

**THEORY AND EXPERIMENT
IN
SOCIAL COMMUNICATION**

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FOREWORD

For the past three years the Research Center for Group Dynamics has been conducting a program of research in the area of social communication under contract N6onr-23212 NR 170 698 with the Office of Naval Research.

During these years two field studies and a number of laboratory experiments have been done. This compilation presents the reports of the laboratory studies together with a theoretical integration of the work which has been done to date. These studies have centered mainly on two sets of problems, namely, communication stemming from pressures toward uniformity in groups and communication in hierarchical structures. The reports of the experiments in this compilation are grouped along these lines.

While all of the studies were done at the Research Center for Group Dynamics, some of the authors have since gone elsewhere. Kurt Back is now on the staff of the United States Bureau of the Census. Stanley Schachter is a member of the Department of Psychology of the University of Minnesota. John Thibaut is in the Psychology Department of Boston University.

Leon Festinger, under whose general supervision this program is being carried out, and Harold H. Kelley are on the staff of the Research Center for Group Dynamics. Bernard Hymovitch gave valuable help in preparing this report and is now conducting research in this program area. Harold Gerard and Burt Raven are also members of the present research staff.

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PART I.

THEORETICAL INTEGRATION

INFORMAL SOCIAL COMMUNICATION

by Leon Festinger

The importance of strict theory in developing and guiding programs of research is becoming more and more recognized today. Yet there is considerable disagreement about exactly how strict and precise a theoretical formulation must be at various stages in the development of a body of knowledge. Certainly there are many who feel that some "theorizing" is too vague and indefinite to be of much use. It is also argued that such vague and broad "theorizing" may actually hinder the empirical development of an area of knowledge.

There are, on the other hand many who express dissatisfactions with instances of very precise theories which do exist here and there, for somehow or other a precise and specific theory seems to them to leave out the "real" psychological problem. These persons seem to be more concerned with those aspects of the problem which the precise theory has not yet touched. From this point of view it is argued that such too precise and too strict theorizing may also hinder the empirical development of an area of knowledge.

It is probably correct that if a theory becomes too precise too early it can have tendencies to become sterile. It is also probably correct that if a theory stays too vague and ambiguous for too long it can be harmful in that nothing can be done to disprove or change it. This probably means that theories, when vague, should at least be stated in a form which makes the adding of precision possible as knowledge increases. It also probably means that theory should run ahead, but not too far ahead, of the data so that the trap of premature precision can be avoided. It certainly means that theories, whether vague or precise, must be in such a form that empirical data can influence them.

This article is a statement of the theoretical formulations which have been developed in the process of conducting a program of empirical and experimental research in informal social communication. It has grown out of our findings thus far and is in turn guiding the future course of the research program. This program of research concerns itself with finding and explaining the facts concerning informal, spontaneous communication among persons and the consequences of the process of communication. It would seem that a better understanding of the dynamics of such communication processes would in turn lead to a better understanding of various kinds of group functioning. The theories and hypotheses presented below vary considerably in precision, specificity and the degree to which corroborating

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data exists. Whatever the state of precision, however, the theories are empirically oriented and capable of being tested.

Since we are concerned with the spontaneous process of communication which goes on during the functioning of groups we must first differentiate the variety of types of communication which occur according to the theoretical conditions which give rise to tendencies to communicate. It is plausible to assume that separating the sources or origins of pressures to communicate that may act on a member of a group will give us fruitful problem areas to study. This type of differentiation or classification is, of course, adequate only if it leads to the separation of conceptually clear areas of investigation within which communication behavior can be organized into storable theoretical and empirical laws.

We shall here deal with those few of the many possible sources of pressures to communicate in which we have thus far been able to make theoretical and empirical progress. We will elaborate on the theory for regarding them as giving rise to pressures to communicate and on specific hypotheses concerning the laws of communication which stems from these sources.

I. Pressures Toward Uniformity in a Group.

One major source of forces to communicate is the pressure toward uniformity which may exist within a group. These are pressures which, for one reason or another, act toward making members of a group agree concerning some issue or conform with respect to some behavior pattern. It is stating the obvious, of course, to say that these pressures must be exerted by means of a process of communication among the members of the group. One must also specify the conditions under which such pressures toward uniformity arise, both on a conceptual and an operational level so that in any specific situation it is possible to say whether or not such pressures exist. We shall, in the following discussion, elaborate on two major sources of pressures toward uniformity among people, namely, social reality and group locomotion.

1. Social reality:

Opinions, attitudes, and beliefs which people hold must have some basis upon which they rest for their validity. Let us as a start abstract from the many kinds of bases for the subjective validity of such opinions, attitudes, and beliefs one continuum along which they may be said to lie. This continuum we may call a scale of degree of physical reality. At one end of this continuum, namely, complete dependence upon physical reality, we might have an example such as this: A person looking at a surface might think that the surface is fragile or he might think that the surface is unbreakable. He can very easily take a hammer, hit the

surface, and quickly be convinced as to whether the opinion he holds is correct or incorrect. After he has hit the surface with a hammer it will probably make little dent upon his opinion if another person should tell him that the surface is unbreakable. It would thus seem that where there is a high degree of dependence upon physical reality for the subjective validity of one's beliefs or opinions the dependence upon other people for the confidence one has in these opinions or beliefs is very low.

At the other end of the continuum where the dependence upon physical reality is low or zero, we might have an example such as this: A person looking at the results of a national election feels that if the loser had won, things would be much better than they are in some ways. Upon what does the subjective validity of this belief depend? It depends to a large degree on whether or not other people share his opinion and feel the same way he does. If there are other people around him who believe the same thing, then his opinion is, to him, valid. If there are not others who believe the same thing, then his opinion is, in the same sense, not valid. Thus where the dependence upon physical reality is low the dependence upon social reality is correspondingly high. An opinion, a belief, an attitude is "correct", "valid" and "proper" to the extent that it is anchored in a group of people with similar beliefs, opinions, and attitudes.

This, however, can not be generalized completely. It is clearly not necessary for the validity of someone's opinion that everyone else in the world think the way he does. It is only necessary that the members of that group to which he refers this opinion or attitude think the way he does. It is not necessary for a Ku Klux Klanner that some northern liberal agree with him in his attitude toward Negroes, but it is eminently necessary that there be other people who also are Ku Klux Klanners and who do agree with him. The person who does not agree with him is seen as different from him and not an adequate referent for his opinion. The problem of independently defining which groups are and which groups are not appropriate reference groups for a particular individual and for a particular opinion or attitude is a difficult one. It, to some extent, is inherently circular since an appropriate reference group tends to be a group which does share a person's opinions and attitudes, and people tend to locomote into such groups and out of groups which do not agree with them.

From the preceding discussion it would seem that if a discrepancy in opinion, attitude, or belief exists among persons who are members of an appropriate reference group, forces to communicate will arise. It also follows that the less "physical reality" there is to validate the opinion or belief the greater will be the importance of the social referent, the group, and the greater will be the forces to communicate.

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2. Group locomotion:

Pressures toward uniformity among members of a group may arise because such uniformity is desirable or necessary in order for the group to move toward some goal which it has. Under such circumstances, there are a number of things one can say about the magnitude of these pressures toward uniformity.

1. They will be greater to the extent that the members perceive that group movement would be facilitated by uniformity.

2. The pressures toward uniformity will also be greater, the more dependent the various members are on the group in order to reach their goals. The degree to which other groups are substitutable as a means toward individual or group goals would be one of the determinants of the dependence of the member on the group.

We have elaborated on two sources of pressure toward uniformity among members of groups. The same empirical laws should apply to communications which result from pressures toward uniformity irrespective of the particular reasons for the existence of the pressures. We shall now proceed to enumerate a set of hypotheses concerning communication behavior which results from pressures toward uniformity.

Hypotheses about Communication Resulting from Pressures toward Uniformity

Communications which arise from pressures toward uniformity in a group may be seen as "instrumental" communications. That is, the communication is not an end in itself but rather is a means by which the communicator hopes to influence the person he addresses in such a way as to reduce the discrepancy that exists between them. Thus, we should examine the determinants of: (1) when a member communicates, (2) to whom he communicates and (3) the reactions of the recipient of the communication.

1. Determinants of the magnitude of pressure to communicate:

Hypothesis 1a: The pressure on members to communicate to others in the group concerning 'item x' increases monotonically with increase in the perceived discrepancy in opinion concerning 'item x' among members of the group.

Remembering that we are considering only communication that results from pressures toward uniformity, it is clear that if there are no discrepancies in opinion, that is, uniformity already exists in the group, there will be no forces to communicate. It would be plausible to expect the force to communicate to increase rapidly from zero as the state of affairs departs from uniformity.

Hypothesis 1b: The pressure on a member to communicate to others in the group concerning 'item x' increases monotonically with increase in the degree of relevance of 'item x' to the functioning of the group.

If 'item x' is unimportant to the group in the sense of not being associated with any of the values or activities which are the basis for the existence of the group, or if it is more or less inconsequential for group locomotion, then there should be little or no forces to communicate even when there are perceived discrepancies in opinion. As 'item x' becomes more important for the group (more relevant), the forces to communicate when any given magnitude of perceived discrepancy exists, should increase.

Corroborative evidence for this hypothesis is found in an experiment by Schachter (8) where discussion of the same issue was experimentally made relevant for some groups and largely irrelevant for others. It is clear from the data that where the discussion was relevant to the functioning of the group there existed stronger forces to communicate and to influence the other members. Where the issue is a relevant one the members make longer individual contributions to the discussion and there are many fewer prolonged pauses in the discussion.

Hypothesis 1c: The pressure on members to communicate to others in the group concerning 'item x' increases monotonically with increase in the cohesiveness of the group.

Cohesiveness of a group is here defined as the resultant of all the forces acting on the members to remain in the group. These forces may depend on the attractiveness or unattractiveness of either the prestige of the group, members in the group, or the activities in which the group engages. If the total attraction toward the group is zero, no forces to communicate should arise; the members may as easily leave the group as stay in it. As the forces to remain in the group increase (given perceived discrepancies in opinion and given a certain relevance of the item to the functioning of the group) the pressures to communicate will increase.

Data from an experiment by Back (1) support this hypothesis. In this experiment groups of high and low cohesiveness were experimentally created using three different sources of attraction to the group, namely, liking the members, prestige attached to belonging, and possibility of getting a reward for performance in the group activity. For each of the three types of attraction to the group the more cohesive groups were rated as proceeding at a more intense rate in the discussion than the corresponding less cohesive groups. In addition, except for the groups where the attraction was the possibility of reward (perhaps due to wanting to finish and get the reward) there was more total amount

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of attempted exertion of influence in the highly cohesive groups than in the less cohesive groups. In short, highly cohesive groups, having stronger pressures to communicate, discussed the issue at a more rapid pace and attempted to exert more influence.

2. Determinants of choice of recipient for communications:

Hypothesis 2a: The force to communicate about 'item x' to a particular member of the group will increase as the discrepancy in opinion between that member and the communicator increases.

We have already stated in Hypothesis 1a that the pressure to communicate in general will increase as the perceived non-uniformity in the group increases. In addition the force to communicate will be strongest toward those whose opinions are most different from one's own and will, of course, be zero towards those in the group who at the time hold the same opinion as the communicator. In other words, people will tend to communicate to those within the group whose opinions are most different from their own.

There is a clear corroboration of this hypothesis from a number of studies. In the previously mentioned experiment by Schachter (8) the distribution of opinions expressed in the group was always as follows: Most of the members' opinions clustered within a narrow range of each other while one member, the deviate, held and maintained an extremely divergent point of view. About five times as many communications were addressed to the holder of the divergent viewpoint as were addressed to the others.

In an experiment by Festinger and Thibaut (5) the discussion situation was set up so that members' opinions on the issue spread over a considerable range. Invariably 70 to 90 percent of the communications were addressed to those who held opinions at the extremes of the distribution. The curve of number of communications received falls off very rapidly as the opinion of the recipient moves away from the extreme of the distribution. The hypothesis would seem to be well substantiated.

Hypothesis 2b: The force to communicate about 'item x' to a particular person will decrease to the extent that he is perceived as not a member of the group or to the extent that he is not wanted as a member of the group.

From the previous hypothesis it follows that communications will tend to be addressed mainly toward those with extreme opinions within the group. This does not hold, however, for any arbitrarily defined group. The present hypothesis, in effect, states that such relationships will apply only within psychological groups, that is, collections of people that exist as groups psychologically for the members. Communications

will tend not to be addressed towards those who are not members of the group.

The study by Schachter (8) and the study by Festinger and Thibaut (5) both substantiate this hypothesis. In Schachter's experiment, those group members who do not want the person holding the extremely divergent viewpoint to remain in the group tend to stop communicating to him towards the end of the discussion. In the experiment by Festinger and Thibaut, when the subjects have the perception that the persons present include different kinds of people with a great variety of interest, there tends to be less communication toward the extremes in the last half of the discussion after the rejection process has had time to develop. In short, communication towards those with different opinions decreases if they are seen as not members of the psychological group.

Hypothesis 2c: The force to communicate 'item x' to a particular member will increase the more it is perceived that the communication will change that member's opinion in the desired direction.

A communication which arises because of the existence of pressures toward uniformity is made in order to exert a force on the recipient in a particular direction, that is, to push him to change his opinion so that he will agree more closely with the communicator. If a member is perceived as very resistant to changing his opinion so that the communication will have no effect, the force to communicate to him decreases. If it seems that a particular member will be changed as the result of a communication so as to increase the discrepancy between him and the communicator, there will exist a force not to communicate to him. That is, under such conditions there will be tendencies not to communicate this particular item to that member.

There is some corroboration for this hypothesis. In a face to face verbal discussion where a range of opinion exists, the factors which this hypothesis points to would be particularly important for those members whose opinions were near the middle of the range. A communication which might influence the member at one extreme to come closer to the middle might at the same time influence the member at the other extreme to move farther away from the middle. We might then expect from this hypothesis that those holding opinions in the middle of the existing range would communicate less (because of the conflict) and would address fewer communications to the whole group (attempting to influence only one person at a time).

A number of observations were conducted to check these derivations. Existing groups of clinical psychologists who were engaging in discussions to reconcile their differences in ratings of applicants were observed. Altogether, 147 such discussions were observed in which

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at least one member's opinion was in the middle of the existing range. While those with extreme opinions made an average of 3.16 units of communication (number of communications weighted by length of the communication), those with middle opinions made an average of only 2.6 units of communication. While those with extreme opinions addressed 38% of their communications to the whole group, those with middle opinions addressed only 29% of their communications to everyone.

3. Determinants of change in the recipient of a communication:

Hypothesis 3a: The amount of change in opinion resulting from receiving a communication will increase as the pressure towards uniformity in the group increases.

There are two separate factors which contribute to the effect stated in the hypothesis. The greater the pressure towards uniformity, the greater will be the amount of influence exerted by the communications and, consequently, the greater the magnitude of change that may be expected. But the existence of pressures toward uniformity will not only show itself in increased attempts to change the opinions of others. Pressures toward uniformity will also produce greater readiness to change in the members of the group. In other words, uniformity may be achieved by changing the opinions of others and/or by changing one's own opinions. Thus we may expect that with increasing pressure towards uniformity there will be less resistance to change on the part of the members. Both of these factors will contribute to producing greater change in opinion when the pressure toward uniformity is greater.

There is evidence corroborating this hypothesis from the experiment by Festinger and Thibaut (5). In this experiment three degrees of pressure towards uniformity were experimentally induced in different groups. Irrespective of which of two problems were discussed by the group and irrespective of whether they perceived the group to be homogeneously or heterogeneously composed, the results consistently show the high pressure groups to change most, the medium pressure groups to change next most and the low pressure groups to show least change toward uniformity as a result of the communication process. While the two factors which contribute to this effect cannot be separated in the data, their joint effect is clear and unmistakable.

Hypothesis 3b: The amount of change in opinion resulting from receiving a communication will increase as the strength of the resultant force to remain in the group increases for the recipient.

To the extent that a member wishes to remain in the group, the group has power over that member. By power we mean here the ability

to produce real change in opinions and attitudes and not simply change in overt behavior which can also be produced by means of overt threat. If a person is unable to leave a group because of restraints from the outside the group can then use threats to change overt behavior. Covert changes in opinions and attitudes, however, can only be produced by a group by virtue of forces acting on the member to remain in the group. Clearly, the maximum force which the group can successfully induce on a member counter to his own forces can not be greater than the sum of the forces acting on that member to remain in the group. The greater the resultant force to remain in the group, the more effective will be the attempts to influence the member.

This hypothesis is corroborated by two separate studies. Festinger, Schachter and Back (4) investigated the relationship between the cohesiveness of social groups in a housing project (how attractive the group was for its members) and how effectively a group standard relevant to the functioning of the group was maintained. A correlation of .72 was obtained between these two variables. In other words, the greater the attractiveness of the group for the member's, the greater was the amount of influence which the group could successfully exert on its members with the result that there existed greater conformity in attitudes and behavior in the more cohesive groups.

Back (1) did a laboratory experiment specifically designed to test this hypothesis. By means of plausible instructions to the subjects he experimentally created groups of high and low cohesiveness, that is, conditions in which the members were strongly attracted to the group and those in which the attraction to the group was relatively weak. The subjects, starting with different interpretations of the same material were given an opportunity to discuss the matter. Irrespective of the source of the attraction to the group (Back used three different types of attraction in both high and low cohesive conditions) the subjects in the high cohesive groups influenced each other's opinions more than the subjects in the low cohesive groups. In short, the greater the degree of attraction to the group, the greater the amount of influence actually accomplished.

Hypothesis 3c: The amount of change in opinion resulting from receiving a communication concerning 'item x' will decrease with increase in the degree to which the opinions and attitudes involved are anchored in other group memberships or serve important need satisfying functions for the person.

If the opinion that a person has formed on some issue is supported in some other group than the one which is at present attempting to influence him, he will be more resistant to the attempted influence. Other sources of resistance to being influenced undoubtedly come from personality factors, ego needs and the like.

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Specific evidence supporting this hypothesis is rather fragmentary. In the study of social groups in a housing project by Festinger, Schachter and Back (4), the residents were asked whether their social life was mainly outside the project or not. Of those who conformed to the standards of their social groups within the project about 85% reported that their social life was centered mainly within the project. Less than 50% of those who did not conform to the standards of the project social group, however, reported that their social life was centered mainly in the project. It is likely that they were able to resist the influences from within the project when their opinions and attitudes were supported in outside groups.

The experiments by Schachter (8) and by Festinger and Thibaut (5) used the same discussion problem in slightly different situations. In the former experiment subjects identified themselves and verbally supported their opinions in face-to-face discussion. In the latter experiment the subjects were anonymous, communicating only by written messages on which the sender of the message was not identified. Under these latter conditions many more changes in opinion were observed than under the open verbal discussion situation even though less time was spent in discussion when they wrote notes. This difference in amount of change in opinion is probably due to the ego defensive reactions aroused by openly committing oneself and supporting one's opinions in a face-to-face group.

4. Determinants of change in relationship among members:

Hypothesis 4a: The tendency to change the composition of the psychological group (pushing members out of the group) increases as the perceived discrepancy in opinion increases.

We have already discussed two of the responses which members of groups make to pressures toward uniformity, namely, attempting to influence others and being more ready to be influenced. There is still a third response which serves to move toward uniformity. By rejecting those whose opinions diverge from the group and thus redefining who is and who is not in the psychological group, uniformity can be accomplished. The greater the discrepancy between a person's opinion and the opinion of another, the stronger are the tendencies to exclude the other person from the psychological group.

There is evidence that members of groups do tend to reject those whose opinions are divergent. In the study of social groups within a housing project Festinger, Schachter and Back (4) found that those who did not conform to the standards of their social group were under-chosen on a sociometric test, that is, they mentioned more persons as friends of theirs than they received in return. Schachter (8) did an experiment specifically to test whether or not members of groups would

be rejected simply for disagreeing on an issue. Paid participants in the groups voiced divergent or agreeing opinions as instructed. In all groups the paid participant who voiced divergent opinion on an issue was rejected on a postmeeting questionnaire concerning who they wanted to have remain in the group. The same paid participants, when voicing conforming opinions in other groups were not rejected.

Hypothesis 4b: When non-conformity exists, the tendency to change the composition of the psychological group increases as the cohesiveness of the group increases and as the relevance of the issue to the group increases.

We have previously discussed the increase in forces to communicate with increase in cohesiveness and relevance of issue. Similarly, these two variables affect the tendency to reject persons from the group for non-conformity. Theoretically we would expect any variable which affected the force to communicate (which stems from pressures toward uniformity) to also affect the tendency to reject non-conformers in a similar manner. In other words, increases in the force to communicate concerning an item will go along with increased tendency to reject persons who disagree concerning that item.

The previously mentioned experiment by Schachter (8) was designed to test this hypothesis by experimentally varying cohesiveness and relevance in club groups. In this experiment the more cohesive groups do reject the non-conformer more than the less cohesive groups and the groups where the issue is relevant reject the non-conformer more than groups where the issue is not very relevant to the group functioning. Those group where cohesiveness was low and the issue was not very relevant show little, if any, tendency to reject the deviate.

II. Forces to Change One's Position in a Group.

Another important source of forces to communicate are the forces which act on members of groups to locomote (change their position) in the group, or to move from one group to another. Such forces to locomote may stem from the attractiveness of activities associated with a different position in the group or from the status of that position or the like. Thus, a new member of a group may wish to become more central in the group, a member of an organization may wish to rise in the status hierarchy, a member of a business firm may want to be promoted or a member of a minority group may desire acceptance by the majority group. These are all instances of forces to locomote in a social structure.

It is plausible that the existence of a force acting on a person in a specific direction produces behavior in that direction. Where locomotion in the desired direction is not possible, at least temporarily, there will exist a force to communicate in that direction. The existence of a

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force in a specific direction will produce behavior in that direction. One such kind of behavior is communication. This hypothesis is not very different from the hypothesis advanced by Lewin (6) to account for the superior recall of interrupted activities.

An experiment by Thibaut (9) tends to corroborate this theoretical analysis. In his experiment he created two groups, one of high status and privileged, the other of low status and under-privileged. These two groups, equated in other respects, functioned together in order for the members of the high status group to play an attractive game. The low status group functioned merely as servants. It was clear that forces were acting on the members of the low status group to move into the other group. As the privilege position of the high status group became clearer and clearer the amount of communication from the low status team to the high status group increased. The number of communications from members of the high status group to the low status group correspondingly decreased. When, in some groups, the status and privilege relationship between the two teams was reversed toward the end of the experimental session, thus reducing the forces to locomote into the other group, the number of communications to that other group correspondingly decreased.

Further corroboration is found in a preliminary experiment, mainly methodologically oriented, conducted by Back, et. al. (2). In this experiment new items of information were planted with persons at various levels in the hierarchy of a functioning organization. Data on transmission of each of the items of information were obtained through co-operators within the organization who were chosen so as to give adequate coverage of all levels and all sections within it. These co-operators recorded all instances of communication that came to their attention. Of seventeen acts of communication recorded in this manner, eleven were directed upwards in the hierarchy, four toward someone on the same level and only two were directed downwards. The existence of forces to move upward in such a hierarchical organization may be taken for granted. The great bulk of the communications recorded went in the same direction as these forces to locomote.

In considering communication among members of differentiated social structures it is important also to take into account restraints against communication.

Infrequent contact in the ordinary course of events tends to erect restraints against communication. It is undoubtedly easier to communicate a given item to a person who one sees frequently or to a person to whom one has communicated similar items in the past. The structuring of groups into hierarchies, social clusters or the like undoubtedly tends to restrict the amount and type of contact between members of certain different parts or levels of the group and also undoubtedly restricts the content of the communication that goes on

between such levels in the ordinary course of events. These restrictions erect restraints against certain types of communication.

There are some data which tend to specify some of the restraints against communication which exist. In the study of the communication of a spontaneous rumor in a community by Festinger, Cartwright, et. al. (3) it was found that intimacy of friendship tended to increase ease of communication. Persons with more friends in the project heard the rumor more often than those with only acquaintances. Those who had few friends or acquaintances heard the rumor least often. At the same time, this factor of intimacy of friendship was not related to how frequently they relayed the rumor to others. In other words, it was not related to forces to communicate but seemed to function only as a restraint against communicating where friendship did not exist.

There is also some evidence that the mere perception of the existence of a hierarchy sets up restraints against communication between levels. Kelley (7) experimentally created a two level hierarchy engaging in a problem solving task during which they could and did communicate within levels and between levels. Control groups were also run with the same task situation but with no status differential involved between the two subgroups. There was more communication between subgroups under these control conditions than where there was a status differential involved.

It seems that, in a hierarchy, there are also restraints against communicating hostility upwards when the hostility is about those on upper levels. In the same experiment by Kelley there was much criticism of the other group expressed by both high status and low status members. The proportion of these critical expressions which are directed upward by the low status group is much less, however, than the proportion directed downward by the high status group.

III. Emotional Expression.

An important variety of communications undoubtedly result from the existence of an emotional state in the communicator. The existence of joy, anger, hostility and the like seems to produce forces to communicate. It seems that communications resulting from the existence of an emotional state are consummatory rather than instrumental.

By an instrumental communication we mean one in which the reduction of the force to communicate depends upon the effect of the communication on the recipient. Thus, in communication resulting from pressures toward uniformity in a group, the mere fact that a communication is made does not affect the force to communicate. If the effect has been to change the recipient so that he now agrees more closely with the communicator, the force to communicate will be reduced. If the recipient changes in the opposite direction, the force to communicate to him will be increased.

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By a consumatory communication we mean one in which the reduction of the force to communicate occurs as a result of the expression and does not depend upon the effect it has on the recipient. Certainly, in the case of such communications the reaction of the recipient may introduce new elements into the situation which will affect the force to communicate, but the essence of a consumatory communication is that the simple expression does reduce the force.

