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THE EFFECTS OF FORMALLY BASED STATUS DIFFERENCES ON GROUP PRODUCTIVITY, EFFICIENCY, AND RISK TAKING.

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THE PRIMARY PURPOSE OF THIS EXPERIMENT WAS TO DETERMINE WHETHER HIERARCHICALLY DIFFERENTIATED GROUPS WERE AS PRODUCTIVE ON PROBLEM-SOLVING TASKS AS HIERARCHICALLY UNDIFFERENTIATED GROUPS. THE EXPERIMENT ALSO INVESTIGATED THE EFFECTS OF FORMALLY BASED STATUS DIFFERENCES ON GROUP EFFICIENCY AND RISK-TAKING. TWENTY GROUPS CONTAINING FOUR SUBJECTS WERE DRAWN FROM STAFFS OF 10 ELEMENTARY SCHOOLS IN THE ST. LOUIS METROPOLITAN AREA. THE SAMPLE WAS COMPOSED OF 10 ELEMENTARY PRINCIPALS (FIVE MALE AND FIVE FEMALE) AND 70 ELEMENTARY TEACHERS (68 FEMALE AND TWO MALE). "THE DOODLEBUG PROBLEM" WAS UTILIZED IN EVALUATING THE PROBLEM-SOLVING ABILITY OF THE HIERARCHICALLY DIFFERENTIATED AND UNDIFFERENTIATED GROUPS. FINDINGS SUPPORTED THE HYPOTHESES THAT HIERARCHICALLY DIFFERENTIATED GROUPS WILL BE LESS PRODUCTIVE AND EFFICIENT AND WILL EXHIBIT LESS RISK-TAKING THAN HIERARCHICALLY UNDIFFERENTIATED GROUPS. (DG)

# THE EFFECTS OF FORMALLY BASED STATUS DIFFERENCES ON GROUP PRODUCTIVITY, EFFICIENCY, AND RISK TAKING

by

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# The Effects of Formally Based Status Differences on Group Productivity, Efficiency, and Risk-Taking

## Introduction

Frequently administrators are admonished to solve their organizational problems through the medium of groups. This exhortation is based largely on the body of research which demonstrates the superiority of groups over individuals in solving certain kinds of problems. Recently, however, organizational theorists have begun to point out that the characteristics associated with the superiority of groups over individuals may be true only for undifferentiated groups, i.e., peer groups.[1] These theorists contend that in hierarchically differentiated groups the beneficial characteristics of social interaction are attenuated. There is a need to test the validity of this contention by studying group functioning in hierarchically differentiated and undifferentiated groups.

The main purpose of this experiment is to determine whether hierarchically differentiated groups will be as productive on a problem-solving task as hierarchically undifferentiated groups. This experiment also is concerned with illuminating two related issues--the effects of formally based status differences on group efficiency and risk-taking.

## Hypotheses

Hypothesis 1. Hierarchically differentiated groups will be less productive than hierarchically undifferentiated groups. Groups are said to be superior to individuals on certain types of problem-solving tasks because social interaction (1) provides an error-correcting mechanism, (2) furnishes social support to individual members, and (3) fosters competition for respect.[2] The linkage of these factors to increased

group productivity is provided in the paragraphs that follow and is drawn principally from the work of Blau and Scott.[3]

It is not easy for an individual to detect the mistakes in his thinking. He brings a set to the problem-solving situation which militates against his seeing the problem from another perspective. When a number of individuals are working on a common task, the chances that an error in thinking will be detected are increased because various people bring different assumptions, frameworks, experiences, and knowledge to bear on the problem. This facilitates the detection of false leads and leads to a rejection of poor ideas and wrong suggestions.

Secondly, social interaction furnishes social support to group members. The problem-solving situation creates a condition of uncertainty for individual members and this leads to mental blocks that interfere with their development of ideas. When an individual works with a group on a task, his good suggestions are likely to receive the approval of others. Social approval reduces the individual's anxieties and encourages him to develop his ideas further.

Thirdly, the presence of others motivates members to make good suggestions in order to win the respect and esteem of the other group members. The heightened motivation leads members to mobilize their energies and to contribute toward the task.

