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published, more than 80 per cent of which appeared in the decade 1950–1960. Since 1960, articles have been appearing at the rate of more than 250 per year.

No attempt will be made in this article to present the detailed findings of this enormous outpouring of research. Hare (1962) and McGrath and Altman (1966) provide useful summaries of the literature. Here I shall attempt to provide a framework within which some of the important findings can be integrated. The framework is oriented to such questions as: what is a group? what are the significant ways in which groups differ from one another? what are the effects of such differences?

What is a group? An examination of the different usages of the term “group” suggests that each combines a greater or lesser number of the following distinguishing criteria: two or more persons who (1) have one or more characteristics in common, (2) perceive themselves as forming a distinguishable entity, (3) are aware of the interdependence of some of their goals or interests, and (4) interact with one another in pursuit of their interdependent goals. In addition, some writers, particularly those with sociological backgrounds, indicate that (5) groups endure over a period of time and as a result develop (6) a set of social norms that regulate and guide member interaction and (7) a set of roles, each of which has specific activities, obligations, and rights associated with it. I shall use the term “group” to signify at least the first four of the distinguishing criteria listed above. This usage is consonant with the intuitive notion that a group is an entity that consists of interacting people who are aware of being psychologically bound together in terms of mutually linked interests. A group is thus to be distinguished from an aggregate, class, category, or type, which consist of people who are classified together because of some common characteristic. Also, “group” implies a psychological or perceived bond, not merely an objective linkage, between the members’ interests or goals. Moreover, the psychological linkage has some cohesive feature in it—in other words, members of a group see that in some respects they sink or swim together. This latter statement is not meant to deny that at times and under conditions may exist within a group; rather, it is meant to indicate that by definition a group does not exist if its cohesive bonds are not strong enough to contain its disunifying tendencies.

How groups differ. There are endless ways in which groups differ. It is useful to have some simplifying outline that highlights the central characteristics of groups and that permits a prolifer-
tion of detail as this becomes necessary. It is well to recognize that an outline abstracts variables from their contexts and their interrelationships, and thus presents them in somewhat distorted form. The outline that follows is guided by—but not limited to—the criteria of groups listed in the preceding section.

1. Group size: the number of members in a group.

2. Group composition: the individual characteristics of the members, including their distribution and patterning.

3. Group structure: the patterning of member characteristics as perceived by the group members.

4. The existential criteria of groups: the criteria for recognizing a group's existence, members, action, property, etc.

5. Group cohesiveness: the type and strength of the interests binding the members to the group.

6. Group task and environment: the task confronting the group, and the environment within which the group functions.

7. Interpersonal process: the modes and patterns of interaction between members and with the task environment.

8. Group culture: the norms, standards, role patterns, traditions, and customs operating within the group.

9. Group effectiveness: the task performance, the viability of the group, the membership satisfaction, and the change within individual members.

It is useful to recognize that any causal arrow connecting an item with any other item in this outline is likely to be bidirectional rather than unidirectional. Consider group size and group composition. It is evident that increasing the number of members in a group will affect the composition of the group—e.g., the more people there are in a randomly composed group, the more likely it is that the group will contain an individual whose intelligence is above or below any specified level. However, the causal arrow also points in the other direction: if a group is composed of a certain kind of members, its size is likely to be affected. Thus, groups of young children are likely to have fewer members than groups of older children. Of course, the causal path in the direction from group composition to group size is longer and more circuitous than the path in the opposite direction: it weaves from group composition to interpersonal process to group effectiveness (member satisfaction) to group cohesiveness and arrives finally at group size (presumably a size that permits interactions that are satisfying to the children because they are within their cognitive capabilities, and hence, the children are motivated to continue the group).

Some findings from the study of groups

I shall employ the outline presented above to organize the discussion of illustrative findings obtained from the study of groups. The studies of groups have been mainly of temporary and ad hoc laboratory groups, created by the investigator, rather than of ongoing natural groups in their native habitats. Hence, there is no assurance that the research findings are generalizable. However, they do not seem inconsistent with everyday observations. Necessarily, the presentation is oversimplified. It largely ignores the evident fact that the effects of any given variable upon another (e.g., of group size upon interaction patterns) are very much influenced by other factors in the situation (e.g., the nature of the group task).