Specifically with regard to the communication of hostility and aggression, much has been said regarding its consumatory nature. The psychoanalytic theories of catharsis, in particular, develop the notion that the expression of hostility reduces the emotional state of the person. There has, however, been very little experimental work done on the problem. The previously mentioned experiment by Thibaut in which he created a 'privileged-underprivileged' relationship between two equated groups has some data on the point. There is evidence that those members of the 'underprivileged' groups who expressed their hostility toward the 'privileged' groups showed less residual hostility toward them in post-experimental questionnaires. There is, however, no control over the reactions of the recipients of the hostile communications nor over the perceptions of the communicators of what these reactions were. An experiment is now in progress which will attempt to clarify some of these relationships with both negative and positive emotional states.

SUMMARY

A series of interrelated hypotheses has been presented to account for data on informal social communication collected in the course of a number of studies. The data come from field studies and from laboratory experiments specifically designed to test the hypotheses.

Three sources of pressures to communicate have been considered:

1. Communication arising from pressures toward uniformity in a group. Here we considered determinants of magnitude of the force to communicate, choice of recipient for the communication, magnitude of change in recipient and magnitude of tendencies to reject nonconformers.
2. Communications arising from forces to locomote in a social structure. Here we considered communications in the direction of a blocked locomotion and restraints against communication arising in differentiated social structures.
3. Communications arising from the existence of emotional states. In this area data are almost completely lacking. Some theoretical distinctions were made and an experiment which is now in progress in this area was outlined.

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PART II

EXPERIMENTS ON PRESSURES TOWARD UNIFORMITY

THE EXERTION OF INFLUENCE THROUGH SOCIAL COMMUNICATION

Kurt W. Back

There are many beliefs and attitudes which people hold which cannot be checked with objective data. Support for these beliefs stems mainly from agreement with other people. This seems to be the only way in which many opinions can be validated. The attempt to get agreement of this kind leads to mutual adjustments of opinions. An individual tries to influence others to accept his beliefs and may be willing to be influenced. By means of these processes a point is reached where several people can find reassurance by having their ideas agree.

It does not seem necessary, however, that everybody accept a certain opinion in order that it may become valid for some individuals. Clearly a person is more dependent on some people than on others for confirmation. Especially, he will want to hold opinions which are accepted by the people with whom he associates and by the group to which he wants to belong.

It would follow from the preceding that there will be more pressure toward accepting the same beliefs among people who are members of the same group than among people who are not. Similarly, we can make the assumption that the pressure toward uniformity within a group will be a function of the strength of attraction which the group has for its members. This property of groups, the attraction which it has for its members, or the forces which are exerted on the members to stay in the group, has been called cohesiveness (1). The main hypothesis which we shall discuss in this paper is that with increase in cohesiveness there will be an increase in pressure toward uniformity within a group. From this relationship between the forces exerted on the members to remain in the group and the pressure to agree on important topics some other relationships follow.

1. In highly cohesive groups there will be more attempt to agree on a specified issue than in less cohesive groups. This can be manifested, from the point of view of a member, by attempting to influence other members or by being receptive to influence.

2. Actions of group members are determined partly by pressures arising from the group, partly from individual motives. Since the group pressures will be greater in highly cohesive groups than in less cohesive groups, we would expect less individual differences in participation in the former.

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3. Because of the greater pressure toward uniformity in highly cohesive groups there will be more change in the members as a result of the influence process.

4. If the pressures toward uniformity are weak, agreement can be established only in a way which requires little change for each member. If the pressures are strong, forces can be exerted on some member to change considerably. Agreement can be established with less consideration of the degree to which some individual member would have to change.

Cohesiveness, the desire to belong to a group, can be based on different factors. Individuals may want to belong to a group because they like the other members, because being a member of a group may be attractive in itself (e.g. it may be an honor to belong to it), or because the group may mediate goals which are important for the members. All these bases for attractiveness are subsumed under the concept of cohesiveness and should therefore lead to the same consequences in terms of the hypotheses stated above. If increase in cohesiveness under all conditions leads to the same influence effects, then cohesiveness can be regarded as a unitary concept. In the experiment, therefore, groups were established on all three bases: personal attraction, task direction, and group prestige. The strength of cohesiveness for each basis was varied.

The main purpose of the experiment, then, was to measure the effect of strength of cohesiveness on the pressure toward uniformity within groups. At the same time the effect of different bases of cohesiveness on the manner in which this pressure operated was studied.

THE METHOD OF THE EXPERIMENT

In order to control a number of possibly relevant factors, the experiment was set up to fulfill the following conditions:

1. The topic to be discussed should be equally new to all subjects in order to minimize difference in familiarity with the problem.

2. The content should be simple enough to be discussed in a relatively short time and to permit the short discussion to effect a measurable change.

3. Influence should not be required by the experimental situation. For instance, success of the group should not depend on agreement between group members nor should the task of the group be facilitated if agreement is achieved.

4. As far as possible, accomplished influence should be traced to specific attempts to influence.

In order to meet these conditions, the experiment included the following features:

1. The topic of discussion was the interpretation of a set of pictures. This was an unusual task, on which hardly any group standards could have been established outside the experimental situation. Photographs were taken especially for the experiment and were equally unfamiliar to all subjects.

2. The pictures depicted a simple situation which could be discussed in a few minutes. Since they were somewhat unclear, a change in interpretation was easily possible.

3. Each subject received a set of three pictures believing that all sets were identical; actually there were slight differences between the sets which led to different interpretations. The differences were too small to be detected in a discussion without seeing the photographs again. Figure 1 shows the two sets of pictures which were used.

4. The experiment was introduced as a cooperative working situation; the eventual outcome, however, consisted of the independent products of each subject. The discussion was introduced as an opportunity to improve their own stories. Necessity for influence was specifically denied, and both length and manner of the discussion were left to the subjects.

5. In order to trace influence to one person only, the experimental groups consisted of pairs.

PROCEDURE

Essentially, the same general procedure was followed in all experimental conditions. The subjects in the experiment were students of two large psychology classes at the University of Michigan. Each experimental pair consisted of students of the same sex, taken from different laboratory sections of the classes. If, in spite of precautions, it was established that the two members of the pair had known each other previously, the group was not used.

After the subjects were introduced to each other, each of them was taken to a different room and given the following instructions:

"Your task is to write a story from a set of three photographs which depict quite a commonplace incident. This gives you an opportunity to give play to your imagination, although the story should be plausible and supported by features of the pictures. The pictures, being taken from a film strip, form a sequence which you will have to reconstruct. Then you will write a story connecting the pictures. Right now you will write a preliminary story. Then you will talk over your ideas with your partner and afterwards you will write a final story. Remember, you should write a good story, but it is important to make it plausible by the use of the available clues."

SET A

SET B



Picture 1



Picture 1



Picture 2



Picture 2



Picture 3



Picture 3

Figure 1

The Photographs Used in the Experiment

In addition, they were given the special instructions appropriate to their experimental conditions. They then received the pictures and wrote the preliminary story. There was no time limit. When they were finished they came together to discuss their stories. At the start of the discussion, the subjects were reminded that its object was to help them to improve their own stories. It was emphasized that it was not necessary to conclude with a common story and that they could stop the discussion at any time when they saw its usefulness at an end. The amount and manner of communication was therefore left to the subjects.

After the discussion, the subjects returned to their separate rooms to write their final stories. They were instructed to "Write what you now think to be the best story." They could not see the pictures again, therefore they could not check information which they had received from their partners.

After the completion of the experiment, the subjects were told the significant features of the set-up, and all their questions were answered truthfully. In conclusion, they were asked not to discuss the experiment and thanked for their cooperation.

The Experimental Variables. In the experiment three sources of attraction to the group were introduced: attraction to the partner, mediation of other goals (task direction), and prestige of the group itself. Each of these variables was introduced in two different strengths. The combination of strength and type gave six different experimental treatments. A seventh treatment was introduced, where any force toward the group was kept at a minimum. The execution of this design required a technique which started at the time the subjects were recruited.

When the subjects volunteered in their classes, they were told only that they were going to participate in a group experiment. The sign-up blank included a few questions which were ostensibly going to help in making up the groups. Some questions asked for self-description and self-ratings. A few pseudo-projective questions were included. By means of these, the experimenter could pretend that he was able to make some shrewd inferences about personality traits. The concluding questions read: "You will be paired with another student of your own sex. As we want people together who are congenial, can you describe the type of person you want to work with?", and "What would be the most objectionable traits in a person you would work with?"

Personal Attraction. The questionnaire aided in controlling the personal attraction the subjects had for each other when they entered the discussion. In the treatments where attraction was to be the basis of cohesiveness, the experimenter referred to the questionnaire after giving the general instructions and reported on the effectiveness of the matching.

To create weak cohesiveness, he said, "You remember the questions you answered when you signed up in class? We tried to find a partner with whom you could work best. Of course, we couldn't find anybody who would fit the description exactly, but we found a fellow who corresponded to the main points, and you probably will like him. You should get along all right." To create strong cohesiveness, he said, "You remember the questions you answered in class about the people you would like to work with? Of course, we usually cannot match people the way they want, but for you, we found almost exactly the person you described. As a matter of fact, the matching was as close as we had expected to happen once or twice in the study, if at all. You'll like him a lot. What's even more, he described a person very much like you. It's quite a lucky coincidence to find two people who are so congenial, and you should get along extremely well."

Task Direction. In the treatments where the group was to mediate attractive goals, the outcome of the task was stressed. The experiment was introduced as a test; the importance of its result for the subject was varied to create different degrees of cohesiveness. The questionnaire was mentioned in passing as an unsuccessful attempt to match partners.

For low cohesiveness: "This is part of a study of the way people use their imaginations. We developed a somewhat special procedure to test this ability." After the general instructions for the task were given, the experimenter continued, "In this way, you will have the best chance to show your ability and get a high score in the test. You know we had some idea of putting people together who were congenial. But that didn't work because of schedule difficulties; so all we could do was to take into account the objections you stated." For high cohesiveness, the same introduction to the task was given. After the general instructions, the experimenter continued, "Remember, the whole test shows how well you can use your imagination. Your product will be judged in comparison with that of other people. We intend, for instance, to compare students from this and other universities, and men and women. The group you are in is a special prize group. There are ten such groups, and the two members of the group in which the best story is produced get \$5.00 each. You know, we had some idea of putting people together who were congenial, but that didn't work out because of schedule difficulties. All we could do was to take into account the objections you stated."

Group Prestige. Another way in which cohesiveness was produced was by stressing the value of belonging to the group. This was done by making membership in this particular group an important achieve-

ment. The rarity of this achievement was varied to create different strengths of cohesiveness. Here, too, the idea of being matched by personality was played down.

For low cohesiveness, the experiment was introduced: "This is part of a study in the use of imagination. We are trying to compare good groups and bad groups in this type of work. Your lab section instructor told us you would be particularly good material for a good group. You know, we had some idea of putting people together who were congenial, but that didn't work out because of schedule difficulties. All we could do was to take into account the objections you stated." Then the general instructions were given.

For high cohesiveness, the experimenter stated: "This is part of a study in the use of imagination. We select at first the pairs of people to work together by means of the questionnaire you filled out in class (although the part about putting congenial people together didn't work out because of schedule difficulties; all we could do was to take into account the objections you stated). We try to put people together who should be especially good at this kind of task. We checked on assignments with your lab instructor. From all we could learn, you have all the qualifications which have been set up to be good in this task. You two should be about the best group we have had. So we want to use you as a model group after which we can train other people to be more productive in this task." Then the general instructions were given.

Negative Treatment. To minimize all forces to belong to the group, the attraction to the partner, the outcome of task, and the pleasure of the discussion itself, were put into a dim light.

After the instructions were given, the experimenter said, "I am sorry, but the idea of putting people together who are congenial didn't work. Especially in your case we had some trouble because of scheduling. So the fellow you are going to work with may irritate you a little, but I hope it will work out all right. The trouble is that the whole thing is quite frustrating and the conversation somewhat strained, so we would have preferred to have you with a person you liked. But, anyway, do the best you can."

Ten groups, seven male and three female, were used in each treatment. Both members of each pair were of the same sex. Assignment of a pair to a treatment was a matter of chance, independent of the answers to the questionnaire. One exception in disregarding the questionnaire results had to be made: subjects were only assigned to a condition where personal attraction was important if they had made a reasonable amount of specification about likes and dislikes.

The Measurement of Influence. Influence could be measured by the change from the preliminary story to the final story. The stories were coded in categories which could be grouped under five major headings: setting of the story, relationship of the two people involved, order of the pictures, plot of the stories, and general characteristics of the stories.

Changes were determined by comparison of the coded initial and final stories. Any difference, omission, or addition in the coded stories were considered changes. These changes were separated into those toward the partner's position and those which were independent. Changes toward the partner were those which tended toward the position the partner had shown in either his first or final story. All changes which did not meet this criterion were called independent changes.

The stories were coded by two people separately, and the differences were then reconciled into a final code. As a reliability check, two groups in each treatment were coded independently. The correlations were .69 for changes toward the partner and .65 for independent changes.

The Recording of Communication. The discussion between the partners was recorded by two observers. One observer categorized the communications in terms of (1) methods used to influence the partner, such as stating one's own position, reasoning, emotional arguing, or repeating the same argument; (2) reactions to attempted influence, such as accepting the partner's story, doubting his own story, stating that there was a difference between stories, counterarguing, and categorical rejection, and (3) communications not concerned with influence, such as aggressing against the experiment, bringing up new ideas and asking questions.

The second observer noted only attempts to influence, classified into seventeen categories such as assertion, hypothetical example, rhetorical question, and exhortation. Weights were assigned to the different categories in the following manner: Each observer (five observers alternated in this task) rated the influence attempts which he noted on a four-point scale of intensity. Mean intensity values for each category were computed in standard scores for each observer. These scores for all observers were combined, weighted by the number of observations on which they were based. If one observer deviated considerably from the rest in his intensity judgments on any category, his score was omitted. The total range of these intensity scores was divided by five; the categories whose scores fell in the top fifth were assigned a weight of five, in the next fifth a weight of four, etc. The amount of influence attempted by one person was the weighted sum of all his influence attempts. The reliability of this influence measure was checked in three meetings. The correlations of minute by minute

comparisons of two independent observers for these three meetings are .87, .68, and .61.

After the meeting both observers were asked to rate the discussion in one of the following categories.

Active patterns: implies acceptance of the discussion situation where main emphasis of the discussion was on discovering the important facts in the pictures, on reaching an agreement, or on arguing for arguments sake.

Withdrawing patterns: implies little involvement in the situation. This includes discussion which consisted mainly of telling the stories without additional comments or of agreeing that the problem was too indefinite.

The two observers agreed in 63 of the 70 groups.

RESULTS

The Effect of Cohesiveness on Communication:

The patterns of discussion between partners provide data relevant to the relationship between cohesiveness and attempts to exert influence. It will be recalled that the observers rated each discussion as either active participation or withdrawal from the group discussion. Table I shows this data for those 63 groups where both observers agreed. Three fourths of the low cohesive groups tend to withdraw from the discussion situation while less than half of the highly cohesive groups do so. This overall measure then indicates that low cohesive groups react to realization of difference by withdrawing from the situation, while high cohesive groups tend to try to eliminate the differences in opinion.

TABLE I
Patterns of Discussion

	<u>Withdrawing Patterns</u>	<u>Active Patterns</u>	<u>Not Categorized</u>
Low Cohesive Pairs (N = 30)	19	7	4
High Cohesive Pairs (N = 30)	11	16	3
"Negative" Pairs (N = 10)	4	6	0

This suggestion that there was more attempt to exert influence in the high cohesive groups is additionally corroborated by the perceptions of the subjects as shown in the post-session interview. Table II shows the answers to the question: "Did you think that your

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partner tried to influence you?". Less than half of the members of cohesive groups reported that they felt some pressure while more than two thirds of the high cohesive groups did so.

TABLE II
Perceived Pressure to Change

	Felt Some Pressure	Felt No Pressure	Not Categorized
Low Cohesive Members (N = 60)	21	24	15
High Cohesive Members (N = 60)	36	15	9
"Negative" Members (N = 20)	9	6	5

The importance of the discussion for the partners is also indicated by the reaction to the partners' attempts at influence. An average reaction level was computed using the five categories: (1) accepting partner's story, (2) doubting own story, (3) stating the difference, (4) counterarguing and (5) categorical rejection of an idea. Treating these as a continuum the mean was calculated.

Table III shows that the average level of reaction was higher in the more cohesive groups. These groups tend more toward argument than do the less cohesive groups.

TABLE III
Mean Ratings of Reaction to Influence Attempts
During the Discussion

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs*	2.10	2.22	2.38
High Cohesive Pairs*	2.49	2.85	2.50
"Negative" Pairs			2.25

*Difference between high and low cohesive pairs significant at 6% level by analysis of variance.

Our results suggest that argument against the partner is not an indicator of resistance to his ideas. Giving expression to disagreement means an acceptance of the importance of the discussion and

offers opportunities for later agreement. Polite agreement is sometimes simply a means to avoid entering the discussion.

Self-ratings on resistance confirm the interpretation that the more argumentative level in the high cohesive groups does not mean greater resistance to the partner's arguments. In a post-session interview the subjects were asked "If your partner had tried all he could, do you think you would have accepted his story?" Ratings were obtained on a scale from one, definitely yes, to five, definitely no. In all three "attraction conditions" the members of high cohesive groups showed less resistance than the low cohesive groups.

The "Negative" groups, those in which the attractions to the group situation were kept at a minimum, are not consistently like either the high cohesive or the low cohesive groups. They seem to be more similar to the high cohesive groups in attempted influence (see Tables I and II) but seem more similar to the low cohesive groups on resistance and reaction level (see Table III). It would seem that the "Negative" groups show high resistance to being influenced but feel quite free to express their opinions and push their own ideas.

The Effect of Cohesiveness on Influence:

We have seen that in the high cohesive groups the subjects tried harder to influence their partners and were somewhat more willing to accept their partners' opinions. We may, therefore, expect to find more influence accomplished in the high than in the low cohesive groups.

Table IV shows the amount of change in their stories which was influenced by their partners, that is, changes in the direction of their partner's story. In each "attraction" variation the high cohesive groups show more such change than the low cohesive groups. Although an

TABLE IV
Mean Numbers of Changes in Stories Which
Were Influenced by the Partner

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs*	7.9	8.9	6.7
High Cohesive Pairs*	10.5	11.0	8.3
"Negative" Pairs			8.5

*Difference between high and low cohesive pairs significant at 10% level by analysis of variance.

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analysis of variance shows this difference to be significant at only the 11% level, its consistency adds weight to the result.

If this difference is really due to influence, we should not expect it to be present in changes in stories which were independent, that is, not in the direction of the partner's story. These changes (which cannot be ascribed to the influence of the partner) are slightly higher for the high cohesive groups in two of the "attractiveness" conditions and slightly lower in the third condition. The mean of the low cohesive groups is 5.3, of the high cohesive groups, 5.7. There is clearly no difference.

We may get some additional insight into these differences in influence between high and low cohesive groups by examining the data separately for the particular member of each pair who changes more. Table V presents the data on average amount of change of the higher and lower "changers". We can see that almost the entire difference between the high and low cohesive groups is attributable to the large change of one member of the groups. Apparently while both members of the low cohesive groups were changed about equally, in the high cohesive groups it was possible for one member to be changed very much.

TABLE V
Mean Number of Changes in
Stories Which Were Influenced by the Partner Made by:

(a) Higher Changer in Each Pair

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs*	5.0	5.6	4.8
High Cohesive Pairs*	7.3	7.3	6.1
"Negative" Pairs			7.0

*Difference between high and low cohesive pairs significant at 5% level by analysis of variance.

(b) Lower Changer in Each Pair

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs	2.9	3.3	1.9
High Cohesive Pairs	3.2	3.7	2.2
"Negative" Pairs			1.5

The interpretation of this greater differential in amount of change of the two partners in the high cohesive groups must depend upon the data on amount of influence exerted by the two partners. If the same differential exists on amount of influence exerted, the interpretation of the change data would be clear.

Table VI presents the data on the average percent of the total influence attempted during the communication which was attempted by the partner who was higher in this respect. In other words, if the two partners were equal in their attempts to influence the other, this measure would be 50%. It would rise as the inequality between the partners increased.

TABLE VI

Percentage of Attempted Influence by the More Active Partner
in Each Group

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs*	62.4	64.6	60.2
High Cohesive Pairs*	58.9	54.9	56.7
"Negative" Pairs			60.0

*Difference between high and low cohesive pairs significant at 2% level by analysis of variance.

It is clear from Table VI that these results show less differential between partners in the high cohesive groups. The mean percentage is above 60% in all low cohesive conditions and under 60% in all high cohesive conditions. The difference is significant at the 2% level of confidence.

The data in Table V, then, which showed greater differential in accomplished influence in the high cohesive groups must be explained together with the data showing less differential between partners in attempted influence in these same groups. It would seem that the greater the cohesiveness of the group, the stronger are the group relevant forces which act on the members and the weaker, correspondingly, become personal forces. In the high cohesive groups, then, both members accept the importance of the discussion situation more equally than in the low cohesive groups. The more cohesive groups also have more power to influence members and can change their members to a considerable degree. In the low cohesive groups, however, since the group has less power, the changes which occur resemble more a process of each one giving way a little.

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The "negative" groups also show a change which is mainly borne by one member of the group. This is surprising since it seems to make the "negative" groups behave like the high cohesive groups. These "negative" groups, however, present a special picture in which it seems probable that influence is not occurring at all in the same sense as it occurs in the other conditions.

Table VII presents data on the amount of change toward their partners' story shown by the higher and lower "attempted influencers". In the "personal attraction" and "task direction" conditions there seems to be no relationship between how much one attempts to influence the partner and how much the partner changes. In the "group prestige" condition there seems to be a positive relationship, that is, the more influence exerted on one, the more he tends to change.

In the "negative" condition we find the reverse relationship, however. The one who tries to influence his partner a lot is himself the one who changes. There is very little change in the one who shows less attempts to influence the other. The process in the "negative" groups, then, does not seem like a process of influence.

Effects of Different Type of Attraction to the Group:

It is plausible to expect that, in spite of the fact that the amount of influence exerted seems independent of the nature of the attraction to the group, there might be differential effects on the process of exerting influence depending upon the nature of the attraction. There is some suggestion in the data concerning such differences. It will be recalled that the subjects were allowed to spend as little or as much time in the discussion as they chose. It might be expected that if our experimentally created differences in cohesiveness really represented differences in attraction to the group, this would certainly be reflected in how long they chose to stay in the group discussion situation. The high cohesive groups should spend a longer time in the discussion since their attraction to the groups is greater.

Table VIII presents the average time spent in discussion for each of the sets of groups in the experiment. It is seen that for the "personal attraction" groups and for the "prestige" groups the increase in cohesiveness is, indeed, accompanied by an increase in the length of time spent in the discussion. This increase, for the "prestige" groups is significant at the 1% level of confidence. The "task directed" groups however, show a significant (1% level of confidence) decrease in amount of time spent in the discussion with increase in cohesiveness.

A theoretical analysis of the state of affairs existing for the members of the "task directed" groups makes this result quite plausible. The force acting on the members toward the group exists because the group is a means to a goal. By means of membership in the group they can reach a desired goal. Membership in the group is not itself the goal as it is in the other two conditions. We may then expect that the stronger

TABLE VII
Average Number of Influenced Changes in Story Made by the Higher and Lower
Attempters of Influence

	<u>Nature of Attraction to Group</u>					
	Personal Attraction		Task Direction		Group Prestige	
	High Attempter	Low Attempter	High Attempter	Low Attempter	High Attempter	Low Attempter
Low Cohesive Pairs	4.0	3.9	4.0	4.9	2.4	4.3
High Cohesive Pairs	5.3	5.2	5.9	5.2	2.7	5.6
Negative Pairs*			6.6	1.9		

*Difference between the high and low attempters in the "Negative" pairs significant at the 2% level by "t" test.

we make the force toward the goal for the "task directed" groups the greater will be the tendency to move through the means region of membership in the group to the goal. Consequently the time spent in actual group discussion decreases. It is important to note that in spite of this decrease in time spent in discussion the increase in cohesiveness has the predicted effect in terms of greater exertion of influence and greater accomplishment of influence.

TABLE VIII
Duration of Discussion in Seconds

	<u>Nature of Attraction to Group</u>		
	Personal Attraction	Task Direction	Group Prestige
Low Cohesive Pairs	412.5	415.5	307
High Cohesive Pairs	449	321.5	362.5
"Negative" Pairs			330

SUMMARY

This experiment was designed specifically to test one major hypothesis, namely, that the greater the cohesiveness of a group (the stronger the forces acting on the members to remain in the group) the greater will be the amount of influence that can and will be exerted on the members. The design was to experimentally create high and low cohesive groups for each of three kinds of "attraction to the group" conditions. For each group a discussion situation was produced where each member had a different interpretation of presumably the same set of facts. The following major results were obtained:

1. Irrespective of the nature of the attraction to the group, the high cohesive groups attempted to exert more influence than the low cohesive groups.

2. Irrespective of the nature of the attraction to the group, more influence was accomplished in the high than in the low cohesive groups.

3. The members of the high cohesive groups tended to feel less resistant to their partners' attempts to influence them than did the members of the low cohesive groups.

INTERPERSONAL COMMUNICATION IN SMALL GROUPS

by

Leon Festinger and John Thibaut

I. INTRODUCTION

Small face-to-face groups, or as they have sometimes been called, primary groups, play an important part in influencing attitudes and opinions of their members. This important fact about social behavior has been assumed for many years. In the past decade experimental facts have accumulated to substantiate this fact and to specify the relationships involved.

