

EXPERIMENTER: In a few minutes you will be given a more detailed list of the nine issues that are to be resolved. In order to settle an issue, both teams must accept some specific position on the issue. When both teams, all 4 negotiators, are in agreement on an issue, one man should read aloud the issue and the position to be endorsed. He then circles on the contract the position to be endorsed and each man initials the item in the space provided at the right. Once all four negotiators have agreed and
initialed the issue, it is settled for the two year contract period and it may not be changed later in the negotiations. Any man on either side may open the discussion, and any man on either side may read and circle the position on the issue once agreement is reached.

The legal aid will periodically notify the negotiators of the amount of time being consumed in negotiation. You are to consider each 5 minutes as being equivalent to one full day of negotiation. The total negotiation time is limited to 12 days (or 60 minutes). At the end of each 5 minute interval, the legal aid will notify each team of the loss that its group has suffered that day as a result of lost wages, reduced inventory or sales, etc.

EXPERIMENTER: Any questions on the procedures to be followed?

(ANSWER PROCEDURAL QUESTIONS ONLY)

EXPERIMENTER: This is a list of the issues you are to settle and a note from your group concerning the issues. You will be given 5 minutes to read over this information and to take another look at the Background Information. Then you may have 4 minutes for a planning conference with the other representative of your group before the negotiations begin.

DIRECTIONS: PASS OUT ISSUE SHEETS. COLLECT ALL BUT ONE COPY OF THE CONTRACT.
EXPERIMENTER: There are nine issues to be resolved. The issues are not arranged in any order of importance, and you may discuss them in any order or combination you desire. Under each issue you will find a statement of the specific provisions of the past contract and the positions of the Company and the Union when negotiations ended last week. Next you will find a scale that shows at the left the present position of the Company and at the right the present position of the Union on a given issue. Between these extremes some possible compromises are listed for your convenience. And, finally, beneath the scales in the parentheses, you will find estimates of the amounts of money (in thousands of dollars) that each of the possible agreements directly above would cost or gain for your group. These estimates and the daily (5 minutes) reports of the legal aid are provided by the groups you represent so that you will have some knowledge of the financial status of the bargaining. Are there any questions at this point? (ANSWER QUESTIONS CONCERNING MEANINGS OF TERMS USED; BUT DO NOT GIVE ANY REASONS FOR DEMANDS)

EXPERIMENTER: You now have 5 minutes to examine the issues and the Background Information.

EXPERIMENTER: "5 minutes." You now have 4 minutes for a planning conference with the other representative of your group.
DIRECTIONS: ALLOW 4 MINUTES. NO NEGOTIATION IS PERMITTED DURING THIS PERIOD.

EXPERIMENTER: The planning period is over. Remember, you may discuss the issues in any order or combination. The groups you represent expect you to reach agreement in 12 days or less.

OK?, begin the discussion.

DIRECTIONS: E ANNOUNCES; "day(s)____completed, cost to Company $3,000 (or $6,000); cost to Labor $3,000 (or $6,000)" AT EACH 5 MINUTE INTERVAL.

DIRECTIONS: E RECORDS ON E'S FORM:

1. ORDER IN WHICH ISSUES ARE SETTLED
2. TIME ELAPSED WHEN ISSUE IS SETTLED
3. POSITION WHICH IS ACCEPTED.

DIRECTIONS: IF AGREEMENT IS NOT REACHED IN 60 MINUTES SAY:

"The Union and Company have noted your progress and grant you 2 extra days of negotiations to reach a final settlement. You may proceed with the negotiations."

DIRECTIONS: IF AGREEMENT IS NOT REACHED IN 70 MINUTES SAY:

"The negotiations are concluded; this negotiating committee is disbanded. The strike will go on."

EXPERIMENTER: (WHEN LAST ISSUE IS ACCEPTED) OK; the negotiations are completed. But before we end the experiment, we should like to ask you to fill out a form giving your frank
reactions to this session and the contract you negotiated.

Please say exactly what you think, because your impressions will be most helpful to us in assessing this experiment. Let me read to you the provisions of the contract before you go to separate cubicles to complete the form.

DIRECTIONS: READ FINAL PROVISIONS OF THE CONTRACT, ANNOUNCE TOTAL COST OF THE BARGAINING TO EACH SIDE.