Group size. Hare (1962) and Thomas and Fink (1963) have reviewed the relevant research literature in some detail. The latter have presented a useful framework for viewing the major effects of variations in size. The schema presented here borrows from theirs. It is helpful to make a distinction between the statistical properties of size and the psychological properties of size. The former are those properties of a group that come from taking a given-sized sample of individuals, according to a given procedure, from a population with certain characteristics. The group is considered as an aggregate, and the psychological properties that arise from the presence and interaction of its members are disregarded.

The statistical properties of size can be appreciated by observing how variations in size affect some common statistical measures: the sum, the mean, intragroup variability, the probability of the occurrence of any characteristic, the probability of concordance of characteristics, the variability of the statistical properties. Consider the resources (perceptual capacity, memory capacity, information, intellectual capacity, physical strength, skills, money, tools, and so forth) available as size increases. Clearly, the total resources, such as the total money in the group, will increase as a linear function of size. However, the usable resources will be determined by the task and environment. In certain tasks it does not help the group to have any duplication of a resource (e.g., to have more than one person who knows how to use a type of machine). Hence, the usable resources will often increase at a slower rate than the total resources and often will, beyond a certain
point, not increase at all. If this is so, as size increases, the average usable resource per member will decrease. This reasoning explains why, for certain kinds of tasks, group performance as measured by production per group member decreases as size increases, even as total production goes up: not all of the total resources are usable.

As the size of a sample increases, the probability that any given characteristic will appear (that someone will have red hair, that someone will favor vegetarianism) increases. The probability that at least one individual of a group has some given characteristic clearly depends on the frequency of the characteristic in the population from which the group was formed, the size of the group, and the manner of group formation. If the members of the group manifest statistical independence regarding the characteristic, and if the probability, $P$, that any individual has the characteristic is a constant, then the probability that at least one member of the group has the characteristic is $1 - (1 - P)^N$, where $N$ is group size. Thus, as $N$ increases, the probability increases toward 1. Even for more realistic assumptions about group formation, it is clear that, as group size increases, so does the probability that the group contains at least one individual having any preassigned characteristic. Thus, the larger the size of a group, the more likely it is to have any or all of the following: a very bright person, a very stupid person, a quiet person, a talkative person, a “right-winger,” a “left-winger.”

Similarly, the probability that every member of the group has the given characteristic generally decreases as group size increases, for most reasonable assumptions about group formation. Under the assumptions of independence and constancy, the probability that all group members have the characteristic is $P^N$, which decreases exponentially as $N$ increases. Hence, as the size of a group increases, it is less likely that all individuals will have the same opinion or speak the same language or be equally informed or be equally resourceful. Although heterogeneity is likely to be greater within larger groups, larger groups are less likely to vary from one another in aggregate properties than are smaller groups. (A group of 20 persons is more likely to have the same average IQ as another group the same size than are two groups of three persons.)

Size affects not only the statistical properties of the aggregated resources and other characteristics of the group but also the opportunity to satisfy individual wants—for example, the larger the group, the more time, space, supplies, and facilities it will need to enable all individuals in the group to talk and be heard. Thus, if the total amount of time, reward, and space remain constant for a given task environment, the opportunity for individual participation and reward will decrease as the size of the group increases. On the other hand, the number of potential interpersonal relations increases geometrically as size increases. For example, the number of possible dyadic relations in any group increases with size ($N$) according to the formula: $(N^2 - N)/2$. Since there appears to be a numerical limit to the capacity to establish close associations with others, a smaller proportion of the possible linkages will be formed as size increases.

From our discussion so far, it should be clear that different-sized aggregates of noninteracting individuals should differ predictably. The larger-sized aggregates should have more resources and more handicaps; more good solutions and more bad solutions; more diversity and difference; more demands for the available opportunities; more opportunity for diversified interpersonal contact but less for repeated contact. If the task environment is such that the presence of resources, good solutions, heterogeneity, and so forth, are more important factors than the presence of handicaps, bad solutions, and homogeneity in determining productivity, then larger aggregates should be more productive than smaller aggregates. But groups are not simply aggregates; they are composed of interacting individuals. A group’s performance may differ from the performance of a comparable aggregate of individuals because the contributions the individuals make in the group will be affected by the group milieu and because the group will combine or assemble the individual performances in a unique manner.