In summary, the following is a list of some major conclusions which may be drawn from experimental work:

1. Belonging to the same group tends to produce changes in opinions and attitudes in the direction of establishing uniformity within the group (5,6).
2. The amount of change toward uniformity which the group is able to accomplish is a direct function of how attractive belonging to the group is for its members. (1,2)
3. Members who do not conform to the prevailing patterns of opinion and behavior are rejected by others in the group. The degree of rejection is a direct function of how attractive belonging to the group is for its members and of the importance for the group of the issue on which the member does not conform. (2,7)

These facts leave unclarified the means by which such social influence is accomplished. The continual process of informal communication among members of face-to-face groups in part represents the attempts to influence members by others in the group. To understand completely the social influences which groups exert we must, then, also understand the determinants of what does and does not get communicated in social groups and who are the recipients of communications. There are some data available. These may be summarized as follows:

1. Persons whose social behavior is changed by hearing something tend to relay this information to others who are seen as likely to be affected by it. (2,3)
2. Persons who do not conform to the group pattern tend to have fewer communications addressed to them if they are rejected but tend to have more communication addressed to them if they are not rejected. (7)

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A more detailed understanding of this process of communication and its relation to the process of influence is the major purpose of the theories and experiments reported in this paper.

II. THEORETICAL ORIENTATION

The fact that groups do exert pressures toward uniformity on their members is beyond dispute. For our immediate purposes we need not concern ourselves with the sources of these pressures or the reasons for their existence. We will look only at the effects of these pressures toward uniformity on the communication and influence process that actually takes place in a group. A group may be looked upon as composed of a number of parts with each part characterized by a given state¹ with respect to a certain dimension. If the group has the property of tending toward uniformity of state then any discrepancy among the different parts of the group will give rise to forces which will be exerted on parts of the group to change their state in such a way as to re-establish uniformity. The strength of these forces will be a function of the magnitude of the tendency toward uniformity which the group possesses.

The force exerted on any particular part of the group to change is also a direct function of the discrepancies in state between this part and all other parts of the group. The larger the discrepancy between part A and part B the larger will be the force exerted on A by B, and on B by A, since the disequilibrium is greater the greater this discrepancy.

The preceding hypotheses concerning tendencies toward uniformity within a group do not, of course, hold for any arbitrarily defined collection of individuals or parts. When discrepancies exist among a collection of persons, uniformity of any group that exists within this collection can be achieved either by the exertion of forces to change various parts of the group or, alternatively, by forming the group in such a way that uniformity already exists. Redefinition of the boundaries of the psychological group (changing the membership composition) can, then, also be a response which the group makes to pressures toward uniformity.

In a group where the tendencies toward uniformity concern an opinion about some issue, the exertion of pressures on persons to change their opinion must of course make themselves felt through a process of communication among them. What can we infer about this process of communication from the hypotheses we have presented?

¹In the experiments to be described later an individual person is coordinated to a part of a group and an opinion concerning a certain issue to the state of the parts of the group. Cliques of people, levels in an organization, or work groups may also be looked on as parts of a group.

1. Within a psychological group communications should be directed mainly toward those members whose opinions are extreme as compared to the opinions of the others. This would follow from our hypothesis that the strength of the force applied on any part of the group is a direct function of the discrepancy between the state of that part and the states of the other parts of the group.

2. If it is possible for a group to subdivide or exclude members then, as the discrepancies in state become clear, there will be tendencies to cease communicating to the extremes. This would follow from a number of considerations that have been stated or implied above.

(a) If it is impossible for the group to redefine its boundaries then uniformity can only be achieved through changing others and being receptive to change.

(b) If it is possible to redefine the boundaries of the group then uniformity can also be achieved by omitting the persons with extreme opinions from the group.

(c) The perception that it is possible to redefine the boundaries of the group should, then, have two consequences. There should be greater resistance to change on the part of the members and there should be less communication to those who may be excluded from the group, namely, those with extreme opinions.

3. The less the pressure towards uniformity in a group and/or the greater the possibility for the group to subdivide, the less will be the actual accomplishment of influence. Since both of the factors here mentioned will affect the readiness of members to change in response to influence which is exerted on them, and since possible group subdivision will also prevent the exertion of influence on the most deviant members, it follows that the end result of the process of communication will be less uniformity in the group if subdivision is seen as possible or if the tendencies toward uniformity are weaker.

The experiments which are described below were specifically designed to test the hypotheses that have been here presented. In the description of the procedure we will elaborate further on the operational definitions of the theoretical concepts.

III. EXPERIMENTAL PROCEDURE

Subjects: The subjects used in these experiments were college undergraduates recruited from the various sections of the elementary psychology course and the elementary course in educational psychology at the University of Michigan. All subjects were volunteers.

General Characteristics of the Groups Formed: Sixty-one groups were studied of which 24 were composed entirely of women, 37 of men. The size of groups ranged from 6 to 14 members. Each group assembled

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in the experimental room and each member was assigned one of a series of small tables arranged in a circle. Each member was identified by a letter which was printed on a 5 x 8 inch card placed in front of him so that all others could see it.

General Set-Up For All Groups: Each group was given one problem to consider. The problem was such that opinions concerning it could be placed on a prescribed seven point continuum. Each member was given seven 5 x 8 inch cards with numbers corresponding to those on the seven-point scale of opinion. The members were instructed to consider the problem and then all simultaneously to place in front of them that card which represented their tentative opinion on the matter at issue. The experimenter then proceeded to call attention to each person's decision, in order both to verify it and to insure that all were fully aware of it.

Small slips of paper bearing some additional information relevant to the problem were then distributed at random among the subjects. It was announced that each member of the group was receiving a different item of information. The purpose of this part of the procedure was to maximize the initial force to communicate by causing each member to believe that he had some unique information relevant to the problem-solving activity. Actually, however, only two items of information were distributed. One item was intended to push the member toward the upper end of the scale, the other toward the lower end. This device was essential to get adequate dispersion along the scale.

After the subjects had read the new information, each recorded directly on his information slip his identifying letter and the scale number representing his current opinion. These were collected by the experimenter and read aloud in order to make public the new opinions. Any member whose opinion had changed was asked to make the appropriate change in the numbered card in front of him.

With this preliminary procedure finished, the experimenter described the manner in which the problem was to be discussed. Stapled pads of paper were distributed to the subjects. For each pad the staple was placed in a slightly different position on the page. These differences were undetectable to the subjects, but they allowed the experimenter subsequently to match each pad with the member to whom it had been given. The subjects were informed that discussion about the problem had to be restricted to writing notes to one another. The subjects were left free to include anything they liked in the notes. However, a member could write a note to only one person at a time and each note must bear only the letter of the person to whom it was directed; no reference to the sender's identity was permitted. This rule was adopted to minimize the chances that any member, in the act of deciding to whom to direct a note, would be affected by a knowledge of what people had sent notes to him. On completing a note, a sender was to raise

his hand, whereupon the experimenter or his assistant would deliver it to the recipient. It was emphasized that if and when any member decided to change his opinion, he should change the numbered card in front of him.

At a signal from the experimenter the subjects then began to write notes. As each note was finished, the messenger (experimenter or assistant) took the note, recorded on it the time in minutes and seconds from the starting signal, and dispatched it. A record was also kept of the exact time of each change of opinion, that is, of each change in the numbered card in front of a subject. The note-writing continued for 20 minutes.

The Discussion Problems: Two problems were used in the course of experimentation. A problem in football strategy was assigned to 31 of the groups, and a problem in evaluating a case study of a delinquent boy was assigned to the remaining 30 groups.

The problem in football was concerned with making a decision about the best strategy for an imaginary anonymous team, which has the ball on the 50 yard line, first down, 5 minutes of play remaining, with the score 18 - 18. Seven alternative types of strategies are outlined to the subjects. These range from extremely conservative power plays (at point 1) to extremely reckless pass plays (at point 7). The two items of additional information distributed among the subjects are that "our star running back has just been injured" (intended to push the recipient upward on the scale) and that "the opposing team has tightened up its pass defense and has caught on to our spectacular plays" (intended to push the recipient downward on the scale).

The case study was a brief fictitious account of the history of a boy who had caused trouble all through his life and who had ended in jail. The history of the boy was deliberately made to be as ambiguous as possible, in order to encourage dispersion on the scale of opinion about the best possible way of treating the case. The subjects were told that by prior decision of the social workers assigned to the case, the boy was to be put into a foster home; the assignment for the subjects was to determine the best type of home for this boy. The scale of opinion consisted of seven alternative types of foster homes, ranging from one in which love and kindness were exclusively emphasized (point 1) to a home in which discipline and punishment were exclusively used (point 7). The two items of additional information received by the subjects were: (1) that for a period of a year his mother, acting on the advice of a social worker, had tried to make the boy's home life warm, but that it did no good since his criminal activity increased (intended to push the recipient upward on the scale) and, (2) that the boy's oldest brother had returned home for a while and had given the boy stern but fatherly discipline, but that the boy's delinquency only worsened (intended to push the recipient downward on the scale).

The selection of these two problems was guided by our need to create discussion situations in which there would be markedly different amounts of resistance to change of opinion. In the case study problem, it was felt that subjects would bring into the experimental situation fairly strong predispositions toward certain of the scaled opinions. These predispositions could be expected to be quite resistant to change.

In the football problem, on the other hand, there was no expectation that strong prejudgments would be imported into the situation. Relative to subjects working on the case study problem, the subjects ought more readily to accept the present experimental group as a relevant reference group for their opinions and hence ought to be relatively less resistant to change.

Experimental Variations: Six experimental variations were applied to each of the two problems. These variations were created by further instructions over and above the general instructions already described. Five groups (three male and two female) were assigned to each of the experimental variations in each of the problems, except for variation V in the football problem which had six groups, four male and two female.

Instructions to Create the Homogeneity-Heterogeneity Variable: In the first three variations, the intention of the additional instructions was to create a perception that there was no basis for group subdivision among them. To achieve this perception the homogeneity of the group was emphasized as follows: "You people in this group have been deliberately selected to make up the kind of group we are interested in observing. You have been selected in such a way that we believe you all will have about an equal interest in this problem and about equal knowledge about it...."

In the second three variations it was intended that the subjects perceive the possibility of group subdivision as having a basis in fact. The heterogeneity of the group was emphasized by telling them that the members had been selected to be as different as possible, both in their interest in the problem and in their knowledge about it.

Instructions to Create the Pressure-Toward-Uniformity Variable: Variation I (High pressure-homogeneity, abbreviated H-Hom): In this variation we were interested in creating very strong pressures toward uniformity of opinion. The group was told that the experimenter's interest was in observing how a group went about coming to a unanimous decision. Thus, whatever intrinsic pressures toward uniformity might exist in the group were strengthened by externally induced pressures.

Variation II (Medium pressure-homogeneity, abbreviated M-Hom): This variation was designed to produce pressure toward uniformity of a conditional nature. The instructions were that a body of experts (the coaching staff of the University of Michigan football team, for the

football problem, and some members of the Law School faculty for the case study problem) had considered the problem and had unanimously decided that one of the seven scale-points represented the "correct solution." The group was told that it would receive a score for its performance, which would be the proportion of members who at the conclusion of the experiment were recommending the "correct solution."

Variation III (Low pressure-homogeneity, abbreviated L-Hom): No external pressure toward uniformity was applied in this variation. The group was merely informed that the experimenter was interested in observing the way a group went about discussing such a problem. In this case, it was supposed that if any pressure toward uniformity developed it would be attributable to a need for "social reality" within the group (2,4). According to this principle, there is a force on the group member to achieve support for his point of view; and to the extent that this point of view is untestable by demonstration the member is increasingly required to accept the criterion of social agreement with a relevant reference group.

Variation IV (High pressure-heterogeneity, abbreviated H-Het): In this variation we were intent on establishing high pressure toward uniformity while at the same time permitting the formation of subgroups. The variation includes instructions that the group is composed of heterogeneous members. Otherwise it is largely a counterpart of Variation I (H-Hom). This time, however, instead of asking for a unanimous decision, the experimenter informed the group that a plurality would be sufficient. The group would be taken as recommending the decision which the greatest number of members accepted. In addition, the subjects were told that in such heterogeneous groups as this, one usually did not find more than twenty per cent of the members agreeing on any one alternative. These last two instructions were made somewhat different from the instructions in the homogeneity conditions in order to allow subgroup formation to take place.

Variation V (Medium pressure-heterogeneity, abbreviated M-Het): This variation was also expected to permit subgroup formation. The instructions to these groups were substantially the same as for Variation II (M-Hom), except for the emphasis on heterogeneity of the members and an additional instruction that it was not customarily possible for more than twenty per cent of the group to hit upon the "correct solution."

Variation VI (Low pressure-heterogeneity, abbreviated L-Het): Except for the pretense that the group was heterogeneously composed, this variation was precisely the same as Variation III (L-Hom).

The following tabulation is presented to help clarify the relations among the six experimental conditions:

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Pressure Toward Uniformity

	<u>High</u>	<u>Medium</u>	<u>Low</u>
Homogeneous Group	I	II	III
Heterogeneous Group	IV	V	VI

IV. EXPERIMENTAL RESULTS

Hypothesis I: The volume of communication between two persons is a function of the magnitude of the discrepancy between their opinions. Since extreme opinions are most discrepant from all the other opinions, we would therefore predict that most communications should be directed toward members who hold extreme points of view.

Figure I summarizes the experimental findings relevant to this prediction in terms of the weighted number of communications. The distribution of opinions within the group could affect the pattern of communication. Thus, for example, if six members held extreme opinions and only three members maintained "middle" opinions, we would obtain a preponderance of communication to the extremes even if members were addressed at random. To correct for this, each message was weighted by the inverse of the number of persons in the group in the same relationship to the communicator as the recipient of that particular message. Thus, a communication directed toward a person at an extreme was divided by the number of persons in the group (excluding the sender of the message) who held extreme opinions at the time. When the weighted number of communications initiated during the first ten minutes² of each session is plotted against the location of the recipient (in terms of being at an extreme position, one point away from the extreme position, etc.), the curve falls off rapidly. This relationship seems to hold about equally for groups discussing the football problem and for groups discussing the case study problem. Our hypothesis is confirmed - the volume of communication directed toward a group member is a function of his nearness to the extreme of a range of opinions.

Hypothesis II: Since communication tends to be directed toward the extremes of a psychological group, it is predicted that where the formation of subgroups (redefinition of the boundaries of the group) is possible there will be less communication directed toward the extremes of the experimental (arbitrarily defined) group. Since the heterogeneity condition provided more basis for subgroup formation than did the homogeneity condition, we may expect greater decreases in communication toward the extremes in the former as subgroups are given time to develop.

² Exactly the same type of curve is found for the second ten minutes of discussion. The curve is so consistent that only two are shown as examples.

This hypothesis was tested in the following way. For each experimental group the mean value of the frequency curve showing the distribution of weighted number of communications according to the location of the recipient (as in Figure 1) was computed. For example, the mean of the distribution for the football problem in Figure 1 is .84 units away from the extreme opinion. This mean value is taken as an index of the tendency to communicate to the extremes. Low values of the index indicate a high proportion of communication to the extremes.

Table I presents these indices separately for the first and second ten minutes of discussion for each experimental variation on the football problem. Table II gives the same data for the case study problem.

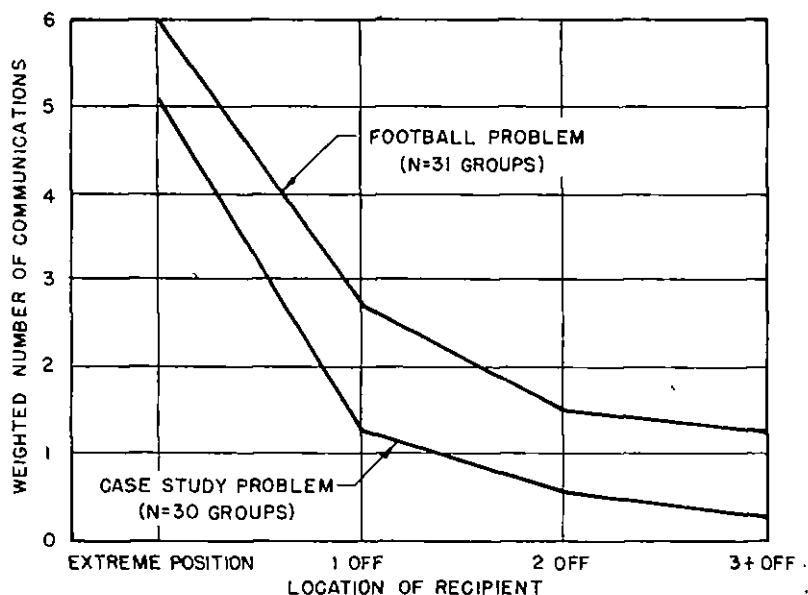


FIG. 1
PATTERNS OF COMMUNICATION (FIRST TEN MINUTES)

TABLE I

MEAN COMMUNICATION INDICES FOR FOOTBALL PROBLEM DISCUSSIONS

(a) First ten minutes			(b) Second ten minutes				
	<u>high</u>	<u>medium</u>	<u>low</u>		<u>high</u>	<u>medium</u>	<u>low</u>
Hom	.68	.85	.88	Hom	.74	.63	.86
Het	.83	.83	.86	Het	.75	1.30	.99

TABLE II

MEAN COMMUNICATION INDICES FOR CASE STUDY PROBLEM DISCUSSIONS

DISCUSSIONS							
(a) First ten minutes			(b) Second ten minutes				
	<u>high</u>	<u>medium</u>	<u>low</u>		<u>high</u>	<u>medium</u>	<u>low</u>
Hom	.27	.62	.48	Hom	.35	.56	.74
Het	.31	.50	.31	Het	.30	.72	.78

In order to examine these data from the point of view of hypothesis II we will compare the indices of the first ten minutes with the indices of the last ten minutes in each variation. If our hypothesis is correct we would expect to find the indices increase for the heterogeneity conditions more than for the homogeneity conditions.

Examining the homogeneity conditions first we find no tendency toward any change from the first to the second ten minutes. For the high pressure condition there is an extremely slight and insignificant increase for both discussion problems. For the medium pressure condition there is a tendency for the index to decrease which again does not approach significance. For the low pressure condition the index stays virtually the same for the football problem and increases insignificantly for the case study problem.

In the heterogeneity conditions a quite different picture presents itself. In the high pressure condition there is no change in the index, but in the medium and low pressure conditions there are consistent increases in the index from the first to the second ten minutes. Two of these four increases, the medium condition for the football problem and the low condition for the case study problem, are significant at the 5% level of confidence. Taken together the changes in the medium and low pressure conditions are significant at the 1% level of confidence.

These results seem to substantiate but qualify hypothesis II. While the homogeneity conditions show no increase in the index, the heterogeneity conditions show such an increase only where the pressure toward uniformity is sufficiently low to permit subgroup formation. In the high pressure conditions where strong pressures toward uniformity are exerted by the experimenter on the total group, subgroup

formation does not occur. Where the pressure toward uniformity is weaker, subgroup formation does occur when a basis for it (perception of heterogeneity) exists.

It is also apparent from Tables I and II that in both the homogeneity and heterogeneity conditions increasing the magnitude of pressure toward uniformity produces more communication toward the extremes. If we compare the indices for the high pressure and low pressure conditions we find that in the eight possible comparisons the index for low pressure is greater in seven instances and tied in one instance. The index for medium pressure is higher than for high pressure in six out of eight possible comparisons and tied in one instance. There is no consistency in the comparison between the medium and low pressure conditions.

In view of the consistency of the result we may conclude with a high degree of confidence that high pressure toward uniformity results in increased communication to the extremes. This result probably depends upon the degree to which tendencies to communicate arising from other sources can compete with communications resulting from pressures toward uniformity. When pressures toward uniformity become very high, these other forces in the situation may become less effective in comparison.

Hypothesis III: As pressure toward uniformity increases both pressure to communicate and readiness to change also increase. Since both of these factors are conducive to change, there should be increasing change toward uniformity of opinion as the pressure toward uniformity increases.

In order to test this hypothesis a measure of the amount of change toward uniformity was calculated for each experimental group. The index used was the quotient of the standard deviation of opinions within the group by the end of the 20 minute discussion divided by the standard deviation with the group at the beginning. The lower the index, the greater has been the change toward uniformity of opinion. Thus, for example an index of 1.0 represents no change at all and this value may be regarded as a base line in the figure.

Figure 2 presents these indices for each of the experimental variations and for each of the discussion problems. It can be seen that in each instance as the pressure toward uniformity is decreased, the amount of change toward uniformity is decreased. The trends may be regarded as significant well beyond the 1% level of confidence since the probability of obtaining this predicted order of three points in four independent comparisons by chance would be about one in a thousand. The data fully support hypothesis III.

Hypothesis IV: If subgroup formation is seen as possible, the readiness to change when influence is exerted should be less than where no

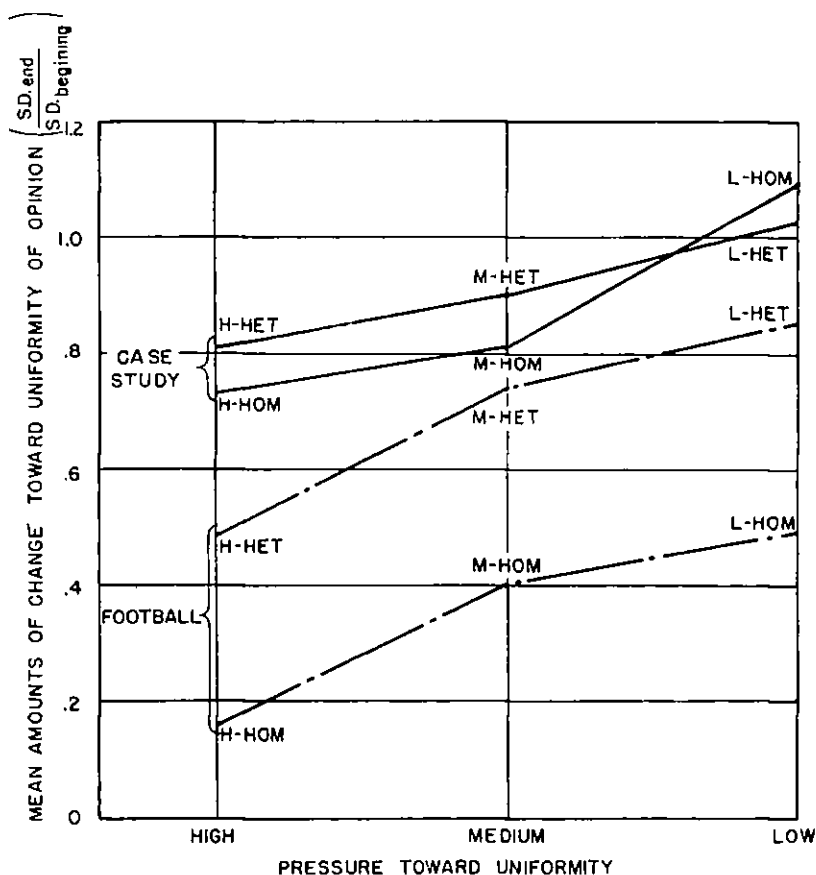


FIG. 2
MEAN AMOUNTS OF CHANGE
TOWARD UNIFORMITY OF OPINION

subgroup formation is possible. In addition, in the former case there is less actual exertion of influence on the extreme opinions in the group. Both of these factors should combine to produce less change toward uniformity in the heterogeneity than in the homogeneity conditions.

Figure 2 shows the data relevant to this hypothesis. The difference

between the amount of change in the heterogeneity and homogeneity conditions is highly significant (beyond the 1% level by analysis of variance) when the football problem is discussed. There is, however, little or no difference between these two conditions when the case study problem is discussed.

It will be recalled that the case study problem was selected in the belief that subjects would bring with them fairly strong predispositions toward certain of the opinions which would be relatively more resistant to change. The football problem was selected in the belief that subjects would not bring such predispositions into the experimental situation. This difference between the two discussion problems is clearly reflected in the much lower degree of change toward uniformity in the case study problem. It is also probable that this relatively high resistance to change in the case study problem made the added effect of the heterogeneity-homogeneity difference relatively negligible.

We may conclude that, where strong predispositions do not exist and where, consequently, the group has power to change opinions, the perception of heterogeneity will increase resistance to change. Hypothesis IV, thus amended, may be considered to be substantiated.

SUMMARY

The variables of (1) amount of pressure toward uniformity existing in a group and (2) the degree to which the members perceived the group as homogeneously composed were manipulated experimentally in a laboratory setting of a discussion group to test certain hypotheses concerning the pattern of communication within the group and the amount of change in opinion which occurs. The results strongly support the theoretical hypotheses and may be summarized as follows:

(1) When there is a range of opinion in the group, communications tend to be directed towards those members whose opinions are at the extremes of the range.

(2) The greater the pressure toward uniformity and the greater the perception of homogeneous group composition, the greater is the tendency to communicate to these extreme opinions.

(3) The greater the pressure toward uniformity and the greater the perception of homogeneous group composition, the greater is the actual change toward uniformity which takes place.

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DEVIATION, REJECTION AND COMMUNICATION

by

Stanley Schachter

The phenomenon of group standards, uniformities of behavior and attitudes resulting from interaction among members of a group, is a widely documented finding in the social sciences. The gang studies of Shaw (9,10), Thrasher (14), Whyte (16), and Zorbaugh (18) point up the existence of group codes and group standards. Community studies such as the Yankee City Series (15) or the Middletown books (5,6) are concerned in good part with social conformities resulting from group membership and interaction.

In psychological circles interest in group standards was probably first aroused by the experiments of Sherif (11, 12) which demonstrated the convergence of judgments as a function of group interaction. Sherif's approach has been chiefly that of restricting experimental work to small, carefully designed laboratory studies of perceptual phenomena. The principles derived were then extended to more complex social phenomena. Others have studied these more complex social phenomena directly. Several factory studies have demonstrated the existence of group standards about production level among industrial workers (2, 17). Newcomb (8) has found similarities of political attitudes in a college community, which can plausibly be interpreted as group standards. Merei (7) has demonstrated that group standards arise in children's play groups and serve to increase the "strength" of the group.