The presence of status differences in a group, however, curtails these three group processes according to Blau and Scott. Formally instituted status differences undermine the competition for respect which mobilizes group members' energies. Competition for respect, in the face of organizationally induced status differences, loses its significance. A person's standing in the group is not based on the

respect of others; rather, it is prescribed by the formal organization. Formally instituted status differences also distort the error-correction mechanism. Subordinates are likely to be reluctant to criticize the opinions of persons with superior status or to find fault with their suggestions and ideas. Finally, formally instituted status differences affect the way in which social support is distributed. Low status members do not receive their share of the group's support, and it is support that relieves anxiety and stimulates thinking.

Using this line of reasoning, the authors hypothesize that hierarchically differentiated groups will be less productive than undifferentiated or peer groups. The differences in the productivity of these two types of groups are accounted for by the curtailment of the three group processess in hierarchically differentiated groups.

Hypothesis 2. <u>Hierarchically differentiated groups will be less efficient than hierarchically undifferentiated groups</u>. When a collection of individuals comes together in a group, the individuals have the potential to produce more in concert than separately. However, the assembly affect bonus is not realized until a pattern of interpersonal relations has been developed.[4] The presence of status differences among the group members represents an interpersonal obstacle to the development of this pattern of interpersonal relationships. Low status members of hierarchically differentiated groups will hesitate to become activity involved in solving the problem until the superordinate indicates through his behavior the kind of role he will play in the problem solving situation. The low status members will define their roles in the group and develop their pattern of behavior only

after the superordinate has made clear how he will behave in this situation. In hierarchically undifferentiated groups members can begin to work immediately on the problem of building an interpersonal organization unhindered by the need to adjust and readjust their behavior to a person with higher formal status. This means that the process of developing an interpersonal organization will require more time in hierarchically differentiated groups than in undifferentiated groups. As a result, the hierarchically differentiated groups will be slower and, therefore, less efficient in successfully locomoting toward the goal than will undifferentiated groups.

Hypothesis 3. Hierarchically differentiated groups will exhibit less risk-taking behavior than hierarchically undifferentiated groups. Risk-taking is represented by the willingness of group members to subject ideas to a test. The presence of a superordinate among a group of subordinates represents a condition of personal threat to them and will inhibit the tendencies of subordinates to expose their ideas to possible failure. In order for an idea to be acted upon by the group, the person who generates the idea must defend his view and advocate the idea before the rest of the group. By attempting to sell the idea, the person becomes identified with it. If the group acts upon the idea and the idea is subsequently proven wrong, the individual who advanced the idea experiences failure in the eyesof his superior, a risk few subordinates are willing to take. According to this line of reasoning, hierarchically differentiated groups will present fewer of their generated solutions to the experimenter, who is an immediate source of feedback concerning the worth of the idea, than will undifferentiated groups.

## Method

### Sample

In order to test the three hypotheses, a total of 20 groups containing four subjects was used. Subjects for these groups were drawn from the staffs of 10 elementary schools in the St. Louis Metropolitan area. There was a total of 80 subjects including 10 elementary principals, 5 male and 5 female, and 70 elementary teachers, 68 female and 2 male. With the exception of the principals, subjects were randomly selected from staff rosters provided the investigators. In each of the 10 schools, two groups containing four members apiece were constituted. One group contained the principal and three of his teachers while the other group was composed of four teachers. All teachers were randomly assigned to the two groups.

The groups containing the principal were designated as hierarchically differentiated groups. Status differences between the principal and his teachers were prescribed by the formal organization. The groups composed exclusively of teachers were designated as hierarchically undifferentiated groups. According to the organizational chart in these schools, elementary teachers held positions which were equivalent in organizational status. Formally based status differences were present only in the hierarchically differentiated groups.

### Procedures

The small group experiments were conducted in each of the 10 participating schools prior to the opening of school in the morning and immediately following the close of school in the afternoon. Hierarchically differentiated and undifferentiated groups were randomly assigned to morning and afternoon problem-solving sessions. The experiment was

conducted in a section of the building free of interruptions. This location varied from building to building, though within each building the location was the same for both groups.

Each subject was provided with a copy of the problem. Subjects were told to work together on it and to discuss among themselves their ideas on the solution to the problem. Participants were free to ask questions of the experimenter. The only restriction imposed on their method of operation was that a solution generated by the group could not be presented to the experimenter until a majority of the members present agreed that the generated solution was the correct one. As long as this condition was met, the groups could present as many solutions as they wished until the problem was correctly solved. Each session was tape-recorded. In addition, the experimenter noted when the group overcame each one of the three beliefs and when the group generated and presented a solution.[5] The procedure was the same for all groups.