Audience effects. Social influence on individual thinking may reflect either the effect of working before an audience (such as other group members) or the impact of the contributions being made by the other group members. Research results, generally, indicate that there is increased motivation and increased distraction when a person works on intellectual problems before an audience rather than by himself (Kelley & Thibaut 1954). In addition, there tend to be fewer idiosyncratic thoughts, more moderation in judgments, more common associations, more cautiousness, and a general taking into account of the anticipated reactions of the audience. Over a period of time, adaptation to being observed tends to occur (Deutsch 1948), and hence the “audience effects” tend to decrease. Some research evidence (Atkinson 1964)
suggests that once motivation to achieve passes beyond a certain moderate level, further increase in motivation tends to result in less effective performance.

**Problem solving and productivity.** The preceding discussion of "audience effects" suggests the possibility that as the size of a group increases, the intellectual functioning of its members will deteriorate; they will be "overmotivated," more distracted, and more conventional. But other members of a group do not merely serve as an audience. They also contribute new information and different perspectives; they invoke more aspects of memory and demand greater attention; they provide more material for the individual to think with and about. That is, the contributions of other members may provide new **associational starting points**, may help the individual to break out of an ineffective set by suggesting new orientations, may fill in gaps or reveal unnoticed errors in the individual's thinking. On the other hand, the contributions of other members may distract, interrupt a chain of thought, blur out an individual's own associations, or confuse him by providing too much sheer material for him to assimilate at one time. The meager relevant research indicates that the contribution of others may be more distracting than useful when the task confronting the individual is one that requires sustained directed attention to a complex pattern where the relations between sequentially ordered parts must be kept in mind (e.g., in "reasoning" problems). In such a task, individuals working alone will hit upon different approaches (or will symbolize the same approach differently), and once they have taken a few steps on their respective approaches, understanding each other may be difficult without going back to the initial formulation of the approach or until an obvious solution has been reached. Hence, with such a task, the larger the group, the more likely it is that it will interfere with the individual's thinking.

On the other hand, when the task is such that the individual is likely to **have an initial set** that would lead to a clichéd or superficial solution to the problem and would overlook some of its major dimensions, the contributions of other members (starting from different sets, which may also be superficial) may force the individual to go deeper into the problem [see **Problem solving**].

A group solution will depend not only upon the abilities of its members to think within the milieu of the group but also upon the readiness and ability of the members to contribute to the group and upon the way in which their contributions are coordinated, assembled, or weighted to produce the resultant group solution. With regard to the readiness and ability of members to contribute, research indicates that the inequality of participation among the various members of a group increases as the size of the group increases (Stephan & Mishler 1952, Bales et al. 1951). These results suggest that individuals who tend to be shy are unlikely to participate actively in larger groups, although they may contribute much in small groups. On the other hand, individuals who tend to be assertive are likely to have a disproportionately large influence in larger groups as compared with smaller groups.

With regard to the coordination, assembling, or weighting of the contributions that individual members make, investigations have found that the difficulty of keeping track of the contributions of the various members, of coordinating and assembling them, will increase as the size of the group increases. For success in resolving this difficulty, larger groups have to devote more of their energy to activities directed toward coordination than do smaller groups. In addition, it is reasonable to hypothesize that such personality factors as self-confidence, assertiveness, and persuasiveness are more likely to play a significant role in determining the individual's impact upon the **group solution** in larger groups than in smaller groups.

Member satisfaction, also, is affected by the size of the group. Laboratory and field studies both indicate that **members of small groups** are more likely to feel satisfied with their group, more likely to inhibit expression of disagreement, and less likely to develop cliques and factions. Large groups, on the other hand, are characterized by more absenteeism, more formality, and more internal conflict than are smaller groups.

**Group composition.** How are the **individual members** of a group characterized? The answers to this question presuppose that one knows what features of the members may influence the way they interact, interrelate, and function together. There is as yet, however, little systematic knowledge of how group composition—the distribution and patterning of member characteristics—affects group behavior. Nevertheless, it is reasonable to think that a group's behavior will be affected by the distribution and patterning of such member characteristics as abilities, knowledge, resources, **attitudes**, interests, personality dispositions, age, sex, and social status. The combined characteristics of the members may be considered in terms of their influence upon the group's effectiveness in coping with the task confronting it. Or they may be
related to the compatibility of the members with one another, the attraction of the group for various members, the likelihood of the formation of cliques, and so forth.