The means by which the group imposes and maintains conformity have been an area of speculation. It has been suggested that non-conformity results in rejection from the group. Thrasher (16) says, "Opinion in the gang manifests its pressure in the variety of methods through which group control is exerted, such as applause, preferment and hero-worshipping as well as ridicule, scorn, and ostracism..... the member who has broken the code may be subjected to a beating or in extreme cases may be marked for death." Sherif and Cantril (13) write, "Just as good members of any organized group uphold the values or norms of the group,....so the good members of gangs become conscious of their own norms and react violently against deviants and nonconformists."

The present study is concerned with the consequences of deviation from a group standard. Its immediate background is a study by Festinger, Schachter and Back (4) of the relationships between group structure and group standards. Findings pertinent to the present study will be briefly reviewed.

1. Within each social grouping in a housing community there was homogeneity of attitude toward a community wide problem. Among these groups, however, there was marked heterogeneity of attitude.

2. There was a high positive correlation between cohesiveness of the social group (measured by percent of in-group sociometric choices) and strength of the group standard (measured by percent of conformers to the standard).

3. Within a social group, deviates from the group standard received far fewer sociometric choices than did conformers.

Conceptualization of these phenomena was in terms of a development of the constructs induction and communication in terms of cohesiveness, power, and rejection. The theory developed is this:

Within any social group, forces operate toward uniformity of attitude and belief. The origins of such pressures are, at least, twofold.

1. Social Reality - On any issue for which there is no empirical referent, the "reality" of an opinion is established by the fact that other people hold similar opinions. There are definite forces to establish uniformity and thus create "reality" for one's own opinion.

2. Group Locomotion - Uniformity may be necessary or desirable for the group to locomote toward its goal. Thus, locomotion will be facilitated if all members agree on a particular path to the goal.

The strength with which a group can exercise forces to uniformity on its members will vary with a) the cohesiveness of the group, and b) the relevance of the issue to the group.

a) Cohesiveness is defined as the total field of forces which act on members to remain in the group. Stemming from cohesiveness is the property called internal power of the group, which is defined in terms of the magnitude of change the group can induce on its members. The degree of internal power will be equal to the magnitude of the force on the member to remain in the group. If we assume that all groups are attempting to induce the same amount, we can derive that highly cohesive groups (where forces on members toward the group are high) will have fewer deviates from a group standard than will low cohesive groups.

b) Relevance refers to an ordering, in terms of importance to the group, of the activities over which the internal power of the group extends. The conceptual dimension along which we can order particular activities as relevant or irrelevant to a particular group still remains unclear. There seem to be three possible bases for such ordering: 1. The importance of the activity for group locomotion. 2. The value which the group places upon the activity. 3. Some

hierarchy of needs common to group members, in their roles as group members.

Whatever the basis for ordering, however, we can anticipate that the group will exercise greater influence over relevant than over irrelevant activities.

A parallel between the process of induction and actual communication is assumed; that is, communication is the mechanism by which power is exerted. One method by which deviation from a group standard can be maintained, therefore, is by having the deviant individual cut off from communication with the group. Lack of communication can result from:

1. Little initial contact between the individual and the group;—The individual has always occupied a peripheral position in the group structure and little induction has been attempted.

2. Rejection from the group - An individual who at one time occupied a central position in the group has been moved into a peripheral position. Induction has been attempted but not accepted. If the magnitude of change the group attempts to induce is greater than the force on the individual to stay in the group, there will be two effects: a) The deviate will want to leave the group, b) The group will tend to push the deviate out of the group.

It is with rejection by the group of a deviate that the present study is specifically concerned. The study described above has indicated that the group will reject deviates. It is probable, however, that not all groups will reject to the same degree and that rejection is a consequence of deviation on only certain kinds of issues. To delineate more carefully some of the conditions affecting rejection, this experiment examines the effect of degrees of cohesiveness of the group and relevance of the issue on the degree of rejection of a deviate. The effects of these variables on communication and induction within the groups are also studied.

THE EXPERIMENT

The experiment was conducted as the first meeting of a club. There were four kinds of clubs—a case study club, an editorial club, a movie club, and a radio club. Each club included in its membership three paid participants. A meeting of one of these clubs will be described and then a detailed description of the experiment presented.

In a typical case study meeting, after preliminary introductions, the group begins by reading an abbreviated version of the "Johnny Rocco" case—the life history of a juvenile delinquent (3). Discussion is guided by a "love-punishment" scale of "what should be done with this kid." Everyone announces which position on the scale he chooses. The paid

participants announce their positions last. One paid participant takes a position of extreme deviation and maintains it throughout the discussion; a second takes the modal position; and the third begins by taking the position of extreme deviation but allows himself to be influenced, so that finally he, too, is at the modal position. Discussion lasts 45 minutes, and is largely a matter of thrashing out differences among the members. The leader interrupts once to take a census to insure that everyone knows everyone else's position. He takes no part except to answer the few questions directed at him. After 45 minutes a final census is taken and discussion veers to the future of the club. Members are nominated for committees and a sociometric questionnaire oriented toward membership in this club filled out. With very minor variations, the meetings of all clubs were identical to the one described. There were 8 clubs of each type, a total of 32 clubs.

How the Variables Are Produced

The problem of this experiment is the effect of different degrees of "cohesiveness of the group" and "relevance of issue" on rejection of deviates from a group norm. The variables, cohesiveness and relevance, were manipulated as follows.

A. Cohesiveness has been defined as the total field of forces acting on members to remain in the group. The greater the valence of the group for its members, the greater the cohesiveness. Valence of the group stems from at least two sources - the attractiveness of the activities the group mediates and the attractiveness of group members. In this experiment, two degrees of cohesiveness were produced by manipulating the attractiveness of the activities which the groups mediated.

Subjects were recruited for club membership from University economics classes. To half of these classes two clubs, case study and editorial clubs, were described. The case study clubs were being set up at the request of a group of lawyers, judges and social workers in order to advise on the treatment and disposition of delinquents, sex offenders, etc. The editorial clubs were being organized at the request of a new national magazine to advise on feature articles, format, policy, etc. Interested students filled out individual sign-up sheets indicating which club they were interested in joining, and checking two rating scales, indicating the extent of their interest in each club. These were four point scales—"not interested at all," "only mildly interested," "moderately interested," and "extremely interested."

To the other half of these classes the movie and radio clubs were described. The movie clubs were purportedly being set up for a local theatre. The club members were to see films and decide which the theatre could successfully program. Radio clubs were being formed

to serve a similar market research function for a local radio station. Volunteers for these clubs filled out sign-up sheets similar to those already described.

The case study and movie clubs were high cohesive groups, made up of students who had checked between "moderately" and "extremely interested" on the scales for these two clubs. The editorial and radio clubs were the low cohesive groups, made up of students who indicated high interest in joining the case study or movie clubs and little or no interest in the editorial or radio clubs.¹ Students becoming members of clubs they were interested in joining made up the high cohesive groups. Those becoming members of clubs they were not interested in joining made up the low cohesive groups. In short, cohesiveness is defined here in terms of the valence of the activity.²

B. Relevance has been defined as an ordering of group activities along a dimension of "importance" to the group. Two degrees of relevance were produced experimentally. In one case, subjects were concerned with an activity corresponding to the ostensible purposes of the club. In the other case, subjects were concerned with an activity which had nothing to do with the purpose of the club, and which they were assured they would never be concerned with again.

Case study and editorial clubs discussed a case study and a feature article respectively. Movie and radio clubs, however, discussed issues completely foreign to the purpose of the clubs. Each club began with an appropriate subject, but was diverted to a side issue. The movie clubs were shown a fifteen minute film, and the radio clubs listened to a fifteen minute recording. Then the leader introduced the observer as someone who had written up the case of a real kid and wanted the help of the group to discuss what should be done with him. With some enthusiasm from the paid participants, the subjects always agreed to discuss the case. They were assured that this had nothing to do with the club and would never happen again. They discussed the case for 45 minutes, then nominated people for committees in their radio or movie clubs and filled out the sociometric sheet.

Radio and movie clubs were chosen as a setting for the irrelevant issue to make constant the time of interaction among club members. While looking at a movie or listening to a recording, the subjects were unable to interact and their discussion time was the same as discussion time of the relevant issue in the other clubs.

¹ A subject did not know which of the two clubs he had come to until the meeting was underway.

² This may seem a rather restricted definition of cohesiveness. Back (1), however, has demonstrated that cohesiveness, no matter what its source, can be considered a unitary concept. Whether cohesiveness is based on friendship, the valence of the activity mediated by the group, or group prestige, the consequences of increasing cohesiveness are identical.

To compare the data obtained in these four clubs, it was necessary that content be constant. This was managed by using the "Johnny Rocco" case and the "love-punishment" scale in each club. In case study clubs, "Johnny Rocco" was the case for the day. The scale represented seven alternatives around which could be discussed "What should be done with the kid." In editorial clubs, "Johnny Rocco" was part of a feature article on juvenile delinquency. The scale represented recommendations the author might make as to "What should be done with the kid." In movie and radio clubs, "Johnny Rocco" was the irrelevant issue, the scale the basis for discussion.

One possible source of error is that of selection. Possibly students attracted to the case study-editorial clubs were selectively different from those attracted to the movie-radio clubs. However, more than 80% of the students addressed asked to join one of the clubs. Of these volunteers more than 90% expressed preference for case study or movie clubs. Another source of selective error may be the fact that students assigned to case study and movie clubs had rated editorial and radio clubs slightly more favorably than students assigned to editorial and radio clubs. Possibly students in case study and movie clubs were more attracted to the idea of a club—any kind of club. This factor, however, probably had little effect on experimental results for there is no difference between students in high cohesive groups who rated the nonpreferred activity high and those who rated it low in their rejection of the deviate.

In summary, there were four kinds of clubs, each reproducing a different combination of the experimental variables, as follows:

1. High cohesiveness - relevant issue (Hi. Co. Rel.) Case Study Club
2. Low cohesiveness - relevant issue (Lo. Co. Rel.) Editorial Club
3. High cohesiveness - irrelevant issue (Hi. Co. Irrel.) Movie Club
4. Low cohesiveness - irrelevant issue (Lo. Co. Irrel.) Radio Club.

In each experimental condition there were eight clubs, making a total of thirty-two clubs. Each club had, beside the paid participants, from five to seven members. All clubs were made up of male students.

Did the Experiment Reproduce the Variables?

The initial manipulation of variables was the canvassing for subjects and their assignment to clubs on the basis of their preliminary interest ratings. This method of assignment is summarized in Table I. The figures in the table were obtained by assigning numerical values to the four points on the rating scale. "Not interested at all" has the value 1; "extremely interested" has the value 4; and the two intermediate points, the values 2 and 3. The figures are the mean ratings of each club made by its members. There is a marked difference between students in high and low cohesive groups in their ratings of the clubs to which they

TABLE I
MEAN RATINGS ON SIGN-UP SHEETS

	Case Study	Editorial
Hi. Co. Rel.	3.27	2.20
Lo. Co. Rel.	3.33	1.71
	Movie	Radio
Hi. Co. Irrel.	3.53	2.24
Lo. Co. Irrel.	3.34	1.59

were assigned. In both low cohesive conditions, all but two subjects rated the clubs in which they were placed between "not interested at all" and "only mildly interested." In the high cohesive conditions, all but two subjects rated the clubs in which they were placed between "extremely interested" and "moderately interested."

How successful was this method in manipulating cohesiveness? At the end of each meeting, each subject answered a questionnaire ostensibly designed to determine his intentions toward the club. There were three questions: 1. Do you want to remain a member of this group? 2. How often do you think this group should meet? 3. If enough members decide not to stay so that it seems this group might discontinue, would you like the chance to persuade others to stay?

Table II presents data from this questionnaire. There are marked differences between high and low cohesive groups. In high cohesive clubs 101 of the 102 subjects wanted to continue their memberships; only 62 of 96 subjects in low cohesive groups wanted to do so. There are differences, too, between students in the two conditions who wanted to remain in their clubs. Such students in low cohesive groups wanted to meet less often and were less willing to persuade others to stay in the club. Clearly the manipulation was successful in producing groups with different degrees of cohesiveness.

The Case Study and the Love-Punishment Scale

The "Johnny Rocco" case was an abbreviated and revised two-page version of the original (3). It is the history of a slum boy, his travails and triumphs, and the present version³ ending as Johnny awaits sentence for a minor crime. The case was presented to all the clubs as that of a real person at present in this plight. The club members were asked to discuss and decide what should be done with the kid.

³For purposes of brevity the revised case study and the complete love-punishment scale are omitted from this writeup. Interested readers may obtain copies by writing to the author.

TABLE II
BREAKDOWN OF ANSWERS TO THE COHESIVENESS QUESTIONNAIRE

	Question 1			Question 2		Question 3	
	<u>Want to remain member?</u>			<u>Frequency of meetings?</u>		<u>Want to induce others to stay in club?</u>	
	N	Yes	No	Once or twice a week	Once every 2, 3, or 4 weeks	Yes	No
Hi. Co. Rel.	53	98%	2%	61%	39%	73%	19%
Lo. Co. Rel.	50	68%	32%	54%	46%	51%	34%
Hi. Co. Irrel.	49	100%	0%	73%	27%	61%	35%
Lo. Co. Irrel.	46	61%	39%	36%	64%	21%	71%

The seven point scale which guided discussion was ordered along the love-punishment dimension. Point 1 presented the "all love" point of view—"Love, kindness, and friendship are all that are necessary to make Johnny a better kid. If he can be placed in a more agreeable environment, a warm, friendly foster home, for example, his troubles will clear up." Point 7 the "all punishment" viewpoint—"There's very little you can do with a kid like this, but put him in a very severe disciplinary environment. Only by punishing him strongly can we change his behavior." Between the extremes were graded variations of the two points of view. (e.g. Point 3 read, "He should be sent into an environment where providing Johnny with warmth and affection will be emphasized slightly more than punishing him, but discipline and punishment will be frequent if his behavior warrants it.") The scale was a method for pointing up the differences in the group. It was the basis for the public censuses during the meeting - one immediately preceding discussion, one in the middle of the meeting, and one at the end of the discussion. It was introduced to the club members as a useful device for learning everyone's position so that one topic could be discussed effectively.

The case was written sympathetically. To make sure that the paid participant was a deviate, the story was arranged so that most subjects chose two or three contiguous points on the scale. It was possible, however, to defend the extreme position without seeming strange or offensive. In all groups most students chose positions emphasizing love and kindness (position 2-4) and the deviate took the position of extreme discipline (position 7).

The Paid Participants

In each group the three paid participants were perceived as fellow club members. Like the subjects, they were undergraduates. In each meeting, in each condition, they played three roles:

1. The deviate - At the beginning he adopted the position of extreme discipline (7) and maintained it throughout the discussion.
2. The mode - He championed that position which the modal number of members supported. If during the meeting the modal position shifted, he shifted.
3. The slider - He began as an extreme deviate (position 7) and during the meeting moved step-by-step to the modal position.

The mode and slider roles were controls. Comparisons of paid participants in modal and deviate roles provided evidence of the effect of deviation as contrasted to conformity. Comparisons of paid participants in slider and deviate roles allowed us to determine whether rejection is a result of having at one time, but no longer, championed an extreme position, or, of simply maintaining deviancy in the face of all attempted influence.

The three roles were systematically rotated among four paid participants so that each played each role twice in each experimental condition. Rules of behavior guiding the paid participants in any role were carefully defined to assure constancy from meeting to meeting. 1. Each had to speak once every five minutes. If during any five minute interval no one addressed a remark to him, he initiated a communication. 2. Where possible, all communications made by the paid participants, whether initiated or in response to someone, were rephrasings of the position he was maintaining at the time. 3. When it was impossible simply to parrot a position, the paid participants at a deviate position were permitted two standard arguments: (a) Despite the fact that love and affection were shown Johnny, he went back to stealing. (b) No consistent discipline was applied and therefore it cannot be said that it would not work.

The Measurements Obtained

After 45 minutes of discussion, the leader introduced the subject of the future of the club. He proposed a plan by which to set up a functioning group. To expedite organization, the members filled out three mimeographed sheets. 1. A committee nomination blank, 2. A sociometric test, and 3. The cohesiveness questionnaire described earlier in this section.

1. Committee Nominations: Three committees were set up, differing with respect to the interest of the work, the importance of the assigned functions and the delegated responsibility for club activities. They were called the Executive, Steering and Correspondence Committees.

In each club, the job of each committee was defined in much the same way, but with slightly different content. The Executive Committee was to decide what the group should discuss, to act as liaison agent between the club and its sponsoring agency and to determine club policy. The Steering Committee was to prepare and present discussion materials and determine discussion procedure. The Correspondence Committee was to perform secretarial functions.⁴

The subjects were instructed to nominate persons whom they considered most capable of handling the work of the committee. They were not to nominate themselves or the same person for more than one committee. The number of members on each committee was so manipulated that no matter what the number present in any particular group, everyone had to nominate everyone else present for some com-

⁴ To check on whether or not jobs on these committees actually did vary in attractiveness, in several of the groups the members were asked to write their own names next to those committees in which they were most interested. Most requested the Executive Committee, a few the Steering, and none the Correspondence Committee.

mittee. When ten people were present, each member nominated three people for each committee; when nine people were present, only two people were nominated for the Correspondence Committee; and, with eight people, two people were nominated for the Steering Committee and two for the Correspondence Committee. The importance or unimportance of the committees to which the paid participants were nominated serves as an index of acceptance or rejection.

2. The Sociometric Test: The members were informed that it might become necessary to reduce the number of club members or to break up this group and portion out the members to one of the other clubs. If so, it would be helpful to know which people would like to remain together. They were asked, therefore, to rank everyone present in order of preference for remaining in the same group with themselves. In contrast to committee nomination instructions, the emphasis here was on congeniality. These data provide a sociometric index of rejection.

In addition, an observer recorded certain aspects of the group process. He was introduced as a friend interested in what the club was doing, and on whom we could impose to take notes. He recorded: 1. Who speaks to whom. 2. The length, in time, of the communication. 3. Whether the speaker attacks or supports the position of the person to whom he speaks. 4. Whether a communication, even if not addressed to a person at a specific position, implies approval or disapproval of this position. 5. Whether the speaker talks about experiences from his own or his friends' personal histories.

Discussion: The setup described, while a reasonably well-controlled experimental situation, represented for the subjects a real life situation. What for the experimenter was a method of manipulating a variable was, for the subject, a club he was interested in joining; the measuring instruments were a conventional method for electing officers; and so on. In short, the experiment was fitted within a framework completely consistent with the idea and operation of a club with no sacrifice of experimental control.

The rationale for this procedure was that it would be possible to reproduce the variables and phenomena under study with greater intensity in a purportedly "real life" situation than in a laboratory setup that was identified as such. It is possible to produce complex social phenomena in laboratory experiments. Which procedure is more "effective" in the study of particular social phenomena can only be determined by additional investigation.

After each meeting the subjects were told that this was an experiment and not a club. The purposes of the experiment and the various devices employed were explained in detail. The subjects were asked not to disclose the true nature of these "clubs." There was no indication that anyone gave away the experiment.

THE RELATIONSHIPS BETWEEN COHESIVENESS, RELEVANCE
AND REJECTION

The theory presented in the introduction can now be expanded to make specific derivations as to the degree of rejection anticipated in each experimental condition. The theory states that there are definite pressures to uniformity of behavior and attitude among members of most social groups. Thus, if differences of opinion exist within a group, forces will arise on the members to restore uniformity. A number of corrective tendencies will arise; for example, pressures will develop to change the members of the group holding opinions different from one's own, pressures will arise to change one's own opinion to coincide more closely with those of other group members, a tendency will develop to decrease one's dependence on deviant members as appropriate reference points in establishing the "reality" of one's own opinion. Probably in any group where differences of opinion exist all of these tendencies exist. All of these tendencies, we shall say, are simultaneously a function of the total pressures to uniformity. In the present experimental situation where there was only one deviate and practically all of the subjects were of similar opinions, it seems reasonable to suggest that the predominant tendencies acting on group members were a) the pressures to change the opinion of the deviate, and b) the tendency to decrease dependence on the deviate as a point of reference for establishing social reality.

a) Pressures to change (P_{ch}) refer to the magnitude of pressures acting on group members to change a deviant opinion to conform more closely with their own. We make these assumptions about the relationship of P_{ch} with the variables cohesiveness, relevance and state of opinion:

1) With increasing difference of opinion P_{ch} should increase.

If uniformity exists, P_{ch} should have zero magnitude. As group opinion departs more and more from uniformity, P_{ch} should correspondingly increase.

2) With increasing cohesiveness, the magnitude of P_{ch} should increase. At any point along a scale of difference of opinion, P_{ch} should be greater for high than for low cohesive groups.

Pressures to uniformity arise in part from a need for social reality within an appropriate reference group. A cohesive group, in which membership is valued, can be considered a more important reference group than a low cohesive group in which membership is not particularly cherished. Therefore, we anticipate that pressures to uniformity will be greater in high than in low cohesive groups.

3) With increasing relevance of issue, the magnitude of P_{ch} should increase.

Any group has a realm of activities for which it serves as an appropriate reference group. Any set of activities can be ordered along

some dimension of "importance" (relevance) for a particular reference group. It is plausible to assume that for activities which are of importance to the group, greater pressures to change will exist than for activities which are unimportant.

b) Dependence (Dep) refers to the extent to which members of a group rely on one another as reference points in establishing social reality. We make these assumptions about the relationships of dependence with the variables cohesiveness, relevance and state of opinion:

1) With increasing difference of opinion dependence will decrease.

If opinions are identical, dependence will be high. When persons have different opinions, it is unlikely that they will depend on one another to establish the reality of their opinions.

2) With increasing cohesiveness, the magnitude of dependence will increase.

A high cohesive group will comprise a more important reference group than a low cohesive group in which membership is not particularly desirable. Thus, members of a high cohesive group will be more dependent on one another than members of a low cohesive group.

3) With relatively small differences of opinion the magnitude of dependence will increase with increasing relevance of issue. As difference of opinion increases, dependence for relevant issues decreases more rapidly than dependence for irrelevant issues and a point of zero dependence will be reached with less difference of opinion for relevant than for irrelevant issues.

The more "important" an issue to a particular group, the greater the extent to which group members depend on one another for social reality. On relevant issues, it will be more important that the reference group which establishes social reality has similar opinions than on less relevant issues. Therefore, dependence should decrease more rapidly with increasing perceived difference and reach the point of zero dependence earlier for highly relevant issues than for irrelevant issues.

These relationships are presented graphically in Figure 1. The rationale for drawing the curves with these shapes and in these relationships follows. 1. The rising Pch curves and falling Dep curves with increasing difference of opinion express assumptions a1 and b1 above. 2. The greater magnitude of high cohesive than of low cohesive curves (relevance held constant) and of relevant than of irrelevant Pch curves (cohesiveness held constant) express assumptions a2, a3, and b2. 3. At low levels of perceived difference with cohesiveness held constant, the magnitude of relevant Dep curves is greater than irrelevant Dep curves. Curves for relevant conditions drop at a faster rate and reach the point of zero dependence with far less perceived difference than do curves for irrelevant conditions. This is an expression

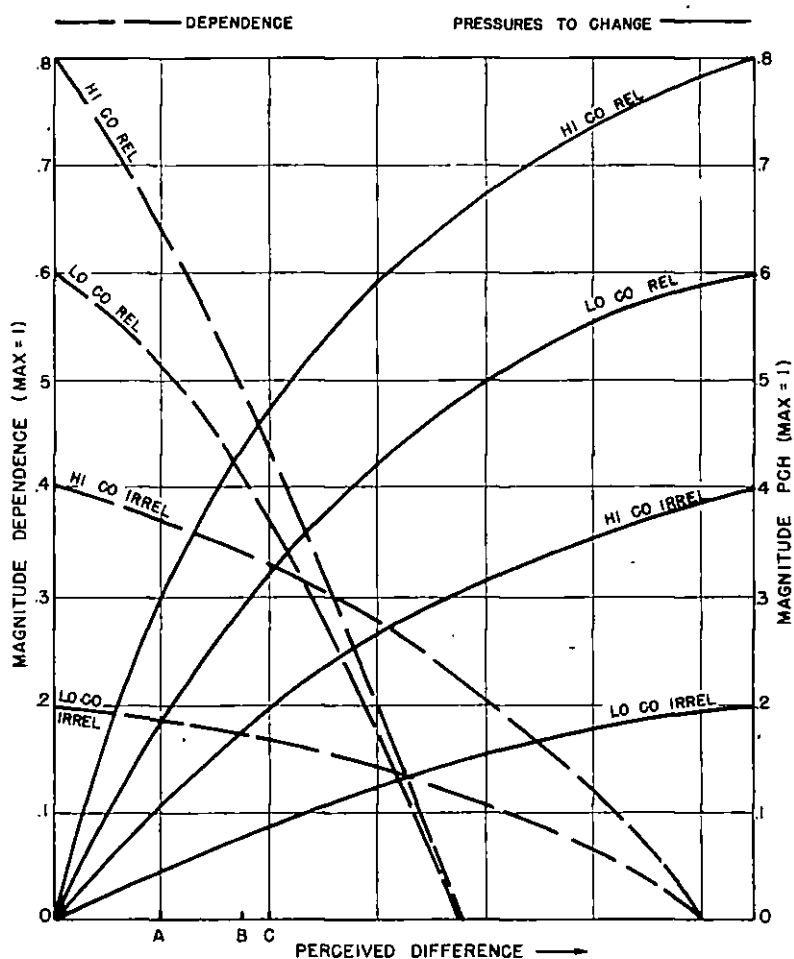


FIG. 1—THEORETICAL CURVES OF THE RELATIONSHIPS BETWEEN DEPENDENCE, PRESSURES TO CHANGE AND COHESIVENESS, RELEVANCE AND PERCEIVED DIFFERENCE OF OPINION.

of assumption b3. 4. For each condition, the maxima of the Pch and Dep curves are of the same magnitude. We assume that the maxima of both factors are similarly a function of total pressures to uniformity.