The task for each group was to solve the "The Doodlebug Problem", a problem devised by M. Ray Denny and subsequently revised by Denny and Rokeach.[6] The problem is non-ideological in nature and is essentially a problem in logic involving an imaginary insect named Joe Doodlebug who operates in an environment under unusual governing conditions. Solution of the problem includes analysis and synthesis phases. During the analysis phase subjects have to overcome certain presently held beliefs. During the synthesis phase subjects have to integrate the beliefs into a new system. Productivity was measured in each phase.

A time limit of 30 minutes was set for the group to solve the problem. At the close of the experimental session, subjects were given

a copy of the solution and asked not to discuss what had occurred with anyone until the day after the last scheduled experimental session.

## Results

Hypothesis 1 states that hierarchically differentiated groups will be less productive than hierarchically undifferentiated groups. This hypothesis was tested with respect to the differences in productivity between hierarchically differentiated and undifferentiated groups in both the analysis and the synthesis phases of the task. Only three of the twenty groups solved the problem. Two of the correct solutions were products of the undifferentiated groups; the other was generated by a hierarchically differentiated group. In any event, the number of correct solutions was too small to test differences in productivity in the synthesis phase of the task.

The hypothesis then was tested by looking at the productivity of the two kinds of groups during the analysis phase. The measure of productivity was the total number of beliefs overcome by the group in the time allotted. For each belief overcome, the group was awarded a plus one. Since there were only three beliefs--a facing belief, a direction belief, and a movement belief--to be overcome, the range on the productivity index in the analysis phase was 0 to 3.[7] The productivity score was 2.2 for the hierarchically differentiated groups and 2.8 for the undifferentiated groups. A test of the significance of the difference between these means resulted in a t of 2.52. For a one-tailed test with 18 df, this value is significant at the .05 level. The hypothesis is confirmed at the analysis phase of the task, the only phase which could be tested. The hierarchically undifferentiated groups were more productive than groups with formally based status differences among the group members.

Hypothesis 2 states that hierarchically differentiated groups will be less efficient than hierarchically undifferentiated groups. The hypothesis was tested by examining the length of time, expressed in minutes and fractions of minutes, required to overcome the first belief. The mean number of minutes required to overcome the first belief was 2.7 for the undifferentiated groups and 4.8 for the hierarchically differentiated groups. This difference is significant at the .05 level for a one-tailed test $t = 1.745$, $df = 18$. The hierarchically differentiated groups were less efficient than the undifferentiated groups.

Hypothesis 3 states that hierarchically differentiated groups will exhibit less risk-taking behavior than will hierarchically undifferentiated groups. The operational definition of risk-taking behavior for each group was the difference between the number of solutions generated by the group and the number presented to the experimenter as a correct solution. The lower the discrepancy between the number of generated and presented solutions, the greater was the risk-taking. The mean risk-taking score for the hierarchically undifferentiated groups was .8 while for the hierarchically differentiated groups the mean risk-taking score was 1.8. The difference between the two means is significant at the .05 level for a one-tailed test, $t = 1.754$, $df = 18$. Forty-four percent of the generated solutions were presented to the experimenter in the hierarchically differentiated groups as opposed to 71 percent in the undifferentiated groups. When the administrator generated solutions are excluded and only the teacher generated and presented solutions are used, the difference in risk-taking for the two types of groups is even more pronounced. Only 36 percent of the solutions generated by the teachers were presented to the experimenter in the hierarchically differentiated groups as opposed to 71 percent in the undiffer-

entiated groups. The presence of formally based status differences among group members did not inhibit the risk-taking behavior of subordinates as was hypothesized.

Although the investigators randomly assigned hierarchically differentiated groups to morning and afternoon sessions, an analysis was made of the differences between before-school and after-school groups on each of the three dependent variables. None of the three analyses approached significance at the .05 level. The t-values for productivity, risk-taking, and efficiency were all less than 1.00. The differences between the means on these three measures for morning and afternoon groups were .2, 0, and .45 respectively.