Effectiveness. With regard to group effectiveness, considerable research supports the commonsense proposition that groups whose members have high abilities, training, or experience are more effective than groups whose members are lacking in these respects (McGrath & Altman 1966). However, it is not simply the average level of abilities that is important, but rather whether the kinds of abilities necessary to carrying out the role requirements set by the group's task exist among the group members and are appropriately distributed. Group composition must be evaluated in reference to the demands confronting the group rather than in a vacuum. Homogeneity of member characteristics is an asset when the various group members are called upon to fulfill the same task functions, but it is a liability when there are varied functions to perform. For example, it is reasonable to assume that a group composed of both "abstract thinkers" and "concrete thinkers" will be more effective in performing in a task requiring both intellectual analysis and action than a group composed exclusively of one or the other type. Hoffman, Harburg, and Maier (1962) report results indicating that groups composed of individuals with dissimilar personalities are more productive than homogeneous groups. Schutz (1958) has theorized that compatibility is likely to be greater when people with different but complementary personality dispositions are paired together (e.g., people who wish to give affection and people who wish to receive it) than when people of similar dispositions are paired together (e.g., two people who wish to dominate). His research indicates that groups composed of members with compatible interpersonal tendencies are more productive than those composed of members with incompatible tendencies.

Patterns of interaction. There is a vast body of research on the effect of the personal and social characteristics of members on the development of attitudes toward the group, interactional patterns within the group, etc. Much of this research is considered in the sociometric literature. In general, research supports the saying, Birds of a feather flock together. People prefer to associate and interact with others who are similar rather than dissimilar to themselves in attitudes, status, background, interests, and so forth. The major exceptions to this generalization occur when similarity enhances competition (e.g., when two suitors are interested in the same girl); personal needs require complementarity rather than similarity (e.g., in heterosexual relations); or task requirements necessitate differentiated functions and statuses.

Individual behavior. There has also been much study of the personality characteristics that affect the performance of members in small groups. Mann (1959), reviewing the literature from 1900 through October 1957, focused on seven personality factors: intelligence, adjustment, extraversion-introversion, dominance, masculinity-femininity, conservatism, and interpersonal sensitivity. He summarized the relations between each of the seven personality variables and each of the following measures of an individual's status and behavior in groups: leadership, popularity, total activity rate, task activity, social-emotional activity, and conformity. His survey indicates that the best single predictor of an individual's behavior in the group is his intelligence. Intelligence and also extraversion and adjustment are positively related to total activity rate, leadership, and popularity in the group. In addition, the more intelligent and better-adjusted members are likely to contribute a relatively larger share of their total activity to building up group solidarity and providing emotional support for other members and a relatively smaller share to being critical or rejecting other members. Dominance is related positively to leadership and negatively to conformity; conservatism, on the other hand, is associated negatively with leadership and correlated positively with conformity. Masculinity and interpersonal sensitivity show positive relationships to leadership and popularity. Mann (1959, p. 266) concludes his review with the caution that the magnitude of the median of the correlations between an aspect of personality and performance is in no case higher than .25, and most of the medians of the correlations are nearer .15.

Group structure. Popular conceptions of group and organizational structure have been very much influenced by organizational charts, developed in the military and other large bureaucracies, that stress lines of formal authority. This is too limited a view. It is more fruitful to think of structure in terms of the way members actually relate to one another. In a sense the term "group structure" is a misnomer; there may be many different "structures" within a group—the work structure, the communication structure, the friendship structure, the power structure, the prestige structure, and so forth.

There is often a correspondence among the positions an individual holds in the different structures,
so that an individual who holds a central position in one structure (e.g., the communication structure) is likely to hold a central position in other structures (power, friendship, and prestige). The research of Galtung (1964) in Norway indicates that this is the case for Norwegian society; people who are more central on social variables (income, education, occupation, residence, age, and sex) are also more central in the communication and power structures. In the status-equilibration hypothesis, Benoit-Smullian (1944) and, later, Homans (1961) have stressed the forces that operate to make for similarity in the positions of an individual in different structures. However, status equilibrium is not always achieved. Research by Adams (1953) with air crews demonstrated that lack of congruence on such status dimensions as age, military rank, education, reputed ability, popularity, combat time, and position importance was related to poor morale, less friendliness, and lack of mutual confidence. Exline and Ziller (1959), working with experimentally created groups, found that groups constructed so as to have incongruent status hierarchies manifested more interpersonal conflict and less productivity than congruent groups.