The scale of magnitude along the ordinate of this graph has maximum = 1. The values assigned are, of course, arbitrary and purely illustrative. From these curves we can make predictions concerning the interrelationships among cohesiveness, relevance and degree of rejection.

We shall coordinate rejection to the amount of pressures to change that do not find public expression. The amount of pressures that do find public expression we call communication. Dependence defines the proportion of pressures to change that can be expressed. Multiplying these two factors, therefore, gives the amount of pressures that will actually be exerted.⁵

$$\text{Comm} = \text{Pch} \times \text{Dep}$$

Rejection, then, which is coordinated to the amount of pressures not exerted, is computed by multiplying Pch by the quantity (1 - Dep)

$$\text{Rej} = \text{Pch} \times (1 - \text{Dep})$$

The number 1 represents maximum dependence. It defines the point at which all Pch will be communicated. The greater the pressures and the smaller the dependence, the greater the rejection. In effect, this formula suggests that rejection requires relatively little dependence on a person and, at the same time, relatively high pressures to change him. If pressures to change are high but dependence is also high, rejection is relatively slight. If dependence is low but there are no pressures to change, rejection will not occur.

Applying this formula to the postulated curves in Figure 1, we find these relationships:

At point A in this figure:

	$\text{Pch} \times (1 - \text{Dep}) = \text{Rej}$
Hi Co Rel	$.300 \times (1 - .650) = .105$
Lo Co Rel	$.185 \times (1 - .513) = .090$
Hi Co Irrel	$.110 \times (1 - .375) = .069$
Lo Co Irrel	$.050 \times (1 - .185) = .041$

At point B where the perceived difference is somewhat greater:

	$\text{Pch} \times (1 - D) = \text{Rej}$
Hi Co Rel	$.437 \times (1 - .487) = .224$
Lo Co Rel	$.295 \times (1 - .409) = .174$
Hi Co Irrel	$.175 \times (1 - .341) = .115$
Lo Co Irrel	$.075 \times (1 - .175) = .062$

⁵ This theory of communication will be developed and expanded in the following section.

These trends become clear: 1) As perceived difference increases, the degree of rejection in each of these conditions will increase. 2) At any point beyond 0, along the axis of perceived difference:

$$\begin{aligned} \text{Rej in Hi Co Rel} &> \text{Rej in Lo Co Rel} \\ \text{Rej in Hi Co Irrel} &> \text{Rej in Lo Co Irrel} \\ \text{Rej in Hi Co Rel} &> \text{Rej in Hi Co Irrel} \\ \text{Rej in Lo Co Rel} &> \text{Rej in Lo Co Irrel}^* \end{aligned}$$

Thus, the set of assumptions determining the shapes of these curves lead to these experimental predictions. a) Persons in the mode and slider roles (who at the end of a meeting are close to zero perceived difference) will be rejected less (if at all) than will persons in the deviate role. b) From experimental condition to condition the degree of rejection of persons in the deviate role will vary in the order noted in trend (2) above. With cohesiveness constant, rejection will be greater in relevant than in irrelevant groups. With relevance constant, rejection will be greater in high than in low cohesive groups.

EXPERIMENTAL RESULTS

The post-meeting nominations for committees and the sociometric rankings of all club members provide two indices of rejection—nominations to the less important committees and relatively low sociometric rankings.

Sociometric Rankings. At the end of a meeting, the members of each club ranked everyone in the order of their desirability as fellow club members. The instructions emphasized congeniality and compatibility as the basis for ranking. The lower the ranking, the greater the rejection.

Table III presents mean sociometric rankings of each paid participant in each condition. Each figure in the table is the mean of the mean sociometric rankings in each group. The N for each figure is 8, the

TABLE III
MEAN SOCIOMETRIC RANKINGS OF THE PAID PARTICIPANTS

	Deviate	Mode	Slider
Hi Co Rel	6.44	4.65	5.02
Lo Co Rel	5.83	4.70	4.56
Hi Co Irrel	6.51	4.68	4.44
Lo Co Irrel	5.67	3.83	5.03

* It is impossible to make an exact prediction about relative rejection between the Lo Co Rel and Hi Co Irrel conditions. Though the curves imply $\text{Rej in Lo Co Rel} > \text{Rej in Hi Co Irrel}$, this was done purely for illustrative simplicity. We have, of course, no way of determining the relative contributions of cohesiveness and relevance in a comparison of Lo Co Rel and Hi Co Irrel conditions.

number of groups in each condition. Since the groups varied in size from eight to ten members, all rankings were corrected to equivalent scores by adopting the nine possible rankings in a group of ten people as a basic scale and correcting rankings in smaller groups to equivalent scores. The mean rank in every group is 5.

These relationships emerge from Table III. 1) In any condition, mean rankings of either mode or slider are considerably below mean rankings of the deviate. All mode-deviate differences are significant by *t* test at, at least, the 7% level of significance. Clearly, the penalty of relative rejection is imposed on a deviate. He is considered relatively undesirable as a fellow club member. 2) There are no significant differences in rankings of either the mode or slider when comparisons are made between conditions.⁷ The variables of cohesiveness and relevance have no effects on group evaluation of individuals who are at or who adopt the group norms. 3) The deviate is rejected more strongly in high than in low cohesive groups. The *t*'s are significant at the 12% level for the difference between Hi and Lo Co Rel, and at the 1% level for the difference between Hi and Lo Co Irrel.⁸ As predicted, greater cohesiveness produces greater rejection.

There is no immediate evidence, however, that the variable, relevance, affects the degree of rejection. The mean sociometric rankings of the deviate in the relevant and irrelevant condition, with cohesiveness constant, are about the same. In part, this may be attributed to the fact that the measurement is a relative one, indicating only an individual's relative preferences for one person over another with no indication of the absolute intensity of liking or disliking. There is, however, some indication of the relative intensities of the ratings in each condition. Occasionally, a subject refused to fill in the sociometric sheet, or simply put in numbers in sequence, explaining that he was unable to discriminate among the people present. Random ranking implies that there was no genuine basis on which to express preference. If, therefore, any one experimental condition has a significantly greater number of random rankings than do the others, it may be inferred that, in general, all rankings in this condition were made with less basis for expressing preference and imply less intensity of like or dislike than in a condition where random responses are rare. More than twice as many random rankings were made in irrelevant conditions as in relevant. Of all subjects, 16% ranked randomly in the irrelevant conditions and 6.8% in the relevant conditions. This difference is significant by chi-square with one degree of freedom at the 2% level. There

⁷ The largest difference, that between the Hi and Lo Co Irrel conditions for the mode, is significant by *t* test at only the 28% level.

⁸ In all tests of significance mentioned in this section, the group rather than the individual was considered the unit.

were no significant differences between Hi and Lo Co Rel or between Hi and Lo Co Irrel. Though mean rankings are about the same for the relevant and irrelevant conditions, random rankings of the deviate seem to imply less strong feelings of rejection in the irrelevant groups.

This sociometric data essentially substantiates the predictions made from the theory developed earlier in this section. 1) Paid participants in the mode and slider roles were not rejected; in the deviate role they were rejected. 2) There is greater rejection of the deviate in high than in low cohesive groups. 3) Though sociometric rankings of the deviate are about the same for relevant and irrelevant conditions, random sociometric rankings indicate that the intensity of rejection in irrelevant condition was less than in relevant condition.

Assignment to Committees. With instructions emphasizing competence for the job, the members of each club nominated people for membership on executive, steering, and correspondence committees. These committees differed in the interest of the work involved, mentality of assigned tasks, and delegated responsibility over the functioning of the club. On all counts, the executive committee was the most desirable and the correspondence committee least desirable. Rejection is coordinated to assignment to the least desirable committee.

Tables IV, V, and VI present the data on the assignment of paid participants in the mode, slider and deviate roles to the three committees. All figures in each table represent the percent, above or below chance expectancy, of all subjects in each condition who assigned the various roles to the different committees. In Table IV, the mode was nominated for the executive committee by 4.56% less than the percentage we would expect if all people in the Hi Co Rel condition had made nominations on some randomly determined basis. Varying group sizes, affecting the probability of any one person being assigned to a particular committee, necessitated computation of chance expectancies.

The standard errors of all chance percentages are close to 6.20.* Any score greater than 10.23 is significant at the 10% level; greater than 12.09 is significant at the 5% level; and greater than 15.93 is significant at the 1% level. Accepting the 5% level, Table V reveals no significant fluctuations from chance in assigning the slider to any one particular committee. Similarly, for the mode, in Table IV, we find only one score that departs significantly from chance, assignment of the mode to the steering committee in the Lo Co Rel condition. With the large number of scores obtained, this may be interpreted as a

*This score was computed using $\sqrt{\frac{pq}{n}}$, the customary formula for computing the standard error of a percentage. Since the number of cases varied slightly from condition to condition, and p varied slightly with the number of people in each group, the standard error 6.20 is a convenient approximation. The obtained standard errors for each committee in each condition are all quite close to this figure.

TABLE IV

PERCENT OF SUBJECTS ABOVE CHANCE ASSIGNING MODE TO COMMITTEES

	Executive	Steering	Correspondence
Hi. Co. Rel.	-4.56	+ 6.76	- 2.22
Lo. Co. Rel.	-9.83	+20.15	-10.44
Hi. Co. Irrel.	-0.08	+ 6.85	- 6.93
Lo. Co. Irrel.	+3.70	+ 3.70	- 8.07

TABLE V

PERCENT OF SUBJECTS ABOVE CHANCE ASSIGNING SLIDER TO COMMITTEES

	Executive	Steering	Correspondence
Hi. Co. Rel.	+1.76	-5.93	+4.16
Lo. Co. Rel.	+7.32	-7.86	+0.50
Hi. Co. Irrel.	-4.97	+4.38	+0.39
Lo. Co. Irrel.	+2.69	-3.52	+0.16

TABLE VI

PERCENT OF SUBJECTS ABOVE CHANCE ASSIGNING DEVIATE TO COMMITTEES

	Executive	Steering	Correspondence
Hi. Co. Rel.	-14.00	-8.34	+22.31
Lo. Co. Rel.	-17.58	-7.81	+25.26
Hi. Co. Irrel.	-16.41	+4.83	+11.44
Lo. Co. Irrel.	+10.16	-9.40	- 1.30

chance fluctuation. However, there is no indication of systematic rejection for the mode or slider roles.

Table VI for the deviate, presents a completely different picture. For all conditions, except Lo Co Irrel, the deviate is over-nominated for the correspondence committee and under-nominated for the executive committee. Deviation results in assignment to a relatively peripheral position in the role structure of the group. Not only is the deviate considered relatively undesirable as a fellow club member, but also least capable of handling the important jobs in the club.

The degree of rejection, however, is affected by the experimental variables. Rejection is greater in both relevant conditions than in the irrelevant conditions. A *t* test with 30 d.f. yields the 2% level of significance for this difference. Differences between the degree of rejection in high cohesive groups and low cohesive groups, however, are less clear cut. Though there is a difference between high and low cohesive irrelevant conditions significant by *t* test at the 10% level, there is no difference between the two relevant conditions. This is clearly inconsistent with theoretical expectations but may, perhaps, be explained in terms of the nature of the committee assignment measure. This may also be considered a relative measure that gives no indication of intensity of feeling. It is plausible that, though there is no difference between high and low cohesive relevant groups in the percent of people assigning the deviate to the correspondence committee, the intensity of rejection is greater in high than in low cohesive groups. In contrast to the sociometric ranking, however, no subject had difficulty making these judgments and there is no evidence of random assignment to committees. Possibly, this may be attributed to the different natures of the measures. A judgment of fitness for a particular job is a fairly everyday matter. Decisions about which people should be in or out of a group seem a more unusual sort of judgment to make.

Beyond this single inconsistency, the data again support the theoretical predictions. Neither the mode nor the slider were rejected. In all conditions, except Lo Co Irrel where we anticipate very little rejection, the deviate was over-nominated for the correspondence committee. Rejection of the deviate is greater in the relevant than in the irrelevant conditions; and rejection is greater in the Hi Co Irrel than in the Lo Co Irrel condition.

Summary

A set of assumptions have been developed which define the relationships of the constructs, dependence and pressures to change, to cohesiveness, relevance and state of opinion. Both communication and rejection have been coordinated to these constructs. Dependence defines the proportion of the pressures to change that can find public expression and communication is defined as:

$$\text{Comm} = \text{Pch} \times \text{Dep}$$

Rejection is coordinated to the amount of pressures to change which are not exerted and is defined as:

$$\text{Rej} = \text{Pch} \times (1 - \text{Dep})$$

These coordinations and the assumptions defining Pch and Dep allow us to make a number of predictions of the results of the experiment.

These predictions and the evidence supporting them will be reviewed briefly.

1. Persons in the mode and slider roles will be rejected less (if at all) than will persons in the deviate role.

On both the sociometric and committee assignment measures there was no evidence that either the mode or slider were rejected. Their sociometric rankings were close to the mean and they were not disproportionately assigned to the least desirable committee. The deviate, on the other hand, was rejected in all experimental conditions except Lo Co Irrel. In all conditions, his sociometric ranking was above the mean rank and also considerably higher than the rankings of either the mode or the slider. On the committee assignment measure, the deviate was over-nominated for the correspondence committee. Where the magnitudes of both Dep and Pch are low we anticipate relatively little rejection. Thus, in the Lo Co Irrel condition, the sociometric ranking of the deviate was only slightly above the mean and he was not over-nominated for the correspondence committee.

2. With cohesiveness held constant, rejection will be greater in relevant groups than in irrelevant groups.

a. On the committee assignment measure the deviate was assigned to the correspondence committee to a far greater extent in the relevant groups than in the irrelevant groups.

b. Though sociometric rankings of the deviate are about the same for the relevant and irrelevant conditions, there is evidence from random sociometric rankings that the intensity of rejection is greater in the relevant than in the irrelevant conditions.

3. With relevance held constant, rejection will be greater in high cohesive than in low cohesive groups.

a. The mean sociometric ranking of the deviate was considerably higher in both high cohesive conditions than in the corresponding low cohesive conditions.

b. On the committee assignment measure the deviate was nominated to the correspondence committee to a greater extent in the Hi Co Irrel than in the Lo Co Irrel condition. There is no difference, however, between the Hi Co Rel and the Lo Co Rel conditions. It is suggested that this inconsistency can be explained in terms of the relative nature of the measure and that here, too, the intensity of rejection is stronger in Hi Co Rel than in Lo Co Rel groups. There is no immediate evidence, however, to support this argument.

THE PROCESS OF COMMUNICATION

The previous section treated the relationships between experimental manipulations and post-meeting measurements. The present section relates the processes of induction and communication as they occurred

during the meetings to the experimental variables, cohesiveness and relevance, and to the post-meeting measurements.

We shall consider communication, the process of one person talking to another, as the mechanism of induction, the means by which influence is exerted. There are, of course, other reasons why people communicate, but within the confines of this experiment and theory, we shall largely limit ourselves to communication as influence.

From the theoretical elaboration of "pressures to uniformity" specific derivations may be made about certain aspects of the pattern of communication that occurred in these meetings. Let us first coordinate to the constructs, Pch and Dep, statements relating them to the occurrence of communication.

1. Pressures to change others mean, of course, pressures to influence others, which we will consider identical with pressures to communicate. Our earlier assumptions, therefore, may be extended to communication pressures. The pressures to communicate to a deviate will rise with increasing perceived difference, increasing cohesiveness, and increasing relevance.

2. Dependence refers to the extent to which a person relies on another person or group of persons to establish social reality. It defines the proportion of pressure to change that can actually find public expression. Actual communication, then, is a function of both Dep and Pch, with dependence modifying the amount of pressures to change that will be expressed publicly. Actual communication is formulated as, $Comm = Pch \times Dep$.

In Figure 2, the heavily dotted lines, constructed by making the proper multiplications at each point, represent the magnitude or frequency of actual communication that should be directed at positions with different degrees of perceived difference in the four experimental conditions.¹⁰ This figure is the same as Figure 1, with the curves for predicted communication added.

Let us examine more closely the meaning of "perceived difference." It refers to the phenomenological difference between two people rather than the absolute difference between two points on the love-punishment scale. Two people may be at position 4 on the scale and perceive the

¹⁰ The coordination of rejection to the amount of pressures that are not publicly expressed can be demonstrated graphically in Figure 2. At any point along the axis of perceived difference, rejection is equal to the difference in the height of the appropriate derived curve of actual communication and the height of the corresponding curve for Pch.

This relationship is simply stated algebraically:

$$\begin{aligned} Rej &= Pch \times (1 - Dep) \\ &= Pch - Pch \times Dep \\ Comm &= Pch \times Dep \\ \therefore Rej &= Pch - Comm \end{aligned}$$

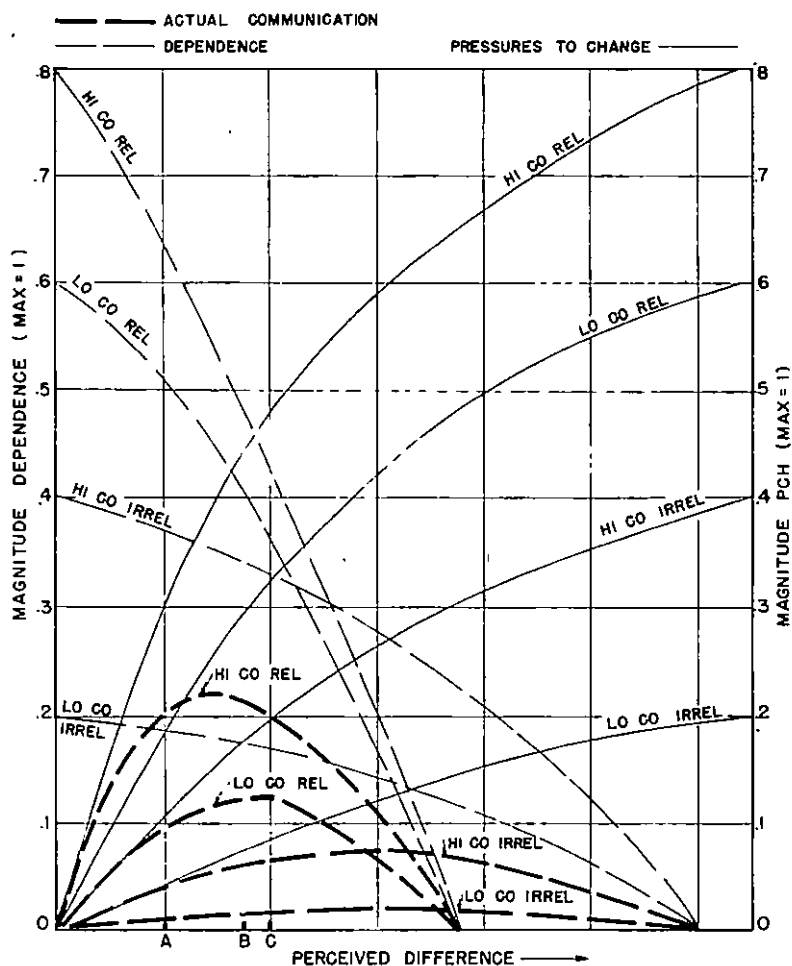


FIG. 2 - DERIVED CURVES OF ACTUAL COMMUNICATION IN THE FOUR EXPERIMENTAL CONDITIONS.

difference between themselves and someone at position 7 as of very different orders of magnitude. We shall postulate that in this experiment perceived differences increased with discussion. In all the club meetings the question, "How much do we really differ?" was frequently discussed, and attempts were made to reduce the distance between points on the scale. The deviates, however, were specifically instructed to resist attempts to minimize differences between themselves and people at other positions. The assumption that perceived difference increases with discussion seems reasonable, therefore, in this situation.

Accepting this assumption, it may be said that the dotted curve of communication in Figure 2 represents the actual pattern of communication during the course of the meeting. From these considerations a number of testable derivations may be made about the frequency and pattern of communication to each paid participant in each condition.

1. Communication Patterns to the Deviate: A prediction previously developed was that rejection will increase with increasing perceived difference. Therefore, people who strongly reject the deviate perceive a greater difference between themselves and the deviate than do people who do not reject. In Figure 2 point C represents the position of a rejector at the end of a meeting, point B the position of a mild rejector, and point A the position of a non-rejector. If perpendiculars are projected from these points, they intercept the communication curves at different relative positions.

If we accept the assumption that perceived difference increases with discussion time and postulate that points C, B and A in Figure 2 represent the end-of-the-meeting perceptions of people who reject the deviate strongly, reject mildly and do not reject, then we must say that the curves of actual communication up to points C, B and A represent the patterns of communication from these three kinds of people to the deviate during the course of the meeting. In Figure 3 these predicted curves of communication, projected from Figure 2, are drawn for these three kinds of people for each experimental condition. These curves are specific predictions about the pattern and magnitude of communication to the deviate.

In Figure 3 the vertical axis represents the amount of communication during the meeting, and the horizontal axis, the flow of time from zero to forty-five minutes. Any point on these curves represents the amount of communication that will be addressed to the deviate at a particular time in the course of the meeting by either the people who reject him strongly, reject mildly, or do not reject. All curves start slightly above the zero point, for it seems likely that even at the beginning of a meeting there is some perception of difference.

In the Hi Co Rel condition, the communication curve of non-rejectors increases continuously throughout the meeting. The curve of strong

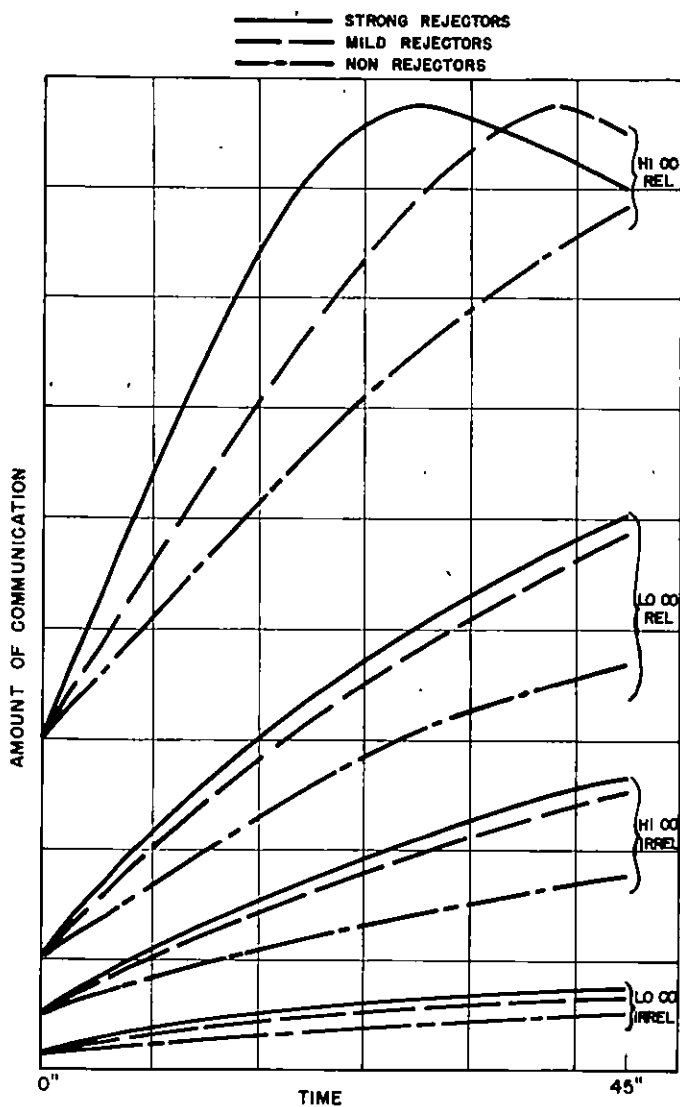


FIG. 3 - THEORETICAL CURVES OF COMMUNICATIONS FROM STRONG REJECTORS, MILD REJECTORS AND NON-REJECTORS TO THE DEVIATE IN THE FOUR EXPERIMENTAL CONDITIONS.

rejectors reaches a peak during the meeting and then declines continuously; and the mild rejectors' curve reaches a peak somewhat later and then declines. In all other conditions, all communication curves to the deviate rise continuously throughout the meeting.

The data testing these derivations is presented in Table VII. The meeting is here divided into ten-minute intervals and communications to the deviate during each interval tallied. The three categories of

TABLE VII

MEAN NUMBER OF COMMUNICATIONS ADDRESSED TO DEVIATE
DURING THE COURSE OF THE MEETING BY SUBJECTS WITH
DIFFERENT POST-MEETING REACTIONS TO HIM

		Time Interval			
	N	5"-15"*	15"-25"	25"-35"	35"-45"
<u>Hi. Co. Rel.</u>					
non-rejectors	13	1.15	.92	2.15	1.54
mild rejectors	15	.40	1.27	1.87	.86
strong rejectors	25	.68	1.60	1.52	.76
<u>Lo. Co. Rel.</u>					
non-rejectors	13	.38	.54	.84	.46
mild rejectors	22	.58	.50	1.23	1.73
strong rejectors	15	.26	.47	1.27	2.99
<u>Hi. Co. Irrel.</u>					
non-rejectors	9	1.32	1.44	.99	2.44
mild rejectors	20	1.15	1.35	1.55	1.20
strong rejectors	20	.75	1.15	1.60	3.42
<u>Lo. Co. Irrel.</u>					
non-rejectors	16	1.69	1.69	2.34	2.12
mild rejectors	15	1.47	.94	2.20	3.74
strong rejectors	15	1.20	.74	2.47	2.87

*Because the first few minutes of many meetings were concerned with technical problems and deciding just what was to be done, data from the 0"-5" time interval are not reported.

rejectors are determined by sociometric rankings of the deviate. Non-rejectors ranked the deviate from 1 - 3.72; mild rejectors from 4 - 7.92; and strong rejectors between 8 and 9. The figures in the table are the total number of communications in each time interval made by all people in each rejector category, divided by the number of people in this category.