In order to determine whether there was a significant relationship among any of the dependent variables, correlations were run on the productivity, efficiency, and risk-taking scores. None of the correlations between these three variables was significant at the .05 level; the correlation coefficients are reported in Table 1. The correlation (.38) between the efficiency and the risk-

Table 1. Summary correlation matrix for the dependent variables.

| Total Sample (N=20) | Productivity | Efficiency | Risk-taking |
|---|---|---|---|
| Productivity | | - .15 | - .19 |
| Efficiency | | | .38 |

taking scores does approach significance, however, and suggests that inefficient groups are also low risk-takers.[8]

## Discussion

Although the results of this experiment are consistent with the hypotheses elaborated at the beginning of this paper, some relevant questions arose during the analysis of the data. One of these questions has to do with the validity of the risk-taking index. As the reader may recall, in the hierarchical differentiated groups there was a marked discrepancy between the percentage of solutions generated by teachers which were presented to the experimenter and the percentage of administrator-generated solutions which were presented to the experimenter. While only 36 percent of the teacher-generated solutions were presented to the experimenter, 78 percent of the solutions generated by administrators were offered by the group as a correct solution. One might argue that in groups with a history of association and development that the suggestions of members who rank lower in importance are passed over more often than the suggestions of higher status members.[9] If this line of reasoning holds, then the lower proportion of solutions presented to the experimenter in the hierarchically differentiated groups was not due to a reluctance by subordinates to take risks but rather to the tendency of ideas advanced by low ranking group members to be overlooked. Differences between differentiated and undifferentiated groups on the risk-taking measure could be attributed to the ideas of low ranking members being passed over in groups having formally based status differences among the members as opposed to the hypothesized inhibition of risk-taking.

In order to determine which of these two rival explanations might have accounted for the differences on the risk-taking index between the two types of groups, a second experiment was conducted. A total of 18 groups containing five subjects each was used. Subjects for the groups were drawn from the staffs of 8

elementary schools and one junior high school in the St. Louis metropolitan area. With the exception of the principals, subjects were randomly selected from staff rosters provided the investigators. In each of the 9 schools, two groups containing five members apiece were constituted. One group contained four teachers and the principal who acted solely as an observer while the other group consisted of five teachers with one of the five designated as an observer. All teachers were randomly assigned to the two groups and to their roles as observers or participant. In both groups the observer was instructed to watch the group as it worked on the problem, to refrain from making any comments even if called upon by a member of the group, and to withhold any expression of emotion during the session. Though informed of the identity of the person who was designated as an observer, subjects were told only that he could not participate in the problem solving activity. No other information about the observer's role was given. The procedures during the problem solving session were identical in other respects to the procedures followed in the first experiment.

Although information was gathered on all three measures for each group, the major interest of the investigators was in the scores of the two types of groups on the risk-taking measure. If this measure really represented the willingness of group members to subject ideas to a test, then the groups with a superordinate (in this case the principal) present as an observer should offer fewer of their generated solutions to the experimenter than groups with a peer serving as the observer. On the other hand, if the two types of groups did not differ on the risk-taking measure, this would argue for the interpretation that the differences on this index in the first experiment were due to the ideas of teachers (lower status members) being overlooked when in competition with the

ideas of the principal (a higher status member).

The results of this second experiment confirmed the interpretation of the risk-taking index as a measure of the willingness of group members to subject their ideas to a test. The mean score on the risk-taking measure for groups observed by a superordinate was 1.56 while the mean score for groups observed by a peer was .56 with a low score indicating high risk-taking. A test of the significance of the difference between these two means resulted in a t of 2.947. For a two-tailed test with 16 df, this value is significant at the .01 level. The rival explanation for the findings in the first experiment with respect to the differences between the risk-taking scores of hierarchically differentiated and undifferentiated groups was, therefore, rejected by the investigators. On the productivity and efficiency indices of the second experiment, the t values were less than 1.00. The differences between the means on each of the two measures was 0 and .9 respectively.

A second question emerged from an analysis of the social interaction in hierarchically differentiated groups. Since the authors had reasoned that productivity would be lower in the hierarchically differentiated groups because the beneficial characteristics of social interaction would be curtailed, the investigators studied certain aspects of the group processes to determine if these had been curtailed in the differentiated groups.

Although ten hierarchically differentiated groups had been tape recorded, it was possible to study the interaction processes in but nine of the groups due to considerable background noise on one tape during the last fifteen minutes of the recording. Specifically, the authors examined the extent to which the error-correction mechanism and the distribution of social support were distorted.

Unfortunately, the data which were collected did not lend themselves to an analysis of the third group process--competition for respect.