In addition to research on status congruency, research on group structures has investigated such topics as: (1) the effects of different communication structures (Guzerov 1953); (2) the effects of different leadership structures, for example, leaderless groups versus groups with leaders, and of leadership style (Fiedler 1964); (3) the effects of different residential and proprioquity structures (Festinger et al. 1950); (4) the effects of similarity or dissimilarity on various social and personal characteristics, such as age, sex, religious belief, attitudes; (5) the Kafkaesque effects of complex organizational structures, which are dimly perceived and little understood by members; (6) the determinants of sociometric structure, leadership structure, communication structure, etc.; (7) methods of classifying and identifying roles within groups (Bales 1950); and (8) mathematical procedures for characterizing different types of structures and different positions within a structure (Coleman 1964).

The existential criteria of groups. Although a vast body of legal principle and practice has been concerned with the conditions under which a "legal personality," such as a corporation, can come into existence, and with the identifying of those who can act in its name, there has been little social-psychological research that bears upon such related problems as how a group is identified and what determines whether an action of a member is attributed to the group or to him personally. However, drawing upon studies of perceptual organization, it is possible to indicate some general principles concerning the conditions that are conducive to the perception that a collection of individuals or units are part of a system rather than an unorganized aggregate of elements.

As Koffka (1935) pointed out, abrupt discontinuity produces segregating forces between the parts of a visual field that it separates, as well as unifying forces within the separated parts. Further, he indicated that homogeneity tends to produce unifying forces in the visual field. Homogeneity may be based upon (1) the common fate of the elements perceived (they move together); (2) their qualitative or quantitative similarity (they have the same color or the same luminosity); (3) proximity (they occur in spatial or temporal contiguity); (4) a common boundary; (5) past experience or custom that has led to similar responses to the various elements, and (6) set or the expectation that the elements are to be grouped together [see Gestalt theory].

It seems evident that processes analogous to these determine whether an individual will perceive a collection of individuals as a social group and whether he will perceive himself to be part of the group. Thus, if an individual perceives that he and some others are strikingly different in certain respects from the remainder of the people in their surroundings, that he and the others tend to be satisfied or dissatisfied at the same time or under similar circumstances, that he and the others have similar attitudes or similar backgrounds, that he and the others live or work in close proximity, that he and the others are associated together in other people's minds or created similarly by other people—if he perceives any of these patterns, the individual is likely to perceive himself and the others as cooperatively interdependent. I would stress, as does Campbell (1958), the central role of the perception of common fate in determining the consciousness of being joined with others to form a group.

Group cohesiveness. In everyday usage "cohesiveness" refers to the tendency to stick together; its usage in social psychology is much the same. It refers to the linkages that bind the members of a group together. Deutsch (1949, 1962) has stressed that the linkages among members are cohesive, rather than disruptive, when the goals and interests of the members are cooperatively, rather than competitively, interrelated. Various aspects of these linkages have been the focus of research: the nature of the mutually linked goals or interests—such as
friendship, work, money, the strength of the mutually linked goals or interests, the degree of linkage, and the availability of other means of obtaining one's goals; the forces operating to restrain members from leaving the group; other interests or memberships that are in opposition to continued membership in the group.

Since group cohesiveness is central to the existence of groups, it is natural that its determinants and also its consequences have been studied extensively (Hare 1962; Collins & Guetzkow 1964; McGrath & Alman 1966). Research findings, over-all, indicate that cohesiveness (as measured by interpersonal congeniality, the desire to remain a member of the group, attitudes toward the group's functioning, or other similar measures) is consistently associated with greater communication between group members. Greater readiness of group members to be influenced by the group, more consensus among members on attitudes and beliefs that relate to group functioning, more sense of responsibility toward each other among group members, a greater feeling of personal ease and security within the group by the group members, and so forth. Also, task effectiveness is generally positively correlated with cohesiveness if high accomplishment on the task is valued by the group (some groups restrict performance to achieve their objectives) and if the task is such that its performance is likely to be enhanced by increased group effort. It should be noted that the causal arrow is bidirectional: group cohesiveness not only increases intragroup communication and group success, but group success and intragroup communication increase group cohesiveness [see COHESION, SOCIAL].