Let us examine first the data for the HI Co Rel groups in Table VII. The strong rejectors reach their peak of communication to the deviate in the 15 - 25 minute interval and then decline steadily. The difference between the peak interval and the final time interval is significant at better than the 1% level.¹¹ Mild rejectors reach their peak somewhat later, in the 25 - 35 minute interval, and then decline. The difference between this peak and the final time interval is significant at the 3% level. Non-rejectors seem to reach a peak and then decline, but this difference is due entirely to one case and is significant at exactly the 50% level of confidence. The data, then, essentially parallel theoretical expectations.

In the other experimental conditions the theory anticipates a steady rise in the number of communications addressed to the deviate by either mild, strong or non-rejectors. The remaining data in Table VII indicate that this is essentially correct. In six of these nine breakdowns, the number of communications to the deviate rises continuously, and differences between the last two time intervals are significant at the 12% level or better for all but the rising Lo Co Irrel curves. In three cases (non-rejectors in Lo Co Rel and Irrel, mild rejectors in the HI Co Irrel) there is a slight drop in the final interval. None of these drops is significant.

The theoretical derivations seem as well corroborated as can be anticipated with the relatively small number of cases involved. Most of the curves rise and the only significant declines are the predicted ones.

2. Communication Patterns to the Mode and Slider. The position of the mode on the scale of perceived difference in Figure 2 should be at 0; the point of no perceived difference between himself and most of the others in the group. At this point $Pch = 0$, and dependence is at a maximum. There should therefore be no communications to the mode during any meeting in any experimental condition. This conclusion, however, must be qualified by two considerations. (1) As a rule, most but not all, of the members of any one club were at the modal position. There were slight differences, therefore, between the mode and a few

¹¹ All of the levels of significance reported with this set of data were obtained by tabulating for each subject in each category whether or not the number of communications he had addressed to the deviate was higher in one time interval than in the interval with which it was being compared. Probabilities were then computed by means of binomial expansion.

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members of the group. (2) A paid participant in the modal role was required to speak once every five minutes. Courtesy would probably demand an occasional response.

We may anticipate, then, that the curve of communication to the mode in all experimental conditions should be a low straight line, parallel to the horizontal time axis. In Table VIII, we see that this is the case. The figures in this table are computed on the same basis as those in the previous table. In all conditions only a very small number of communications were addressed to the mode at any time. Fluctuations from a straight line are all within the range of chance expectancy.

TABLE VIII
MEAN NUMBER OF COMMUNICATIONS ADDRESSED TO THE
MODE AND SLIDER DURING THE COURSE OF THE MEETING

		Time Interval			
	N	5"-15"	15 "-25 "	25 "-35 "	35 "-45"
<u>Hi Co. Rel.</u>					
mode	53	.13	.06	.06	.10
slider	53	.53	.55	.21	.17
<u>Lo. Co. Rel.</u>					
mode	50	.06	.10	.14	.22
slider	50	.30	.20	.20	.20
<u>Hi. Co. Irrel.</u>					
mode	49	.18	.16	.37	.12
slider	49	.79	.47	.20	.04
<u>Lo. Co. Irrel.</u>					
mode	46	.14	.15	.13	.45
slider	46	.72	.63	.41	.30

Theoretically, communications to the slider present a more complicated picture, for it is impossible to predict exactly the interaction between perceived difference and decreasing absolute difference. But it is reasonable to suggest that communications to the slider should be at about the same level as to the deviate until the slider makes his first shift and then communications should gradually decrease until by

the end of the meeting they are at about the same level for both the slider and the mode. The data presented in Table VIII essentially substantiate these expectations. About fifteen minutes after the meeting started the slider shifted from 7 to 5, and finally adopted the modal position between the thirty-five and forty minute marks. In all experimental conditions, communications to the slider are at first considerably above the level of communication to the mode and then decline steadily to the level of the mode in the final time interval.¹²

The Frequency of Communication From the theoretical considerations previously formulated, additional derivations can be made about the magnitude or absolute amounts of communication in each experimental condition. It may be predicted from the curves of communication in Figure 3 that the amount of communication to the deviate will decrease from Hi Co Rel condition to Lo Co Rel to Hi Co Irrel to Lo Co Irrel. And, since the distribution of positions on the love-punishment scale is the same from condition to condition, it may also be anticipated that the mean amounts of communication for meetings, within each condition, will vary in the same order. The data collected with the present observation schedule is, however, inadequate to substantiate or disprove these derivations. It has been postulated that the magnitude of pressures to uniformity are greater on relevant than on irrelevant issues, in high than in low cohesive groups. These derivations will hold only for communications that arise from pressures to uniformity and we can say nothing about communications that arise from other sources. However, people communicate for numberless reasons beyond that of restoring uniformity of opinion. It seems a reasonable assumption that the more irrelevant an issue, the greater will be the number of communications that have sources other than pressures to uniformity. If this analysis of the differences between the discussions of relevant and irrelevant issues is correct, supporting evidence must be found in areas other than the directions and amounts of communication.

Differences between the communication process in relevant and irrelevant conditions are shown in Table IX. Communications in the relevant groups tended to be longer. Slightly more than 30% of all communications in the relevant groups were long communications (longer than 30 seconds), and only 21% were long in the irrelevant condition.¹³ In addition, discussion in these two conditions went at a different clip.

¹²In the first time interval, though the number of communications to the slider are considerably higher than those to the mode, comparison with Table VII reveals that the number of slider-directed communications are consistently lower than those to the deviate. Probably this is an artifact of the slider role. In preparing to shift position, the slider probably tended to be somewhat less extreme and emphatic in his defense of position 7.

¹³This difference has a $t = 2.06$ which, with 30 d.f. is significant at the 5% level.

TABLE IX

INTERRUPTIONS, PAUSES, PERSONAL REFERENCES AND
THE LENGTH OF COMMUNICATIONS IN ALL CONDITIONS

	Hi Co Rel	Lo Co Rel	Hi Co Irrel	Lo Co Irrel
% of Long Communications	.28	.33	.25	.17
Mn. No. Interruptions Per Meeting	67.71	29.86	78.71	82.00
Total No. Pauses	1	1	3	7
Personal History References	18	14	5	8

There were far more interruptions in irrelevant than in relevant groups.¹⁴ An interruption is defined as any attempt to break into a speech before it is completed. Oddly enough, in the face of the greater number of communications and the more rapid clip in irrelevant groups, there were a greater number of pauses in the discussions of the irrelevant groups. Though there was no systematic notation of pauses, the observer noted all particularly long, uncomfortable intervals when no one had anything to say. In short, there were marked differences in the character of discussion in the two conditions. Discussion in irrelevant groups might be characterized as cocktail party conversation, fast, brief, clipped and in bursts. Discussion in the relevant groups resembled the board meeting, slow, even paced, long and well considered.

Consistent with these characterizations of the process of the meeting is the additional data presented in Table IX on the relative frequency of personal history references. Reference to personal history may be considered evidence of real involvement in the discussion. In relevant groups, there were more than two and a half times as many personal references as there were in irrelevant groups.¹⁵ Not only were the discussions of the irrelevant groups more glib, but also apparently more superficial.

The marked differences in the manner of relevant and irrelevant groups indicate that communications in irrelevant groups resulted in

¹⁴ The difference between mean number of interruption in relevant and irrelevant groups is significant at better than the .001 level of significance with $t = 5.74$ for 30 degrees of freedom. These measures of interruption and length of communication are relatively independent. Rank order correlations between the two are only +.39 in the irrelevant condition and +.45 in the relevant condition.

¹⁵ $t = 1.89$ which with 30 d.f. is significant at the 8% level.

good part from sources other than pressures to uniformity. The data, therefore, does not serve as an adequate test of the derivations concerning the relative amounts of communication in the various conditions.

Summary: Communication is conceptually coordinated to the constructs, Pch and Dep. Dependence defines the proportion of the pressure to change that can actually find public expression. Actual communication is a function of both constructs, with dependence modifying the amount of pressure to change that will be expressed publicly. $Comm = Pch \times Dep$

This coordination and the set of assumptions relating Pch and Dep to cohesiveness, relevance, and state of opinion lead to the following derivations about the patterns of communication in each of the experimental conditions.

1. In the Hi Co Rel condition, the amount of communication addressed to the deviate by non-rejectors should increase continuously throughout the meeting. Strong rejectors should reach a peak of communication during the meeting and then decline continuously, and mild rejectors should reach a peak somewhat later and then decline.

2. In all other experimental conditions, communications to the deviate from strong, mild, or non-rejectors should increase continuously throughout the meeting.

3. In all experimental conditions, there should be relatively few communications addressed to persons in the modal role and no increase in communications during the meeting.

4. In all conditions, communications to the slider should decrease during the meeting as the slider shifts from a deviate to a modal position.

The data essentially substantiated all of these predictions. The theory leads to other predictions about the relative magnitudes of communication in each experimental condition. These derivations, however, hold only for communications arising from pressures to uniformity. Since in irrelevant conditions, many communications arose from other sources, it is impossible to test these derivations.

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PART III

EXPERIMENTS IN HIERARCHICAL STRUCTURES

AN EXPERIMENTAL STUDY OF THE COHESIVENESS OF UNDERPRIVILEGED GROUPS

by

John Thibaut

Editor's note: The following are excerpts from the original paper by John Thibaut. Only those parts of the study which are directly relevant to the problem of communication in hierarchies are presented here. The full article appears in Human Relations, 1951, Vol. III.

The concept of cohesiveness is of central importance in the psychology of groups. In the sense in which the term has recently come to be used, a certain minimum amount of cohesiveness, or integrating force, is necessary for a group to exist at all. Unless a certain critical strength of force toward remaining in the group applies to the members of the group, the group will disrupt and cease to be. This total field of forces which acts on members to remain in the group is called the cohesiveness of that group. Or, in more readily quantifiable form, the cohesiveness of a group may be defined as the average for all members of the strength of resultant force toward remaining in the group.

A force toward remaining in the group may come from various sources. The force may derive mainly from the valence of ulterior goals which are mediated by belonging to the group (e.g., the force on a golfer toward membership in a country club group which controls the only course in the vicinity). Somewhat similarly, belonging to a particular group may be prestigious and thus give rise to forces toward membership. Or, a force toward belonging to a group may depend mainly on the attractiveness of its members. In this latter case, the valence of belonging to the group is coordinated to the valence of sharing in a certain domain of activities with the group members.

Defining cohesiveness in this way has proved quite useful, as in the recent study of social influence in a housing project by Festinger, Schachter, and Back (1). From the concept of cohesiveness, these writers derive the concept of the internal power of a group, which is defined in terms of the magnitude of change which the group can induce in the direction of own forces of the members. This magnitude of change which the group can induce actually amounts to the magnitude of own force of a member which the group induction can overcome. From this formulation it is plain that the internal power of a group

can never exceed its cohesiveness. If the group were to attempt to induce on any member changes in the direction of own force which were greater than the resultant force on the member to remain in the group, the member would simply depart.

From the concepts of cohesiveness and internal power Festinger, Schachter, and Back then proceed to derive the ability of a group to enforce conformity to a group standard. The latter is defined as a uniform set of directions which the group induces on the forces acting on the members of the group. Empirical predictions about conformity to group standards within subgroups of a housing project were found to be confirmed with a high degree of accuracy.

The foregoing summary is presented to suggest the importance of the concept in a theory of social groups. The present study was undertaken in order to learn more about the circumstances under which cohesiveness varies. In an earlier exploratory study of the cohesiveness of groups in a clothing factory by B. Willerman and the present author (2), the kinds of variables which appeared to affect cohesiveness most markedly were investigated. Two factors appeared to be causally related to variability in cohesiveness: (1) The status position of the group in a status hierarchy and (2) the relative success of a low-status group in improving its status through group action. (Status is here taken to mean simply the valence of the enduring activities assigned by relevant authorities to the group.)

Since in the factory study, as in field studies in general, it was difficult to isolate and manipulate the causal variables, a more adequate method was sought for investigating these relationships further. We set up the requirement that the arrangement to be selected must be one in which the degree of cohesiveness of a group can be measured before and after the two independent variables are introduced, i.e., before and after (1) the group has been accorded a low-status position in a status hierarchy and (2) the low-status group has attempted with success or ill-success to improve its status position through group action. Further, the effects of the two independent variables on the dependent variable (i.e., cohesiveness) must be separately measurable. Finally, the method must be so designed that the dynamics of change in the dependent variable are theoretically understandable.

The present experiment was devised in response to these requirements. In each experimental session, two groups were created. One group was assigned highly valent tasks, while the second group performed related but quite negatively valent tasks. Then, the situation was so manipulated that the low-status group would take group action in an effort to elevate its status. For some of the groups this action was allowed to be successful, and the group was granted better treatment; for others the group action of the low-status group was unsuccessful and the group returned to its negatively valent activities.

A. Subjects

The subjects were recruited from groups of boys in settlement houses and summer camps in the Boston area. The great majority of the boys were between 10 and 12 years old. The groups recruited from settlement houses were organized athletic clubs, most of which had been functioning for at least six months. At the summer camps, each group was drawn from the same cabin, where the members had been living together for at least ten days.

The settlement-house groups were uniformly of low socio-economic status: of the three camps visited, one drew its boys mainly from families of low socio-economic status, and two from families of a somewhat higher level.

Fourteen groups were recruited from settlement houses while eight groups came from three summer camps. Each of the groups was composed of either 10 or 12 boys,¹ so that two teams of 5 or 6 boys could be formed later.

At the time of recruitment, the subjects were told nothing about the experiment. They were simply invited to play some games, with the explanation that the experimenter was interested in seeing how boys actually went about the business of playing games.

B. Preliminary Procedures

Within an hour before the start of each session a sociometric test was administered by one of the experimental observers to the groups of boys, either in the home club-house (for settlement house groups) or in the home cabin (for camp groups).

The sociometric question is as follows: "Suppose we were going to play some games like throwing balls at a target, and we were going to choose up sides. Of all the boys here, which one would you like most to have on your side? Write his name next to number one. Now write down the name of the boy you would like next best to have on your side. Then write down your third choice and your fourth choice. If there are any others you would like very much to have on your side, you can write down their names too."

This sociometric information was then communicated to the experimenter who made up two teams. Every effort was made to construct two teams which would be sociometrically homogeneous, both within teams and across teams. Specifically, the group members were divided into two teams by a trial-and-error procedure in which an approximately equal number of more popular and less popular members was assigned to each team and in which every subject would find, on the average, about an equal number of his close friends on each team.

¹ In one of the control sessions it was possible to recruit only 8 boys.

The settlement-house groups were escorted to the experimental room at the Massachusetts Institute of Technology by the observer who had administered the sociometric test. The experimental room measured approximately 15 by 25 feet and was furnished only with a long table and chairs at one end for observers. When the sessions were held at summer camps, a room of similar dimensions was used.

On arrival at the experimental room the experimenter briefly repeated that he and the observers were interested in seeing how this group played certain games. The experimenter then divided the group into the two teams which he had assembled from the sociometric data. The teams were distinguished by differently colored T-shirts, each with an identifying number. During each experimental session one team was accorded high status treatment and the other was accorded low status treatment.

The observers, who were seated at a table at one end of the room, were introduced simply as people who were interested in watching games. The subjects paid no particular attention to them and later it appeared that the activity of the observers had been accepted as part of a score-keeping role.

C. The Games

Regardless of the experimental treatment used, the two teams from every group proceeded through the same schedule of games. Each group played a series of three different games, the last being repeated to make four separate game-periods.

The first game played was a kind of relay race known by some as "human croquet." In this game the members of one team stand side by side in a line and each member bends over to form an arch or "wicket." The members of the other team then are formed in a single file and, on a signal from the experimenter, the first member crawls through the wickets and back again, at which time he touches the second member who then crawls through and back, and so on. The goodness of a team's performance depends on how long it takes all of its members to complete this procedure. The experimenter holds a watch in his hand and pretends to observe the time taken; however, he reports to the team only in qualitative, approving terms, such as "That was pretty good," "That was very nearly record time."

The second game was one which is popularly known as "buck-buck" or "Johnny-on-the-pony." In this game the members of one team form a line in a single file. Each then bends forward and grasps the waist of the boy ahead, thus forming a chain. The members of the other team assemble in single file and proceed to leap one by one on the crouching boys. The object of the game from the standpoint of the boys who jump is to cause the other team to collapse, while the latter are merely intent upon sustaining the weight and impact of the jumpers.

The third period consisted of a game in which the members of one team throw bean-bags at holes in a large canvas target. The target, which is 6 feet square and is fixed to a wooden frame, is held upright by members of the non-playing team who also retrieve the bean-bags. Members of the playing team throw four bean-bags apiece. The target has nine holes cut through it; three large ones (which count five points apiece) and six smaller ones (which count ten points apiece). The score for the playing team is the sum of the individual scores of its members.

In the fourth period the bean-bag game of the third period is repeated.

D. Experimental Plan

Three kinds of treatments were employed in the experiment:

1. Unsuccessful group-action treatment. In this treatment the low status team is disfavored by the experimenter throughout the four periods. The low status members are addressed in a matter-of-fact and coolly unsympathetic way, the experimenter does not address them by name but by number. The high status team, on the other hand, is accorded sympathy, encouragement, and warmth.

Moreover, the low status team performs in all instances the less favorable functions during play. At the outset of the first period, the experimenter designates the low status teams as the wickets. When the relay has finished, the experimenter quickly intervenes to request the high status team to start all over again; he states that this first performance was good but that he would like to see them try to do a little better. This is repeated, with numerous encouragements to the high status team on the grounds that they are approaching a record score, until eight minutes is up.

At the conclusion of the first period, the experimenter leaves the room with the statement that he will be back in a few minutes. The subjects are asked to remain. The observers remain. In four minutes the experimenter returns to the room and the second game-period begins. On this occasion the experimenter again selects the low status team for the unfavorable activity. The members of this team are instructed to form a chain to play "buck-buck." After all of the high status members have jumped, the experimenter requests them to repeat the whole thing. In order to maintain the high status team in the favored position throughout the period, it is necessary for the experimenter to disregard the rules usually associated with this game. Hence, even if the low status team manages successfully to bear the weight of the jumpers or if a jumper touches a foot to the floor while astride, the experimenter still states that he wants to see the high status team try the jumping again. He shows no interest in the low status team and repeatedly maintains that he would like to see how well the high status team can do the jumping. Again the experimenter

leaves the room for four minutes after eight minutes of "buck-buck" have been played.

When the third game-period begins, the experimenter again assigns the low status team to the less attractive activity. This time they are given the task of holding up the canvas target. Usually two boys are told to hold each side of the target frame, one is stationed behind the target to retrieve bean bags, and another in front of the target for the same purpose. The high status members take turns at throwing bags at the target. Each time these contestants have played through a complete rotation, the experimenter requests them to try again, approving and urging even greater accomplishment. When eight minutes have elapsed, the experimenter again leaves the room.

During the recess, which lasts six minutes, the experimental variation begins. One of the observers, who has been specially trained for the job calls the members of the low status team together. He encourages them to air their grievances and to devise a strategy for getting better treatment from the experimenter. The observer's manner, through all of this consultation, is sympathetic and then mildly hortatory. He finally structures for the low status team the possibility of a direct group appeal to the experimenter. The low status members are encouraged to take a vote on the desirability of direct group-action and the observer is able to get unanimous assent. The observer also suggests that it would be good to demand a replay of the last game, with the low status team now throwing the bean-bags. Since this game is generally the most attractive, this suggestion is readily accepted. When the vote has been taken, pledging every member of the team to participate in the group-action, the experimenter returns to the room.

The members of the low status team immediately besiege him and demand that they be given a chance to throw the bean-bags. In the present experimental variation the experimenter rejects their petition. He waves the low status team aside and proceeds to the high status team, to whom he says that he would like to see them repeat the last game. To lend plausibility to his persistent focussing on them, he emphasizes that he is interested in seeing them better their earlier performance. The low status team then is required to return to the unattractive task for the fourth period.²

2. Successful group-action treatment. In this treatment the first three game-periods and their two intervening recesses are conducted precisely in the same way as in the unsuccessful group-action treatment. The low status team remains in the unfavorable position throughout the first three game-periods. In this treatment also, the observer organizes

² After the games have been played and the post-session questionnaire has been finished, the low status teams are given an opportunity finally to play the games. Ten or 15 minutes of "buck-buck" and the target game were usually successful in relieving the frustration.

the low status team to take protesting group-action during the third recess. This time, however, when the low team petitions the experimenter, their demands are granted, and during the last game-period the high status teams hold the target and retrieve the bags.

3. Control treatment. In this treatment, the teams are accorded equal fates. They interchange positions by rotation, so that no grievances about differential favor can develop. The same game-periods as in the experimental treatments are maintained. Under this treatment no group action is organized.

E. Observer Assignments

Two observers were assigned to specialized tasks. In order to minimize possible bias they were kept totally unaware of the theory guiding the experiment and of current trends in the results. Circumstances did not permit a measure of reliability of observation.

1. Inter-team communications. Each of the observers worked at a single schedule. One concentrated his attention entirely on inter-team communications. It was his function to record all communications (whether verbal or non-verbal) which originated in one team (whether from the entire team, a sub-group, or an individual) and were addressed to the other team (whether to the entire team, a sub-group, or an individual).

In the pre-test runs of the experiment it became clear that decisions about the criteria for what constitutes a single unit of communication would be easy to make. Verbal communications between teams were uniformly brief, rarely exceeding a single sentence. The subjects were young and the games were active, and there was little time for extended discussion. Hence the single uninterrupted sentence, clause, phrase, or expletive was taken as a unit of communication. In the extremely few instances of communications enduring for more than one sentence, the communication was regarded as a unit unless it included a change in the type of category of information. In the latter event, both categories were recorded.

The following six categories of inter-team communications were used:

Fate-oriented commiseration. This category includes communications in which sympathy about another's unhappy fate is expressed. For example, a player might say to a non-player: "I'm sorry that you aren't getting your turns" or "You'll get your turn later, I hope." Note that commiserative communications of this type refer only to feelings about the valence of the treatment accorded the team.

Topical commiseration. This category includes communications initiated by either team. This type of commiseration is unlike the preceding one in that here the sympathetic reference is to specific acts. For example, a non-player might say to a player: "Too bad you missed

that shot," or a player might say to a non-player, whom he has bowled over: "I didn't mean it, I'm sorry." This category is intended to apply specifically to condolences about another's unsuccessful act or the bad social consequences of an own act.

Description. This category includes all inter-team communications which appear to involve no affect. They are concerned exclusively with neutral matters. In addition to simple descriptive comments, this category includes identifying and locating statements, unemotional interrogations and statements of fact. Examples are: "There is your sweater," "He is taller than I am," and "What time is it?" These communications may originate from either team.

Prescription. This sort of inter-team communication includes all imperative and normative statements. Either team may initiate such a statement. Examples are: "Do it this way," "You shouldn't do that," "Why don't you try this one?" Antagonism may be present, but no threat is explicit in prescriptive remarks.

Playful aggression. This type of communication may be either verbal or non-verbal. The verbal sort includes taunts, hooting, Bronx cheers, derisive comments, and depreciations of the opposing team. Examples: "You're as fat as a tub of lard," "My little sister can throw better than that." Non-verbal acts which fall into this category include nose-thumbing and sticking head through a hole in the bean-bag target in order to make faces and, with thumbs in ears, wiggle fingers. Needless to say, this type of communication may be initiated by either team.

Serious aggression. This category also contains both verbal and non-verbal kinds of communication. Verbally, this category includes strong denunciations, challenges to fight, insults, threats, and non-playful name-calling. Example: "Why you lousy big _____, why don't you watch. . . or I'll. . . ." Non-verbal examples are all instances of physical assault: slapping, kicking, pushing, striking with fist or open hand. This type of communication could emanate from either team.

These six categories can be considered to lie roughly along a scale, from maximum identification with the other team (in fate-oriented commiseration) to maximum antagonism toward the other team (in serious aggression). Hence, by assigning a scale value, from 1 to 6, to each category of communication, a summary index of affect communicated to the other team can be computed for each team for every game-period.

For each single communication the observer records the category, the initiator(s) and the recipient(s). He also indicates the conclusion of each game-period.

2. Second observer. It was the responsibility of the second observer to record three kinds of activities:

Attempts to take group action. This type of action refers to all attempts by a team or a team sub-group to act together in order to obtain

a changed fate for own team or other team. That is, it pertains to actions by the low status members to induce the experimenter, the observers, or the high status team to permit the low status team to move into a more favorable position, and it also pertains to actions by the high status members to induce the experimenter or the observer to grant the low status team improved treatment.

Individual group-centered actions. This type of action has precisely the same goal as the preceding type, and differs only in that here an individual team member is acting in behalf of his own team or of the opposing team. For example, a low status member may make an individual appeal to the experimenter to let his team have its turn in playing a game.