Distortions in the error-correction mechanism and the distribution of social support were studied by looking at what happened to ideas emanating from the principal and one teacher randomly selected from each group. A statement by a participant was classified as an idea if it met any one of these criteria; (1) an interpretation of the problem not already mentioned in the written problem presented to the group, (2) a possible cause of the problem, (3) a possible solution of the problem, (4) a relationship between a cause and a problem, and (5) a criterion for judging the appropriatness of any of the foregoing.[10] Two investigators working from typed transcripts of the nine sessions then independently traced what happened to each idea by looking at the three responses made by participants immediately following the introduction of the idea.[11] The fate of each idea was classified in one of the following categories: criticized, ignored, used, and accepted without being used.[12] Criticisms were considered to be the functional equivalent of error-correcting behavior on the assumption that criticisms represented the rejection of false leads and unproductive ideas. Supportive behavior was signified by idea usage and idea-acceptance-without-use on the assumption that these behaviors reinforced the behavior of the person who initiated the idea thus making him feel more secure and less anxious. At the same time, an individual who sets forth an idea but has it overlooked or ignored could have his anxiety increased if he interprets the lack of response as representing a lack of confidence in his reasoning ability.

The disposition of administrator and teacher ideas based on the aforementioned classification scheme is reported in Table 2. A chi-square test of

these data is not significant at the .05 level. Interestingly enough, a larger

Table 2. Disposition of teacher and administrator ideas.*

| Idea initiated by | Disposition of Ideas: Criticize | | Use | | Acceptance without use | | Ignore | |
|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N |
| Administrators | 51 | 34 | 18 | 12 | 10 | 7 | 21 | 14 |
| Teachers | 38 | 24 | 13 | 8 | 26 | 16 | 24 | 15 |

*Chi-square test shows no significant differences at .05 level.

percentage of administrator ideas than teacher ideas were criticized and a lower percentage of the ideas initiated by administrators were accepted without being used when contrasted with those introduced by teachers. The results of this analysis do not provide any empirical evidence to support the initial contention that the beneficial characteristics of social interaction are curtailed by formally based status differences. Since the conditioning variables did not operate as hypothesized, the question remains as to what factors may have been at work to produce the differences in productivity scores for the two types of groups.

One possible explanation is that the productivity of the hierarchically differentiated groups was inhibited not by formally based status differences alone but rather by a combination of formally based status differences and the constitutional arrangement[13] chosen by the investigators. In the first experiment the investigators used a parliamentarian type of constitutional

arrangement. This placed the elementary principal in a decision-making situation with his teachers where the decision was to be reached by majority vote. By selecting a constitutional arrangement not customarily used in this type of formal organization while at the same time not specifying the role of the principal in this situation, the investigators may have inadvertently created a situation where the teachers did not know what the appropriate status was for the principal. As a result, the teachers may not have known how to behave toward the principal <u>in this situation</u>.

The productivity of the group may have been curtailed not solely by the presence of formally based status differences among the participants, but rather by the ambiguous power stimulus in the group produced by juxtaposing formally based status differences and an unusual constitutional arrangement for teachers and principals. Proposition 8.6 of Collins and Guetzkow lends support to this explanation; it reads: "Low power persons will be threatened if ambiguity exists in their relationship with high power agents."[14] Ambiguity may have resulted from the juxtaposition of formally based status differences and a novel constitutional arrangement (at least for these groups). This may have threatened the low power persons leading to increased anxiety which in turn lowered productivity. The same line of reasoning also could account for the differences between hierarchically differentiated and undifferentiated groups on the efficiency measure.

## Concluding Remarks

The findings reported in this paper tend to confirm the notion of a number of organizational theorists that hierarchical differentiation has its dysfunctional as well as its functional consequences. At the same time some doubt is cast upon one of the assumptions with which this study began, viz., that

the presence of formally based status differences among group members distorts the error-correction mechanism and the distribution of social support. A more direct empirical test of these Blau and Scott postulates appears to be warranted in view of the lack of expected differences in the disposition of ideas initiated by administrators and teachers in this experiment. Also still unanswered is whether differences in the productivity and efficiency of the two types of groups would be found if a centralist constitutional arrangement were used. Since this type of constitutional arrangement typically is used by formal organizations in reaching decisions, a study of this variable and its effects on group preformance would be meaningful. Finally, the investigators were unable to test the consequences of hierarchical differentiation at the synthesis phase of problem solving; this too represents a fruitful question for further research. Hopefully, these matters will provide productive leads for subsequent studies in this area.

## FOOTNOTES

[1]See Peter M. Blau and W. Richard Scott, Formal Organizations (San Francisco: Chandler Publishing Co., 1962); Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations (New York: John Wiley and Sons, Inc., 1966); Louis M. Smith and Pat M. Keith, Social Psychological Aspects of School Building Design (Washington, D.C.: Bureau of Research, U.S. Office of Education, 1967).