Group task and environment. It is self-evident that the task confronting the group and the environment within which the group functions can influence all the other characteristics of a group. Unfortunately, however, the research relating to task and environmental characteristics has been meager, largely because there has not yet been developed any systematic way of characterizing tasks or environments. Nevertheless, certain useful distinctions have been made.

It is possible to characterize many tasks and environments in terms of the type of requirements for success that they impose upon the group. It is apparent that tasks differ in the types and amounts of skills, knowledge, effort, and resources required and in the way these factors have to be interrelated. In other words, the roles within the group, the structure of the group, the size of the group, etc., may vary as a function of the group's task and environment.

Fiedler (1964), for example, has shown that the effectiveness of different types of leaders is very closely related to the structure of the task confronting the group. In both field and laboratory studies, his findings indicate that controlling, authoritarian leaders tend to be most effective either in very favorable or else in relatively unfavorable group-task situations, while the permissive, considerate, democratic leaders are most effective in situations that are intermediate in favorableness. Fiedler indicates that a situation is very favorable when (1) the leader-member relations are positive, (2) the task is clear and well structured, and (3) the leader has well-defined authority and power to reward and punish. Thus, for example, if a leader has good personal relations with his group and the task is routine and his authority well-defined, he is likely to be more effective if he is "directive," rather than democratic and permissive. On the other hand, if the task is novel and unstructured but the situation is otherwise similar, democratic, permissive leadership is likely to be more effective [see LEADERSHIP].

Task structure helps to determine the types and amounts of interaction and communication within a group and also the sequencing and organization of the activities within the group. These, in turn, will often affect the social relations that develop within a group. Much research has supported the proposition (Homsans 1950) that people who interact frequently with one another tend to like one another, and vice versa. Thus, tasks that require certain group members to work closely with one another and limit their interaction with other members may, if the task is long-enduring, help to create patterns of friendship that parallel the interactional requirements of the task. Further, the research indicates that if a task places a given individual in a central position because he is able to communicate readily with other members or because he possesses a scarce resource (a skill, specialized information, or a particular role) that is of critical value to group success, then he is likely to have high status within the group (and high satisfaction with the group).

Tasks differ in their degree to which they permit division of labor and specialization of function. The problem of dividing tasks into subtasks, of sequencing them, and of assigning personnel and resources to them has been of major interest to economists and operations-research analysts, and they have had considerable success in developing rational methods of predicting the effectiveness of different methods of dividing up a task. Here let us note some psychological aspects of the division
of labor. Among its possible negative consequences are the loss of one's identification with the over-all group objectives, the loss of a sense of an over-all significance and meaning to one's activities, the development of vested interests in one's specialized activities, the development of specialized languages, values, and modes of thought that interfere with coordination and communication between the various specialized activities. Among the possible positive consequences of specialization is, in addition to increased group productivity and individual economic reward, the greater chance that an individual will be able to find some activity that matches his particular interests and abilities.

Tasks and environments differ not only in their activity and interaction requirements but also in their stressfulness. The term "stress" has been used to refer to a hypothetical state of tension, frustration, or internal conflict induced by such conditions as task difficulty (e.g., a problem without any solution), lack of information about how well the task is being performed, threat of punishment for task failure, danger (e.g., as in combat or survival in the Arctic), intense criticism, time pressure, an unpredictable environment. The results of studies of the effects of such varied conditions are not universal. The safest generalization seems to be that mild stress often improves group performance and enhances group cohesiveness, while severe stress often has the opposite effects. Optimal stress for a group is presumably higher the more able and cohesive the group is and the more the members see themselves as able and motivated to cope with problems (Deutsch 1959).

Finally, it is relevant to note that environments differ in the probability of reward and the amount of reward they provide for effective group action and also in the manner in which rewards are distributed within a group. Little research has been done on the effects of different "schedules of reinforcement" upon group behavior, yet there is reason to assume that they would influence group performance (Shapiro 1963). On the other hand, a considerable number of research studies (e.g., Deutsch 1949, Rave and Emory 1963) have demonstrated that whether rewards are distributed cooperatively or competitively within a group may have a striking effect on member behavior. In general, group members who are rewarded cooperatively show more positive response to one another, have greater involvement in the group, are less likely to work at cross purposes, communicate with one another more effectively, and work more productively together than group members who are rewarded competitively.