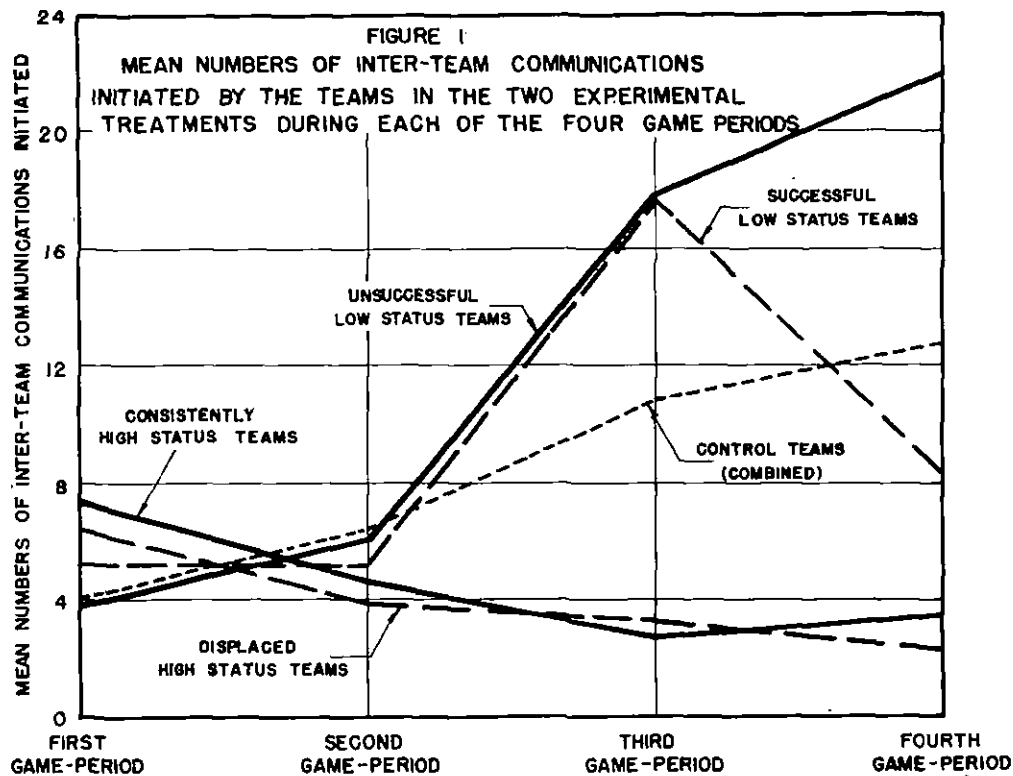
Attempts to leave the group. This type of behavior has three aspects which we recorded. A team member or a sub-group of a team may approach the experimenter (or an observer) and complain that the games are not interesting and that he, or they, wants to leave the room and go home; or an individual or sub-group may request that he, or they, be permitted to join the opposing team. The second aspect of this kind of action pertains to direct attempts by an individual or a sub-group to join in the opposing team's activities. For example, during the third game-period a member of the low status team may move over to the high status team and attempt to throw bean-bags. The third aspect of this category involves out-of-field behavior. An individual (or sub-group) leaves his assigned station and sits down apart from his team; he is apathetic and uninvolved.

RESULTS

Figure 1 shows the mean numbers of inter-team communications initiated by the various types of teams during each of the game-periods. It will be noted that very rapidly the high status teams begin to reduce their inter-team communication and stabilize at around 3 to 3.5 communications for the last two game-periods. The low status teams, on the other hand, as soon as their unfavorable position becomes clear, begin to increase their communications markedly. After unsuccessful group-action the low status teams continue to initiate even more communications, while the low status teams whose group-action is successful greatly reduce their communications.

These data appear to indicate that sheer volume of communication tends to be increased as the group's position becomes more negative and tends to be decreased by more positive fate.

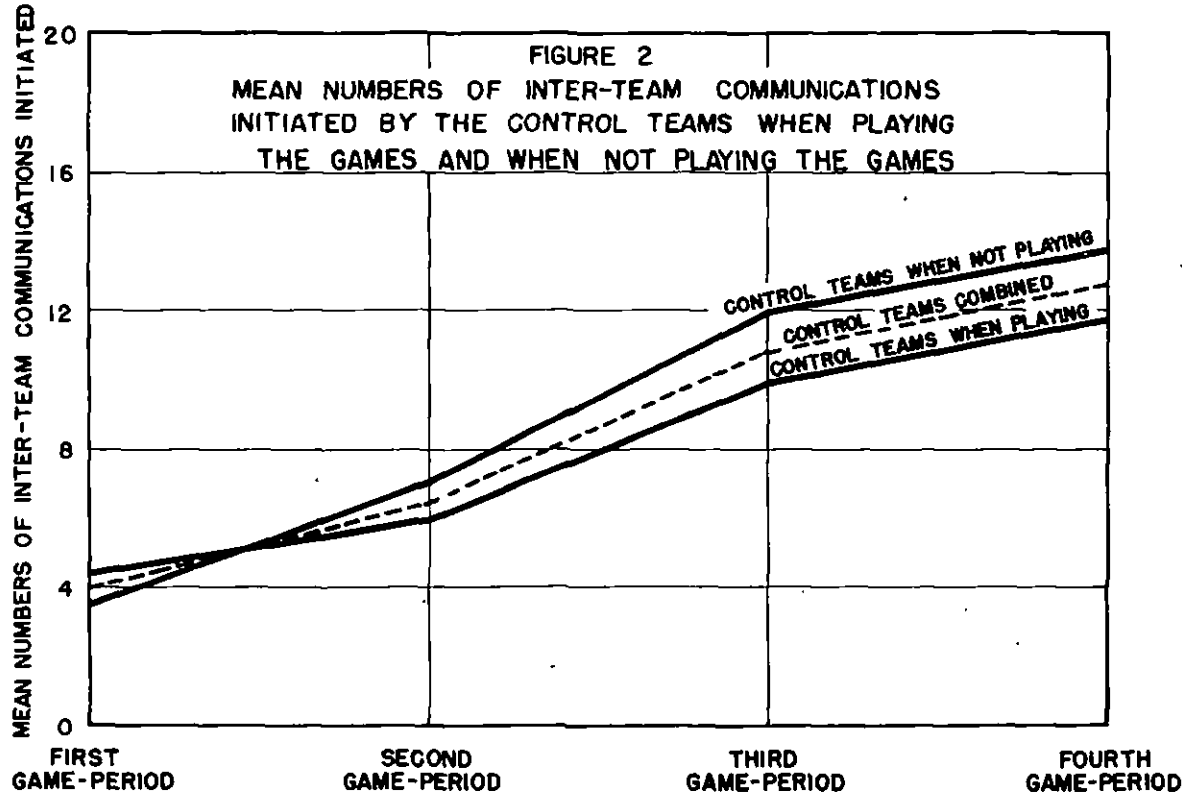
From Figure 1 alone, however, it would be possible to make an alternative interpretation. The curve for the combined control teams lies about midway between those for the unsuccessful low status teams and for the consistently high status teams. This suggests that, instead of valence of fate, doing the active playing in contrast to having merely to assist in the games may determine the amount of communication



initiated. If this were true we would expect that when the numbers of communications for control teams, for whom there was no difference in the valence of fate accorded, were separated into those initiated while a team was in a playing position and those initiated while a team was merely standing by and assisting, curves similar to those for the consistently high status teams and for the unsuccessful low status teams would be obtained. Figure 2 shows this not to be so. The impetus given to inter-team communication by the mere physical factor of being or not being in the playing position appears to account for very little of the difference between the curves for teams consistently accorded good fate and teams consistently accorded bad fate.

In passing, it may be worthwhile to speculate briefly about the circumstances that give rise to different strengths of force to communicate in these groups. The reduced communication of the high status teams appears to follow mainly from their perception of the growing hostility of their ill-treated opponents. Uneasy and embarrassed but at the same time not at all unwilling to continue to receive the advantages of belonging to the high status team, their response is to avoid the low status teams—to provoke as little overt aggression as possible. In the low status teams the constantly increasing inter-team communication appears to come from a growing feeling that they are being excluded from all of the worthwhile activities. By communication with the high status teams it is possible that a kind of substitute locomotion into the more valent activity regions is attempted.³ Furthermore, where there is a strong force on a group to locomote upward, the hypothesis can be advanced that within certain limits the less likely it appears that upward locomotion is possible, the more the upward communication will take on the character of substitute locomotion, or fantasy-like goal-achievement. From this hypothesis we would expect two consequences from the group's perception that upward locomotion is decreasingly probable: a greater volume of communication and in general less aggressively toned communication. Reference to the data from the third and fourth game-periods for the unsuccessful low status teams does in fact show an increase in the volume of communication and a decrease in the aggressiveness of the content of communication during the fourth period, after the experience of unsuccessful group-action.

³I am indebted to Dr. Leon Festinger for this suggestion about the possibility of substitute locomotion as giving rise to communication toward occupants of more valent regions.



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COMMUNICATION IN EXPERIMENTALLY CREATED HIERARCHIES

by

Harold H. Kelley

At present there exists extremely little scientific information about the laws governing interpersonal communication within groups organized as status hierarchies. In fact, only recently has there been accumulating any knowledge obtained under controlled conditions about the factors determining initiation, content, and direction of communication within groups of equal status persons. The present study was planned as an extension of one rather intensive program of research in social communication and influence, the purpose being to explore these phenomena in experimental groups differentiated into high and low status subgroups.¹

The importance of research on this problem lies primarily in the numerical predominance in our culture of hierarchic groups over undifferentiated ones. Certainly, to be of much practical predictive value, our generalizations about the communication process must extend to groups which are differentiated on a wide variety of bases. Of theoretical significance is the fact that in dealing with status groups we are forced to integrate a number of basic group concepts, specifically, power, valence of position, group structure, and locomotion within the group.

Although the present work is to be considered as exploratory, two prior investigations produced data from which tentative hypotheses about communication within hierarchies were formulated. In the first of these, Thibaut established high and low status levels by favoring the highs and discriminating against the lows (5). He studied the effects of this treatment upon the interlevel sociometric choices and interlevel communication. We will discuss some of his cohesiveness findings later and compare them with our own. In terms of communication, as this differential treatment proceeded, the lows increased in total volume of communication toward the other level and decreased in the proportion

¹ In our use of the concept "status", we will not attempt to depart from or purify the present meanings of it. We use it to refer to the combined valence, power, and prestige properties of a pattern of a group. A high status position is one which affords to the occupant a pattern of activities, roles, privileges, duties, and powers which, by comparison with similar patterns for other positions, are generally deemed to be desirable and satisfying.

which was aggressively toned. One explanation advanced for this trend was in terms of communication serving as a substitute for upward locomotion. As the possibility of actually locomoting upward decreases, low status persons more and more resort to communication to high level persons as a substitute means of satisfying their locomotion desires.

The second relevant study (1) involved an analysis of the direction of transmission of planted rumors within an existing hierarchic organization. The general findings of this investigation, although extremely tentative, pointed toward the existence of unusual forces to communicate upward, these again being thought to indicate the substitute value of communication for locomotion. There were also indications of strong restraining forces acting against free communication of specific kinds of content such as, for example, information critical of the upper levels.

The general kind of hypothesis indicated by these studies formed the broad theoretical focus for the present study. Our purpose was to determine some of the driving and restraining forces which act upon various communication content in a group by virtue of that group's being structured as a status hierarchy.

1. Description of the Experiment

Tests of the hypotheses suggested above require analyzing the communication output of group members in high and low status positions, with and without the possibilities of locomotion between levels. In the present experiment, five combinations of status and locomotion possibilities were used: (1) high status, nonmobile (HNM); (2) high status, downward mobility possible (HM); (3) low status, nonmobile (LNM); (4) low status, upward mobility possible (LM); and (5) no status differential (control), nonmobile (CNM). These five treatments obviously will not permit us to answer all possible questions about status differentials but they seem to be most appropriate for an exploration in this area.

In devising the experimental setting the following requirements were felt to be desirable and were met insofar as possible:

(a) The experimental task should be the same for all subjects regardless of position in the group. In other words, differences among experimental treatments should not in any way be attributable to different requirements of the task.

(b) An adequate record of all communication taking place must be procurable.

(c) Restraints against communicating content extraneous to the task should be reduced, this being essential because of our hypotheses about such categories of content.

(1) Subjects and Experimental Procedure. All subjects were volunteers from second and third year college courses in psychology, sociology, and education. The five treatments included the following numbers of men and women: HNM, 13 men and 10 women; HM, 13 men and 9 women; LNM, 18 men and 7 women; LM, 18 men and 11 women; and CNM, 13 men and 6 women.²

At each experimental session eight persons, all of the same sex and none having more than passing acquaintance with each other, met at an appointed time. They were told that the experiment was designed to determine how well a group of people can perform a complicated task when the possibilities for communication among them are limited to written messages. Their group was to be divided into equal subgroups, working in separate rooms. The first of these subgroups would be given a specific pattern of rectangles. They would write messages to the second subgroup in the adjoining room so as to enable the second group to reproduce the pattern by placing bricks in proper position on the floor. All communication between and within subgroups was restricted to written messages, each addressed to a single specific person (designated by letters and numbers) and identified as to author. All written messages were to be delivered first to a connecting hallway where the time would be recorded before delivery to the addressee. The subjects were urged to write messages about anything they wished, their task being simply to reproduce quickly and accurately in one room the pattern given in the other room.

After receiving these initial instructions, the two subgroups went to their respective rooms and received further instructions calculated to produce the variations of status and mobility. These we shall describe presently. Unknown to them, both subgroups were given the same task of laying bricks in response to messages apparently coming from the other room. These messages as well as messages supposedly coming from the same room (i.e. all communications received by each subject) actually comprised a standard set of stimulus messages prepared before the experiment. Each person received "from the other room" eight messages containing instructions for placing bricks and six with irrelevant content (inquiring about their task, wondering about the real purpose of the experiment, suggesting getting better acquainted, expressing dissatisfaction with the job, and criticizing the addressee). "From the same room" each person received six irrelevant messages (suggesting getting acquainted, wondering about the other job, and expressing discontent with their own job, the other group's efforts, and the experiment in general). Each of the four persons in a given room received a different set of instructions for placing bricks but all received the same irrelevant messages. The timing of messages was staggered over several minutes to avoid the

² Because no consistent or meaningful sex differences appeared, we will only present data for men and women combined.

suspicion that might be aroused if all four received the same message at once. In general, however, all subjects received approximately the same pattern of communications and, from one experimental session to another, identical message content and time and order of introduction were used. Because of this uniformity of treatment and because there was very little interdependence among the members of a given subgroup in their work (their tasks were restricted to different sections of the room), we may treat our subjects as independent individuals and as the units in our statistical analysis.

All messages written by the subjects were intercepted and preserved. Very few subjects became suspicious of the experimental procedure. Those in whom we detected suspicion were eliminated from the analysis.

We should point out how, through these experimental manipulations, we achieved the experimental requirements outlined earlier:

(a) All our subjects were doing the same task, that of following instructions in placing bricks. We had merely to produce differences among them in their perceptions of the status of their position in comparison to the status of the group of instruction-givers which was psychologically present in the next room.

(b) Because all communication taking place was written, we had, in effect, a complete stenographic record of it. How much the fact of having to write acted to restrict or distort communication we do not know. The experimental task was easy enough for considerable time to be available for writing messages. The volume of communications resulting from this procedure seems reasonably adequate (approximately 12 messages per person for the 34 minute period devoted to the task with about 16 words per message).

(c) The inclusion of irrelevant messages in the standard stimulus set was intended to stimulate the writing of content unrelated to the work. Our content analysis seems to indicate its success since well over half the messages contained some irrelevant material.

(2) Production of Status and Mobility Variations. Just before the task period began, the following instructions were given to the subgroups in order to produce differential perceptions of the status of their position relative to the group in the other room and of the likelihood of locomoting into the other group. In all cases the status instructions were given first and were followed by the mobility instructions.

High Status: "Let me summarize your job. Your job is to follow their messages as well as possible in placing the bricks. You have the best job and the most important job in the group. You have the difficult task of translating their written messages into an actual pattern of bricks here in this room. This translation requires a great deal of insight, comprehension, and accuracy, and even creativity. Some of their directions are bound to be con-

fused and you'll have to decide which is the most accurate interpretation of what they mean. The success of the group will depend largely upon your decisions. They have the poorer job, the more menial and routine one. And you have the difficult problem of interpreting their messages so as to reproduce as accurately as possible the master diagram."

Low Status: "Let me summarize your job. Your job is merely to follow their messages as well as possible in placing the bricks. They have the best job and the most important job in the group. They have the difficult task of translating the master diagram into words. This translation requires a great deal of ingenuity and creativity. There are many ways they can do it and they have to decide which is best. The success of the group will depend largely on their decision. Your job is a poorer job—a more menial and routine one. You are simply to follow their messages so as to reproduce as accurately as possible the master diagram."

Control—no status differentiation: "Let me summarize your job. Your job is to follow their messages as well as possible in placing the bricks. Obviously the two jobs, that of writing instructions from the given pattern and that of placing the bricks, are equally important to the success of the group. Both you people here and the four in the other room have to do your jobs well and accurately if the group is to do well in this task."

Mobility—locomotion to other group is possible: (In parentheses are the alternatives used in the high and low status variations, respectively.) "I'm sure you'd find their job to be (less) (more) interesting than your own (but) (and) we may move some of you to the other job during the course of the experiment. We haven't decided yet how many people should be in each room for the most efficiency. So we may have to move some of you to the (poorer) (better) job. The experimenter may come in and move some of you (down) (up) to the (poorer) (better) job in the other room at any time during the experiment."

Non-mobility—locomotion to other group is impossible: "I'm sure (they'd) (you'd) find (your) (their) job to be much more interesting than (their) (your) own and we'd like to be able to promote some of (them) (you) to (your) (their) job. But in order for the experiment to work best, we want to let (you) (them) stay on it long enough to get used to it and to be able to do (your) (their) best on it. So we'll have to keep (them) (you) on the poorer job throughout the experiment and let (you) (them) stay on the better one."

Special non-mobility instructions for the control group re-emphasized the equality of the two jobs and ruled out the possibility that

there would be any shifting of subjects from one subgroup to the other.

(3) Kinds of data. We will describe the content categories into which the written communications were analyzed as we present the data. In coding the messages the first consideration was to produce categories that would have bearing on that kind of hypotheses stated earlier. Beyond this, our main concern was to describe the major dimensions of the content whether or not we had ideas about how they would be affected by the experimental variations.

After the period allotted to the task, on the pretext that we were going to do another short task of the same kind, the subjects were given the opportunity to decide whether they wanted to continue the job of placing bricks or to change to the job of giving instructions. On the further excuse that two persons in the experimental group had to be replaced, they were asked whether or not they wanted to be eliminated themselves and what other two persons should be eliminated.

Finally, it being decided that the second task shouldn't be attempted after all, they were asked to fill out a sociometric questionnaire on personal preference and contribution to the group's productivity. This was followed by a group interview consisting of three open-end questions which, with increasing degree of focus, attempted to ascertain their perceptions of the relationships, status or otherwise, between the two subgroups.

The experimental session was concluded by assembling the subjects, exposing all the details of the experiment, explaining the general hypotheses, describing the tentative findings from pilot studies, answering their questions, and requesting that they maintain secrecy about the experiment until other groups had been experimented upon.

At some point after the task was completed, a diagram was made of each subject's pattern of bricks. By comparing this with the pattern produced if the messages were interpreted accurately, it was possible to determine how many errors each person made in his work.

2. Results

(1) Evidence on the effectiveness of the experimental manipulations. We may first examine our data to determine whether or not the various experimental instructions produced the intended effects. No evidence was obtained with regard to the subjects' expectations about mobility. Several kinds of data are relevant to their perceptions of the status of their jobs. In Table I are presented the jobs they chose at the end of the experiment on the pretext of having to do a "second" task. Of those making a choice, the highs more often than the lows select the job they've had while the lows more often choose the other task. This

difference is significant at the 5% level of confidence.³ The control subjects prefer the other job to about the same extent as do the lows. Slightly more lows than highs wish to have themselves eliminated from the "second" task but this difference is not significant.

TABLE I
CHOICE OF JOB FOR "SECOND" TASK

Experimental Variation	Per Cent of Those Making a Choice*		No Choice	Per Cent Asking To Be Eliminated Themselves
	This Job	Other Job		
HNM	59%	41%	04%	09%
HM	67%	33%	05%	14%
LNМ	32%	68%	12%	20%
LM	44%	56%	07%	14%
CNM	41%	59%	11%	11%

*Highs versus lows: $P < .05$

In Table II are summarized the responses to the three open-end questions given at the end of the session and designed to determine perceptions of the status difference. The set of responses for each subject was coded in terms of whether he felt his job was lower or equivalent to that of the other group. Replies of having a higher job never occurred. It is evident that the lows reply more often than the highs that their job is the lower one, this difference being significant at the 1% level. Although the controls resemble the lows in this respect, there are qualitative differences between the two sets of replies. Whereas the lows describe their job as "low" and one where they have to take orders, they tend to defend its importance and rarely say that it is too easy. The controls simply see their job as relatively unimportant and as dull and too simple. This seems to indicate that the valence of the task is negative for the controls while it is primarily the position that is negative for the lows.

³ It was not possible to test the significance of the various differences reported here by a single standard statistical technique. At various points in the data special conditions such as small N's, extreme splits, or skewed distributions have made it necessary to use special methods. In selecting the most appropriate one we have carefully considered the properties of our data and the assumptions involved in the methods. In addition to the standard techniques involving F, t, and chi-square, we have used the exact test for 2 x 2 tables (4), the F test for exponential distributions (2), and the d test for testing the significance of means without reference to their frequency distribution functions (3).

TABLE II
RESPONSES TO QUESTIONS AT END OF EXPERIMENT
INDICATING AWARENESS OF STATUS DIFFERENCE
BETWEEN OWN JOB AND OTHER JOB

Experimental Variation	"Our job is lower**	"The two are equal"	Not Codable in Terms of Status
HNM	30%	52%	17%
HM	41%	41%	18%
LNМ	64%	32%	04%
LM	62%	31%	07%
CNM	68%	26%	05%

*High versus lows: $P < .01$

The final data relevant to the efficacy of the experimental instructions is found in the content of the messages. The primary meaning of high versus low status in this experiment is that of high positive valence of the position as compared with low positive or even negative valence. To the extent that the instructions had the desired effect, we would expect the highs to express more satisfaction with their job and the lows to make more critical comments about theirs. In Table III are presented the data bearing out this expectation. The highs make more positive comments but not significantly more. The lows make more negative comments about their job and this difference is significant at beyond the 1% level. The controls seem to be intermediate between the highs and lows with respect both to positive and negative comments.

TABLE III
EXPRESSIONS OF ATTITUDE TOWARD OWN JOB IN THE MESSAGES

Experimental Variation	At Least One Positive Comment	At Least One Negative Comment*	Average No. of Messages Containing Negative References**
HNM	35%	39%	.43
HM	27%	23%	.27
LNМ	12%	60%	1.24
LM	24%	66%	1.00
CNM	21%	53%	.79

*Highs versus lows: $P < .01$.

**Highs versus lows: $P < .01$.

Although the effects demonstrated here are certainly not as strong as we would like, these data consistently indicate that the experimental instructions created differences in the desired direction between the high and low variations in perceptions of the job and satisfaction with it. For the low status group, the possibility of upward mobility seems to have reduced the unattractiveness of the position, the LM's appearing to be somewhat less dissatisfied with their job than the LNM's. Although the comparisons are less consistent, there is some indication that the possibility of downward mobility makes the high status position less attractive. To some extent, then, we can order the four variations in terms of overall valence from LNM with the highest negative valence, through LM and HM, to HNM with the highest positive valence. We will find this order to be helpful in interpreting our data in a number of instances. The CNM variation fits into the lower end of this order, but, as we have already pointed out, probably differs qualitatively from the lows.

(2) The communication of irrelevant content. Over half of the messages sent to the other room and about three-fourths sent to the same room were coded as containing some material irrelevant to the group task. The frequencies of sending irrelevant material both to one's own group and to the other group follow very closely the overall valence order of the jobs as described in the preceding section. The LNM's send the most messages with irrelevant content, the LM's next most, and the HNM's the fewest. However, none of the differences between variations are significant for the total data.

We might assume that the trends in our total data are weak because of the low intensity of effects produced by our experimental instructions. On this assumption we have attempted to intensify the experimental effects by selecting on the basis of perceived status those subjects upon whom the experimental instructions had maximal effect. The result is merely to clarify trends already existing in our total data. Eliminating highs who report that their job was lower, including only lows who describe theirs as lower, and eliminating four additional cases who indicated in the interview a special awareness of our attempt to give them a "set" by the experimental instructions, we are left with 15 HNM's, 13 HM's, 15 LNM's, and 18 LM's. Because we have a total of only 19 controls, we have not attempted to select among them.

In Table IV are presented the data on transmission of irrelevant content for these selected samples. It may be seen that the lows are sending more irrelevant messages than the highs and that mobility seems to interact with status to produce an order that consistently agrees with the overall valence of the position. If we assume that irrelevant content is written as an escape from the real task and that the desire to leave the task increases as the position becomes less positively valent, we can understand why these data fit the valence order.

TABLE IV
AVERAGE NUMBER OF MESSAGES HAVING
IRRELEVANT CONTENT*

Experimental Variation	Direction of Message		Total**
	Other Room	Same Room	
HNM	3.33	2.67	6.00
HM	3.69	2.85	6.54
LNМ	5.40	3.93	9.33
LM	4.11	3.05	7.16
CNM	4.05	3.74	7.79

*For experimental groups selected on the basis of perception of status.

**Analysis of variance for highs and lows:

	Degrees of Freedom	Variance
Status	1	56.47
Mobility	1	8.38
Status x Mobility	1	28.57
Error	57	13.06

$F = \text{Status/Error} \quad 4.32, P < .05.$

$F = S \times M/\text{Error} \quad 2.19, P < .20.$

One task-irrelevant content in which we had a special interest was conjectures about the nature of the job in the other room. This type of communication we felt could provide a substitute for desired locomotion into the other group and would occur most frequently for those having low status and little possibility for locomotion. This hypothesis appears to be sound. Once more, although the trend for the total data is not statistically significant, intensification of the experimental effects by selection on the basis of perceived status serves to emphasize that trend and to support the hypothesis. Sixty-seven percent of the selected lows communicate at least one conjecture about the other job as compared with 46% of the selected highs, this difference being significant at the 11% level. In terms of average number of conjectures, the selected lows send 1.06 while the selected highs send .68, this difference being significant at the 5% level. There is no difference between the mobile and nonmobile lows, presumably because the possibility of locomotion was fairly remote for both groups.