EXPERIMENTER: Total cost of the negotiations to Labor, $_____:

  total cost of the negotiations to the Company, $_____.

DIRECTIONS: SHOW Ss TO CUBICLES. INSTRUCT Ss TO RETURN TO LAB WHEN THE FORM IS COMPLETED.

DIRECTIONS: WHEN ALL Ss HAVE RETURNED; DECOMPRESS!
APPENDIX D

Post Session Questionnaire
POST SESSION QUESTIONNAIRE

Please indicate your frank reactions to the contract and your observations of the negotiations by completing the statements below. First circle your assignment:

Labor 1  Labor 2  Company 1  Company 2

1. If you were free to change the duration of time that the contract you negotiated would be in force, would you have it last (check one)

<table>
<thead>
<tr>
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<th>( )</th>
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<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>year</td>
<td>months</td>
<td>years</td>
<td>years</td>
<td>years</td>
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2. How would you rate the performance of the other member of your negotiating team? (check one)

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<tbody>
<tr>
<td>very poor</td>
<td>fair</td>
<td>good</td>
<td>very good</td>
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3. How acceptable will the contract be to the party you represented? (check one)

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<th>( )</th>
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<tbody>
<tr>
<td>unacceptable</td>
<td>partially acceptable</td>
<td>highly acceptable</td>
<td>fully acceptable</td>
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4. Rank the other negotiators on the basis of their overall contribution to the negotiations:
   a. most valuable negotiator _________
   b. _________
   c. least valuable negotiator _________

92
5. In your opinion who got the better deal in the final contract? (check one)

( ) ___________________ ( ) ___________________ ( )
Union Both Sides Company
fared equally well

6. In general, how defensible did you feel your own assigned positions were on the issues presented?

( ) _________________________________________
more defensible just as less defensible
than the positions defensible than the positions
of the other side of the other side

7. In your opinion, what were the two most vital or important issues? (check two)

1. Hospital & Medical Plan 5. Union representative
3. Sliding Pay Scale 7. Vacation Pay
4. Seniority 8. Work Rules Committee
9. Check Off System

8. How well did your assigned role in the experiment coincide with your own general beliefs and attitudes? (check one)

( ) completely ( ) highly ( ) somewhat ( ) slightly ( ) not at all
coincided

9. Have you ever been a member of a Union? (circle one)

YES NO

10. What is your Father's occupation? ___________________________
APPENDIX E

Deviation Values for the Issues
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<tr>
<th>Issue No. 1</th>
<th>Contract Position</th>
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<tr>
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<td>1/4 1/3 2/4 3/4 4/4</td>
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Deviation Value

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<td>00 02 04 05 06 07 08 10 12 14 16</td>
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<td>-107 -72 -36 -18 00 18 36 72 107 143 179</td>
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Deviation Value

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Deviation Value

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Deviation Value

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Deviation Value

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<th>Contract Position</th>
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Deviation Value
### Issue No. 7

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<th>Contract Position</th>
<th>2 wks. for 1 year service</th>
<th>3 wks. for 20 years service</th>
<th>3 wks. for 15 years service</th>
<th>3 wks. for 10 years service</th>
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<td>02</td>
<td>09</td>
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Deviation Value

### Issue No. 8

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<th>Contract Position</th>
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Deviation Value

### Issue No. 9

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<th>Contract Position</th>
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Deviation Value
I, Richard John Campbell, was born in Philadelphia, Pennsylvania, April 23, 1932. I received my secondary-school education in Philadelphia, and my undergraduate training at Villanova University and Temple University. I received a Bachelor of Arts degree from Temple University in 1954. In October, 1956, I became a Graduate Assistant to Dr. Philburn Ratoosh in the Department of Psychology at Ohio State University. The following year, I was a Teaching Assistant to Dr. Samuel Renshaw and served as a laboratory instructor for courses in experimental psychology. I was granted the Master of Arts degree from Ohio State University in 1958. From July, 1958, to September, 1959, I served as a Research Assistant to Dr. Harold B. Pepinsky. In October, 1960, I became a Research Associate of the Ohio State University Research Foundation and worked with Dr. Pauline N. Pepinsky in the area of Small Group research. I held this position for one year while completing the requirements for the degree Doctor of Philosophy.