Interactional process. The observable transactions between members and their observable transactions with their task environments are lumped together under the term 'interactional process.' It is, in effect, what goes on in groups. There are many different ways of characterizing what goes on. Most of them focus on one or more of the following aspects of a transaction: who communicates or does what to or with whom; with what intent or function; how, when, or under what conditions; through what media or channels; with what effects upon whom, as perceived by whom. Each of the italicized terms could be elaborated in considerable detail. For example, if one specified the characteristics of the potential communicator and communicator (the who and the whom)—their statuses, their personality tendencies, their pre-existing attitudes toward one another—one could predict, to some degree, who will talk to whom and how they will talk. (The demeanor of a subordinate making a critical remark to a superior will be rather different from that of a superior criticizing a subordinate.) Similarly, knowledge of the conditions—e.g., what stage in problem solving the group is at—enables one to predict what kinds of content (the what) a transaction is likely to have.

The most widely used system for categorizing interactions is the one developed by Bales (1950). It focuses on the who-to-whom-and-what interaction. His system consists of 12 distinct categories of the content of communication: content that (1) shows solidarity, (2) shows tension release, (3) agrees, (4) gives suggestion, (5) gives opinion, (6) gives orientation, (7) asks for orientation, (8) asks for opinion, (9) asks for suggestion, (10) disagrees, (11) shows tension, and (12) shows antagonism. The categories are grouped in various ways. One major grouping is into task categories (subdivided into questions and attempts answers) and social-emotional categories (classified as positive and negative). More recently Stone and his co-workers (1962) have devised a more generalized system of content analysis called the General Inquirer, which employs a computer to code the actual verbal text of group interaction into 164 categories [see Interaction, article on Interaction Process Analysis].

Slater (1955) has shown that members who are ranked high as "idea men" by the other members in problem-solving groups initiate interaction more markedly in "attempted answers," while members who are ranked high in likability participate more heavily in the categories grouped as "positive social-emotional." His research has also indicated that often the task leader, or idea man, and the
social–emotional leader are not the same person: this specialization of interaction function is more evident if the group exists over a period of time. In other words, as Barnard (1938) had noted earlier, the two major problems confronting groups—adaptation to their task environment and provision of personal satisfaction to the individual members—do not necessarily lead to the same emphases within a group.

Why do people interact? Few theorists have gone beyond the common-sense viewpoint that they do so because it is instrumental to a given end or because it is gratifying in itself. Festinger and his associates (1950), however, have suggested that one of the major instrumental functions of interaction is helping to establish "social reality": the validation of opinions, beliefs, abilities, and emotions in terms of a social consensus. That is, one of the functions of communication within a group is to establish uniform views about reality, so as to provide the members with some confidence in their beliefs and to enable them to coordinate their behavior for effective group action. Thus, group members whose views deviate from those held by the rest of the group will be subject, through communication, to pressures to change their views to conform to those of the rest, or they will be rejected or isolated by the group, so as to eliminate a source of disturbance to the group. Festinger hypothesized that these pressures are greater the more cohesive the group is, the more relevant the belief is to the group, the more discrepant the deviant's viewpoint is, etc. A considerable body of research is consistent with these hypotheses. Festinger has also suggested that communication may function as a substitute for social locomotion—people who would like to be in powerful positions direct their communication toward those who hold such positions. The study by Kelley (1951) of communication in experimentally created hierarchies is consistent with this hypothesis. However, Cohen (1958) suggests that upward communication may be more directly motivated by the desire to receive the benefits that a higher-status person can bestow upon someone of lower status.

**Group culture.** The members of any group who have had a prolonged experience of interacting with one another tend to develop shared values, expectations, and rules—a normative consensus that helps to regulate interaction between members and between the group and its task environment and that also serves to define the roles of the various members, including their specialized activities, rights, and responsibilities. A normative consensus, or group norm, sets criteria for evaluating the desirability–undesirability, acceptability–unacceptability, of the group members' activities, beliefs, appearance, etc., and for responding with various sanctions, positive or negative, such as reward–punishment, approval–disapproval, to a member's conformity with or violation of the norm [see *NORMS*].