[2]Blau and Scott, op. cit., pp. 121-124.

[3]Ibid.

[4]Barry E. Collins and Harold Guetzkow, A Social Psychology of Group Processes for Decision-Making (New York: John Wiley & Sons, Inc., 1964), p. 60.

[5]Since each session was tape-recorded, the investigators were able to verify the accuracy of the information recorded by the experimenter during the session concerning (a) the time required to overcome the first belief (the efficiency measure), (b) the number of beliefs overcome and whether the group solved the problem (the productivity measures), and (c) the number of solutions generated by the group versus the number presented as a correct solution (the risk-taking measure).

[6]For a full description of "The Doodlebug Problem," see Milton Rokeach, The Open and Closed Mind (New York: Basic Books, Inc., 1960), pp. 171-181.

[7]In the "Joe Doodlebug Problem" the subject is given the end result (that Joe must jump four times to reach his food) and is asked to tell why Joe reaches the conclusion he does. In order to reach a correct solution the subject must overcome three basic beliefs. In everyday life we face the food we are about to eat, but Joe need not face his food in order to eat it. He can land on top of it (the facing belief). In everyday life we can change our direction at will. Joe, however, can change direction only by jumping sideways or backwards (the direction belief). In everyday life we may change direction immediately. Joe, however, must make four jumps in one direction before he changes. Subjects have difficulty with this belief because they assume that Joe is at the end rather than possibly in the middle of a sequence (the movement belief).

[8]The reader is reminded that the higher the efficiency score the more inefficient the group is and the higher the risk-taking score the fewer the risks taken by the group.

[9]This argument was suggested in a paper by C. Heinicke and R.F. Bales, "Developmental Trends in the Structure of Small Groups," Sociometry, 16 (1953), 7-38.

[10]These criteria were drawn from John C. Glidewell, "Group Emotionality and Productivity" (Unpublished Ph. D. Dissertation, The University of Chicago, 1953), pp. 175-176.

[11]Degree of agreement between the two coders was determined by a procedure recommended by R.F. Bales, Interaction Process Analysis (Cambridge, Mass.: Addison-Wesley Press, Inc., 1961), pp. 103-111. The extent of the agreement between coders was determined for both administrator and teacher ideas by means of chi-square. Bales considers a chi-square value which has a probability of .50 or greater as evidence of acceptable agreement among coders. The investigators preferred to use a more conservative estimate of agreement and set a chi-square value with a P of .80 or greater as the acceptable level. For both the administrator and teacher ideas the probability of a chi-square value with four degrees of freedom (unclassified responses also were included in this analysis) was in excess of .90.

[12]A response was classified as criticized if another participant disagreed with the idea. Disagreement could include personal judgment and/or reference to instructions and conditions. For example, a participant advances the idea that Joe will take three jumps north and then one west. Another participant then points out that Joe cannot jump diagonally. Ideas were classified as ignored if there was no further reference to it. An idea was classified as used if another participant employed the idea in developing the same or another idea or in generating a solution. For example, a participant presents the idea that Joe jumps sideways. Another participant uses this idea by developing a solution that Joe jumps four times, sideways to the west. An idea was coded in the acceptance without use category if another participant agreed with the idea but did not use it. For example, a participant states that the size of the food is probably important. Another participant remarks, "That's right," but does not make any further comments. Slightly less than 20 percent of the ideas were clarified by the experimenter before they were used or criticized; in these cases the ideas were not classified.

[13]This interpretation occurred to the investigators after reading a seminal article by Guy E. Swanson "The Effectiveness of Decision-Making Groups," Adult Leadership, 8, 2 (June, 1959), pp. 48-52. The concept of constitutional arrangements refers to the procedures by which the group is to arrive at a decision. The three most frequently mentioned constitutional arrangements are the parliamentarian, the participant-determining, and the centralist. In groups using either the participant-determining or parliamentarian modes for reaching decisions, every group member has relatively equal power and influence over the decision. The major distinction between these modes is that under the participant-determining arrangement consensus is required. Groups using parliamentarian procedures for making and executing decisions can exercise a choice which is binding on the group whenever a majority agrees that a particular course of action is desirable. As for groups operating under a centralist constitutional arrangement, they are bound by a decision whenever one is reached by the person in final authority.

[14]Collins and Guetzkow, op. cit., p. 163.