Further support for our general hypothesis concerning the occurrence of conjectures about the other job is obtained by dichotomizing our

samples on the basis of choosing the same job versus the other job at the end of the experimental sessions (cf. data in Table I). Assuming this breakdown to distinguish between those who are highly desirous of locomoting into the other job as compared with those who care little, we should expect to find more communication as a substitute for locomotion among the former cases. This proves to be the case as indicated in Table V. For the lows and CNM's, those who choose the other job communicate conjectures about it much more often than do those who are willing to remain in their present position. The same trends appear for the high status variations but are much weaker. This probably means that choosing the other job reflects only rather weak forces to locomote in the case of the highs. These findings generally seem to warrant the conclusion that communication content in the form of a substitute for actual locomotion will occur for persons in low and undesirable positions who have strong forces to locomote and for whom the possibilities for real locomotion are absent or slight. Whether or not such content would appear among the lows if the possibility of moving upward were kept real and vivid, the present data do not tell us.

TABLE V
CONJECTURES ABOUT OTHER JOB ANALYZED
ACCORDING TO JOB CHOSEN FOR "SECOND" TASK

Experimental Variation	Choice of Job for "Second" Task	N	Per Cent Making One or More Conjectures	Average No Conjectures
HNM	This	13	54%	.77
	Other	9	56%	.89
HM	This	14	71%	.93
	Other	7	57%	1.14
LNM	This	7	43%	.43**
	Other	15	73%	1.07
LM	This	12	25%*	.50*
	Other	15	80%	1.47
CNM	This	7	57%	.57**
	Other	10	70%	1.50

*"This" versus "Other" : $P < .02$

**"This" versus "Other" : $P < .10$

(3) The communication of criticism and confusion about one's own job.

(a) Criticism of own job: We have already seen that the lows tend to communicate negative attitudes about their own job more frequently than the highs. We find a further effect of status when we analyze the direction in which this content is communicated. In Table VI, whereas there is no difference between the status groups in the per cent communicating negative comments about their own job to their own level, significantly fewer of the highs than of the lows send such messages to the other level. This suggests that there are restraining forces acting on the highs against expressing criticism of their own job to persons at lower levels. Thus, for those highs who are enough dissatisfied with their job to communicate it, the tendency would be to transmit it to persons at their own level. For a similar group of lows the tendency would be, if anything, to transmit it to the upper level. This probably indicates a general tendency on the part of the highs to restrict to their own subgroup any communication content which would tend to reduce the valence of the high position for the low group or in any other way destroy the status of the high position. This implies that the status of one's own position depends not only on how he and his peers evaluate it but also on how people at other levels view it.

TABLE VI

PER CENT EXPRESSING NEGATIVE ATTITUDE ABOUT OWN
JOB TO OTHER LEVEL AS COMPARED WITH SAME LEVEL

Experimental Variation	Other Level*	Same Level**
HNM	17%	22%
HM	09%	14%
LNLM	44%	32%
LM	55%	21%
CNM	37%	26%

*Highs versus lows : $P < .01$

**Highs versus lows : $.50 > P > .30$

(b) Confusion on the job: It was found in coding the messages that each person's total content seemed to reflect his general ability to keep up with the influx of directions. Accordingly each subject was categorized as having "much confusion," "normal confusion," or "no confusion" on the basis of the degree of bewilderment expressed in his messages. This categorization proves to have virtually no correlation with our objective performance measure, number of errors made in

placing the bricks. In Table VII, comparing the highs and lows on confusion, the lows express more, this difference being significant at approximately the 8% level of confidence. Although the lows also tended to make more error, the difference does not approach significance. Nevertheless, in order to demonstrate that the difference in expression of confusion is not due to the slightly superior work of the highs, Table VII also contains the frequencies of subjects falling in the three confusion categories for each error score. It can be seen, that, with one exception (error score = 1), the lows express more confusion while objectively doing the same quality of work. This phenomenon is rather difficult to interpret because the controls fall between the highs and lows with respect both to errors and expressed confusion. The alternatives seem to be: (1) the lows tend to express more confusion simply as a means of showing their distaste for the job, or (2) the highs restrain themselves from making public the fact that they are having difficulty with the task, which fact would tend to cast them in the light of being incapable of handling the responsibilities of the high status position. The nature of the confused messages which enter into this categorization makes the first alternative rather difficult to accept. Further, the small tendency for the HM's to express less confusion than the HNM's lends support to the second explanation since the former group, in order to prevent their demotion, would be more likely to prevent circulation of the fact of their confusion on the task. Although the meaning of these data is certainly open to doubt, we find it most reasonable to conclude that they indicate another instance of restraining forces operating upon the communication processes of high status persons.

(4) The communication of criticism of other persons. It was possible to code a considerable number of messages as being implicitly or explicitly critical of the person to whom they were addressed. The average number of messages containing such content is presented in Table VIII for each of the five experimental groups. In this table, the outstanding trend is that the CNM's communicate more criticism of persons in the other room than do the subjects in any of the variations where a status differentiation exists. This result leads one to suspect that the mere introduction of a status difference between the subgroups produces restraints against criticizing persons in the other subgroup.

In Table IX are presented the data summarizing only explicit criticisms of persons in the other room. These data support our conclusion from Table VIII in showing that the controls communicate more criticism about the other group than either the highs or lows. It also appears that the restraints introduced by a hierarchy not only operate against criticizing other level people "to their face" but also discourages being critical of them in communications to one's own level.

TABLE VII

EXPRESSION OF CONFUSION ABOUT THE WORK FOR HIGHS
VERSUS LOWS, ANALYZED ACCORDING TO OBJECTIVE
QUALITY OF PERFORMANCE

Experimental Variation	Confusion Category	<u>Error Score</u>					Total Frequency in Each Confusion Category*	Per Cent in Each Confusion Category
		0	1	2	3	4+		
Higs	None	8	2	5	4	2	21	47%
	Normal	2	5	7	2	2	18	40
	Much	0	2	0	1	3	6	13
							<u>45</u>	<u>100%</u>
Lows	None	4	4	0	4	2	14	26%
	Normal	2	7	5	4	7	25	46
	Much	2	1	4	3	5	15	28
							<u>54</u>	<u>100%</u>

*Higs versus lows: P equals approx. .08.

TABLE VIII

AVERAGE NUMBER OF MESSAGES HAVING CONTENT
CRITICAL OF THE PERSON TO WHOM DIRECTED

Experimental Variation	<u>Direction of Message</u>	
	Other Room	Same Room
HNM	1.56	.43
HM	1.91	.32
LNLM	1.76	.56
LM	1.83	.41
CNM	2.37	.47

TABLE IX

COMMUNICATION OF EXPLICIT CRITICISM OF PERSONS
AT OTHER LEVEL

Experimental Variation	Per Cent Communicating at Least One Critical Message	<u>Average Number</u>	
		Other Room	Same Room
HNM	39%	.52	.13
HM	59%	.64	.36
LNLM	68%	.52	.52
LM	48%	.41	.28
CNM	78%*	.79**	.84***

*CNM vs. others: $P < .05$

**CNM vs. others: $P = \text{approx. } .07$.

***CNM vs. others: $P < .01$

A comparison of the last two columns in Table IX shows that the last statement does not hold equally for the lows and highs. A much larger proportion of the lows' criticism of persons at the other level is directed to their own level. Of the 22 highs who communicated any criticism of persons in the other room none sent this criticism exclusively to their own room. Of 31 lows who criticized persons at the other level nine addressed this criticism exclusively to their own subgroup. This difference is significant at the 1% level of confidence. The CNM's resemble the lows in this respect, i.e. they also tend, relatively speaking, to restrict criticism of the other level to their own room. Although in Table IX the HNM's appear to communicate less total volume of criticism of the other room than do the HM's (perhaps the HNM's have less motivation to criticize the lows), the data we have just cited indicate quite clearly that the both high variations transmit a larger proportion of whatever criticism they do feel directly to the targets of the criticism. This would indicate that the highs feel greater freedom openly to criticize members of the other stratum than do the lows or controls. It is quite possible that the high status position extends the power that occupants feel themselves to possess over certain areas of interpersonal relations within the group and that overt and direct personal criticism is one of these areas.

(5) The effects of status and mobility on total group cohesiveness. We have both choice and communication data bearing upon the problem of the effects of our experimental variables upon personal friendships and attractions between members of the two subgroups. In Table X are presented the data from the question given at the end of the session, "Which person in the total group did you like best during the experiment?" Counting the choices in terms of whether they consisted of a person in the same subgroup or the other one and determining the frequencies that would occur if the choices were made at random, the tendency in the absence of status differentiation (i.e. for the CNM's) is to overchoose persons in the other room. This tendency is to be expected since the standard stimulus messages were constructed so that all subjects received the friendliest and most helpful messages from one person in the other room. The HNM's also overchoose in this direction. By comparison, the HM's underchoose members of the other subgroup and there is some tendency for the LNM's to do likewise. Thus, there seems to be some tendency for the HM's and LNM's to disregard or shun the other level.

In Table XI are presented the selections of persons to eliminate from the group, these having been made at the end of the experiment on the pretext of doing a second task. Here again the HM's and LNM's, as compared with the CNM's and HNM's, tend more often to reject persons at the other level by selecting them for elimination from the group.

TABLE X
CHOICES OF WHO THEY LIKED BEST IN THE TOTAL
EXPERIMENTAL GROUP

Experimental Variation		Obtained Frequency	Theoretical Frequency*	Amount of Overchoice in Other Group ($f_o - f_t$)
HNM	Other group	20	12.9	7.1
	Own group	3	10.1	
HM	Other group	16	13.3	2.7
	Own group	6	8.7	
LNM	Other group	19	14.9	4.1
	Own group	6	10.1	
LM	Other group	22	17.0	5.0
	Own group	7	12.0	
CNM	Other group	17	11.6	5.4
	Own group	2	7.4	

*These theoretical frequencies indicate the frequency of choice in a given direction that would be expected if the choices were made purely at random. Their computation takes account of the number of persons in the two subgroups at each experimental session. No similar correction has been necessary for our communication data because within the range of variation, the number of persons present made no difference in pattern of communication.

The findings from the choice data are supported by several kinds of communication data. In terms of overall volume of communication, undifferentiated as to content, the HM's and LNM's as compared with the other variations, send a smaller per cent of their messages to the other level and the messages they do send there tend to be shorter while those of the other variations tend to be longer. Neither of these differences are significant but the fact that they independently follow the same pattern lends considerable support to our general finding that the HM's and LNM's reject the other level.

More conclusive evidence appears in an analysis of specific types of communication content. In Table IX, we have already summarized the per cent of each experimental sample that expressed explicit

TABLE XI

CHOICES OF PERSONS TO REPLACE IN EXPERIMENT*

Experimental Variation	Distribution of Subjects' Two Choices	Obtained Frequency	Theoretical Frequency**	Amount of Overchoice in Category ($f_o - f_t$)
HNM	Other group only	6	5.5	0.5
	Both groups	10	11.6	-1.6
	Own group only	4	2.9	1.1
HM	Other group only	9	7.1	1.9
	Both groups	11	12.4	-1.4
	Own group only	2	2.5	-0.5
LNM	Other group only	10	6.4	3.6
	Both groups	10	11.3	-1.3
	Own group only	0	2.3	-2.3
LM	Other group only	8	7.6	0.4
	Both groups	15	14.3	0.7
	Own group only	2	3.1	-1.1
CNM	Other group only	5	5.6	-0.6
	Both groups	9	9.4	0.4
	Own group only	3	2.0	1.0

*This table includes only subjects giving two choices as asked for in the instructions.

**See footnote, Table X.

criticism of persons at the other level. In this table, the HM and LNM's are higher than the other hierarchical variations (the difference being significant at the 6% level) though lower than the controls. The final relevant data are presented in Table XII. Here are summarized communications which would be promotive of better inter-personal relations within the total group. This content, which we have termed "cohesiveness-building", includes overtures to friendship, encouragement and praise, and friendly, personal content. The HM's and LNM's are clearly sending less of this type of content to the other level, their difference from the other three variations being significant at the 1% level.

TABLE XII
AVERAGE NUMBER OF MESSAGES HAVING COHESIVENESS-
BUILDING CONTENT

Experimental Variation	Direction of Message	
	Other Room	Same Room
HNM	1.43	.78
HM	.82	.45
LNМ	.72	.64
LM	1.31	.45
CNM	1.63	.63

We find quite consistently then, that the high-mobile and low-nonmobile variations are the ones most destructive of intergroup cohesiveness. We probably need to appeal to different explanations for this effect in the case of the two variations. It seems likely that the high-mobiles becomes hostile toward the lows because the lows represent a threat to their occupancy of the high status position since they would presumably be replaced by a person from the low group. The low-nonmobiles can be expected to be hostile toward persons who occupy the position which they themselves desire but cannot enter. The low-mobiles seemed to be intermediate in amount of hostility toward the other level, presumably being less hostile than the LNМ's because of the future possibility that they would be sharing the high position with those presently located there. The CNM's would be expected to have little instigation to interpersonal hostility and would overchoose the other level simply because of the messages received from there. In the case of the HNM's, they can afford to like a lower level person since he is in no way a threat to their high position.

In summary, then, the status variations which are most disruptive of total group cohesiveness are high status combined with the possibility of demotion and low status combined with the impossibility of promotion. The provision of status security for the highs or the addition of the possibility of moving upward in the case of the lows leads to maintenance of intergroup friendliness.

This finding may provide an explanation for some of the results from Thibaut's experiment. Within his high and low status teams, he distinguished between members who were most central (most chosen by the total group) and those who were most peripheral (least chosen). We might assume that centrality means fixity or stability in the present status position and, in contrast, that peripherality makes the present status position more tentative. Then, from our conclusions above, we would expect his central lows and peripheral highs to develop the

greatest rejection of the group at the other level just as our stable lows and unstable highs did. Indeed, this proves to be the case, the effect being marked for his variation where the lows were not allowed to locomote into the high status position. This would appear to warrant broadening our conclusion to the more general statement that high, unstable status and low, stable status are the conditions most disruptive of total group cohesiveness.

3. Summary of Findings

The following conclusions are indicated by the experimental data:

(1) The more unpleasant is a position in a hierarchy, the stronger will be the forces to communicate task-irrelevant content, this holding true whether the communication is directed to one's own level or to the other level. Irrelevant content is postulated to serve the function of permitting the occupant of an undesirable position to escape from it. Low-nonmobile status is clearly more unpleasant than high-nonmobile status. The addition of upward mobility to low status seems to increase the valence (or decrease the unattractiveness) of the low position while the addition of downward mobility to high status decreases the valence of the high position.

(2) Further evidence was found supporting the hypothesis that communication functioning as a substitute for real upward locomotion will occur for low status persons who have little or no possibility of consummating such an action. This was found to hold true only for low status persons who exhibited some desire to move upward.

(3) Restraining forces against criticizing their own job to the lower level and against expressing confusion with the task were found to be acting upon the high status groups. We have postulated a general tendency to restrict the communication of content which would tend to lower the status of one's position in the eyes of others or which would make oneself appear incompetent in the position.

(4) The existence of an hierarchy produces restraining forces against communicating criticisms of persons at the other level. High status seems to give the occupants greater freedom to express whatever criticism they feel of the other level directly to the criticized persons rather than to one's own level.

(5) The low-nonmobile and high-mobile conditions were definitely more detrimental to total group cohesiveness than the other status-mobility variations. We have explained this in terms of hostility that follows upon perceiving persons at the other level as a threat to one's own position or as occupants of a coveted but unattainable position.

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A METHOD OF STUDYING RUMOR TRANSMISSION

by

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Interest in the rumor process has mainly centered upon the content of rumors (2,5), distortions in rumors (1) and how widely circulated they are (2,3). Fantastically false rumors easily attract attention and are frequently taken as dramatic illustrations of the more general process. There has been little attempt to study the details of the transmission of rumors or information except with respect to distortions which occur.

There are a number of questions concerning the exact details of such social transmission processes which are important to answer for an adequate understanding of the process. These questions can be summarized as: "What are the determinants of who communicates what to whom?" In order to be able to answer specific parts of this general question a methodology must be on hand which can:

- (1) Obtain accurate reporting of the rumor or information at various points in its transmission.
- (2) Obtain accurate reporting of all, or an adequate sample of, the communications which take place.

The technical methodological problems which one faces here seem to be quite difficult. In the laboratory the investigator can approach a solution by close observation of his group which through his manipulation has a limited life span and a narrow space of free movement. The experimenter may even restrict communication to written messages in order to preserve the content and he may intercept these messages to record time and direction of transmission. In studying real life situations, however, such controls are not available. We shall discuss two methods which have been used to date to study the details of the communication process in real life situations.

Post Rumor Interviews

This method consists of interviewing all or a sample of the members of the social structure at some point in time after a given rumor has been circulating. The interview may include questions about whether or not the person has heard specific things, from whom did he hear

them, to whom has he told them, and when and in what settings have these transmissions taken place. If the total organization can be interviewed the method has the obvious advantage of obtaining data from every member. Thus, on the surface, the method appears clearly adequate to study the problems involved.

Two experiences in the use of this method for studying the transmission of information indicate that there are serious difficulties in its use. Most of these difficulties center about the inability of people to report from whom they heard things and to whom they told them. Certainly after considerable time has elapsed, and even after only a short time interval, only very vague and unreliable information about transmission is obtained in this manner.

Festinger, Cartwright, et. al. (3) attempted to study the details of the transmission of a rumor which had arisen spontaneously in a housing project. The rumor was hostile to a program of community activities then underway in the project. Its content was quite dramatic and it had considerable impact on the community, causing a temporary cessation of all community activities. A sample of the residents of the project were interviewed about six months after the rumor. They were asked questions to find out whether or not they had heard the rumor and from whom, whether or not they had told the rumor and to whom.

The rumor had been dramatic enough in its content and in its impact on the community for the residents to have had clear memories for it. There was no difficulty in determining whether they had or had not heard the rumor. Those who had heard it were quite definite about it and were able to recall quite small details of its content. There was much more vagueness about whether or not they had told the rumor. Many didn't know and responses such as "I may have or may not have - I can't remember" were quite common. No data at all could be obtained about from whom they had heard it or to whom they had told it. Here there was complete vagueness. People simply did not know these details of the transmission.

Festinger, Schachter and Back (4) attempted to study rumor transmission making the best possible use of an interview method. Instead of using a spontaneous rumor whose origins might be difficult to trace they planted, in quite realistic fashion, two clearly distinguishable items of information in a community. The items of information were relevant to activities in which the community was engaging. All residents of the community were interviewed from 24 to 48 hours after the items had been planted.

Even after such a short interval there was considerable vagueness in the responses to the interviews concerning from whom they heard the information and to whom they told it. Some could not remember from whom they had heard it; some reported not having told it although others reported having heard it from them. It was possible, however, to make a reconstruction of unknown accuracy of the transmission

process in spite of the fact that there were relatively few transmissions where the data gathered from the communicator and the recipient checked completely. With anything less than a 100% coverage of the members of the community the data would have been of very little value.

It almost seems as though people perceive and remember only the "thing," that is, the content of information, and tend not to perceive the medium through which it comes, that is, who tells it to them. More explorations seem indicated of possible improvements in using interviews to record transmission of information but it seems clear that this method is not the final answer to our problem.

Participant Observation

This method consists essentially of having the communication process observed by cooperating members within the social structure which we wish to study. We shall, below, describe a use of participant observers which we employed to study the direction of communication in a hierarchical organization. Our primary interest was in whether particular kinds of information would tend to be relayed in upward or downward directions within the authority structure of the group.

The first step was to get the permission of the director of the organization to employ this technique and to obtain from him information about the authority structure, work structure and physical arrangement of the organization. The organization had five levels in its hierarchy and employed about 55 members. On the basis of the director's information we selected a small number of members at different levels in the organization to act as our cooperating observers. These cooperators were also interviewed in order to obtain their perceptions of the various structural aspects of the organization and also to obtain knowledge about sociometric groupings within it. This additional information (which was considerably more detailed with respect to certain parts of the organization than that which we had obtained from the director) indicated the necessity for adding other persons to our list of cooperating observers. Eventually, we had a group of seven participant observers selected out of the total organization. The bases for selecting these cooperators were as follows:

1. There should be a cooperator from each of the major authority levels of the organization.
2. The cooperators should be strategically placed within the sociometric structure of the organization; that is, each of the major social cliques within the group should be represented.
3. The cooperators should be spread around in terms of their work location.
4. People should be selected who would be motivated to do a good job and who would be able to maintain secrecy about their observer functions for the course of the study.

The plan of the study was to plant a series of rumors at various levels in the organization and to have the cooperators record the transmissions of these planted items as thoroughly as possible. Before each rumor was planted each cooperator was told when it was to be planted and the exact content of the rumor involved. Because of our interest in studying the direction of the transmission, and so as not to bias the cooperators, they were not told with whom the rumor was to be planted.

Since each rumor was only a very small part of the total volume of communication within the organization, the cooperators would be behaving naturally in their member roles for the greater part of their working day. When the rumor was told to them or when they overheard it, they were instructed (if it were at all natural or possible without arousing suspicion) to ask questions of the person telling the rumor in order to ascertain as much as they could about more remote links in its transmission. They were also instructed to record accurately the content of the rumor as they heard it and other information they had learned as soon as possible after hearing it. These records containing the time of hearing the rumor, the specific content, from whom it was heard and to whom it was told were transmitted to the investigators within several hours so that we were able to keep very close track of the progress of the rumors. The cooperators were instructed never to pass the current rumor on. The first time they heard the rumor they were to act as if it were new to them. Then, in order to avoid possible detection, the second time they heard it they were to indicate that they had heard something about it but wanted to know more.

The procedure seemed to be quite feasible and no cooperator reported any difficulty or any unnatural behavior being forced on their part. Having to watch for only one rumor at a time placed no undue burden upon them and permitted them to carry on their normal behavior. During a four month period nine separate rumors were planted in the organization - some of which spread considerably and others not at all. At the end of the four month study we conducted a group interview with the total membership of the organization in an attempt to ascertain, for each of the rumors, all of the persons who had heard it. By checking these data against the more detailed data obtained from our cooperators we could estimate the extent of coverage of the communication process which we had obtained using seven cooperators. The data from the cooperators accounted for 78% of the persons who reported having heard any of the rumors. In other words, using 13% of the organization as cooperators we were able to obtain data on 78% of the communications that occurred.

Some of our findings from this study will give an indication of the value of this method of data collection. Of the nine rumors which were planted two were relevant mainly to a particular subgroup within the organization. The other seven rumors which were relevant to the entire

organization produced 17 acts of communication which our cooperators recorded.¹ Eleven of these communications were directed upward in the hierarchy, four were directed to some one on the same level as the communicator and only two communications were directed downward.

The other two rumors were relevant mainly to a six-member morale committee which existed in the organization. One of our cooperators was a member of this committee. The rumor, that some questionnaire data the morale committee had gathered were lost, was planted within the committee. In about fifteen minutes it had spread to the entire committee. In four days, however, there was only one communication about it to anyone outside the committee.

Four days after this rumor had been inserted, the rumor that the data had been found was planted in the committee. Within one hour this information had been communicated to all but one of the members of the committee. This last member, the representative of the lowest status level in the organization, did not find out about it until she specifically asked one of the other committee members about developments concerning the data. This time there were no communications at all to anyone outside of the committee.

One of the rumors which did not spread at all clearly evoked very strong restraints against communication. The rumor concerned the impending aggravation of a condition which was already a source of much discontent. Both persons with whom it was planted, when asked about it later, said they did not want to be identified as knowing anything about this matter and so had not told anyone about it. Why in this case such restraints were aroused while in other instances, which we know about anecdotally, such "fear provoking" rumors spread considerably is an extremely interesting problem.

These results of this frankly exploratory study are certainly suggestive enough to indicate that additional work along such lines will be fruitful.

Difficulties of the Method of Participant Observation

There are two weaknesses which are now apparent in the use of participant observers to record communication processes. It will take considerable further work to estimate accurately the seriousness of these weaknesses and to design methods of overcoming them.

- (1) Bias in the sampling of communications recorded: The data gathered by means of cooperators can clearly never be actually all of the communications which occur concerning a particular item. We must consequently regard the method as a technique of sampling

¹ Two of the rumors produced no acts of communication at all. Some reasons for the low amount of communication obtained will be given below.

from the total number of communications which occur and we must be concerned with the problem of the randomness of the sample which we obtain. In the study described above we failed to record slightly more than 20% of the communications which took place. We have no indication of selective factors which may or may not have operated in making this 20% different from the 80% which we did record.

(2) Artificial limiting of the communication process: In the study which we described we do not know to what extent the rule against our cooperators themselves transmitting the rumor restricted the spread below what it would normally have been or perhaps even altered the direction in which items might have been communicated. In essence the method involved closing up a number of links in the usual communication network. The criteria which we used in selecting cooperators (the adequacy of which was probably responsible for the large degree of coverage which we obtained) obviously meant the removal from the communication chains of fairly important persons: persons who were at the center of sociometric cliques or who were in strategic positions in the work structure. These persons might under normal circumstances have been the main transmitters of such information and rumor. Methodological research which would give us knowledge of the effects of such removal of links in the communication chains is necessary.

(3) The practical problems of doing such research cannot be ignored. Many organizations will have considerable hesitation about allowing rumors to be planted and about allowing their members to act as data collectors. Even an organization which will permit such a study to be made will undoubtedly impose severe limitations on the content and nature of the rumors to be planted. The feelings of the cooperators about indulging in such "secret activities" and the possible effects of later revealing their role must also be seriously considered.

These problems can be solved, and were in the pilot study which we conducted, but their solution is a necessary prerequisite to conducting the research.

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