Norms develop about many things, from the type of pronoun to be used in addressing intimates or strangers to the type of wine one should serve on certain occasions. Yet not everything is regulated. Norms tend to develop mostly in areas that are relevant to the group's functioning, and it seems likely that the more important an area is to the group, the more norms there will be, the more intense will be the sanctions employed to obtain conformity to them, and the smaller will be the range of acceptable behavior. Thus, as Sutherland has shown, the norm of punctuality in appearing at a prearranged time and place is strictly enforced among professional thieves because its violation may endanger an enterprise and lead to arrest (Conwell 1937). Norms are more often developed with regard to overt behavior than private beliefs, not only because the former are usually more important to group functioning but also because beliefs are less controllable, being less observable than behavior. Further, it is apparent that the norms of different types of groups will differ—for example, the norms of a friendship group and those of a work group. It is not uncommon for a person to experience conflict because he belongs to groups that have conflicting norms [see *CONFORMITY*].

There is an extensive research literature on the determinants of conformity and deviation to group norms (for a summary, see Symposium on Conformity . . . 1961). It is not a great oversimplification to sum up the findings as indicating that conformity appears to be a function of such factors as the person's awareness of the norm, the strength of the norm, the strength of the person's attraction to the group, the likelihood that conformity or deviation will be observable by others, the strength of the sanctions expected for conforming or deviating, personality predisposition (such as dependency, acceptance of authority, self-confidence). Whether a person will conform will depend not only on these factors but also on the strength of the tendency to deviate, which is determined by parallel considerations (e.g., is the tendency to deviate from the norms of one group a tendency to conform to the norms of another group to which the person belongs?).

Groups not only develop norms, which specify the "shoulds" and "should nots", often they also
develop styles, traditions, or customs (and these often become the object of norms), which are the habitual ways of dealing with recurring situations. Thus, a group may develop a unique language (almost every profession and trade develops its own "slang," its own peculiar abbreviations); distinctive garb, insignia, or appearance; to permit ready identification, a distinctive locale for meeting and engaging in its activities; a special style of inducing emotional responsiveness and of expressing emotion (e.g., distinctive dances, ceremonies), etc. Case-study material suggests that groups are most likely to develop idiosyncratic traditions if they are relatively isolated, as a result of geographical or social factors (due to superior or inferior status); if they are in conflict with other groups; or if their task environment is unique.

Anthropologists have, of course, studied and described in considerable detail the customs and traditions of many simple societies. A similar kind of analysis could be made of the development of customs and traditions in experimentally created or naturally formed groups, to investigate some of the determinants of particular kinds of traditions and customs. Unfortunately, little research has been conducted, apart from the pioneering studies of Sherif (1936), Merri (1949), and Rose and Felton (1955).

**Group effectiveness.** A group's effectiveness may be characterized in such terms as (1) task performance—the quality and quantity of the group's outputs, as measured in terms of external criteria; (2) group viability—the group's ability to maintain itself as a functioning group under varying conditions; (3) member satisfaction—the desire of the members to maintain their membership and to contribute to the group's viability and the attainment of group goals; and (4) member change—the change in knowledge, skills, attitudes, adjustment, or personality of the individual members of the group. Although there may be relations between these different types of group effectiveness over the long run, in the short run, however, it is evident that these different types of outcome may vary independently of one another. For example, high member satisfaction may result from or result in high task accomplishment, but high task accomplishment may also occur at the cost of member satisfaction (as when a demanding leader drives the group members on despite their protests).

The bulk of research on group effectiveness has been concerned with the determinants of task performance. This research highlights the importance of the following types of determinants: (1) the strength of the values associated with effective task performance—e.g., the greater the potential rewards for good performance and the more task-oriented the group norms, the more effort the group will be willing to put into the task; (2) the cohesiveness of the group—e.g., the more the members value the group and one another, the more willing they will be to expend effort in compliance with group norms or to achieve group-defined goals; (3) the perceived difficulty of the task—e.g., a task that is perceived to be very easy or virtually impossible is likely to stimulate less effort than a task that is viewed as difficult but attainable; (4) the amount of task-relevant abilities, information, and experience of the group members; (5) the appropriateness of the group structure to the requirements of the task—e.g., how efficient is the particular kind of division of labor for the task? how do the abilities, knowledge, and interests of the role occupants fit the requirements of their roles?; (6) the central role of the group leader and the appropriateness of his leadership style to the task and to the group.

Although there have been many studies of task performance, research in this area has been plagued by the problem of establishing reliable and valid measures of group achievement. There is little evidence to indicate that one group tends to perform reliably or consistently better than another group on a given task. Nor can one predict with much confidence, from a group's performance on one task, how it will do on another similar task. Research investigators in this area have not yet begun to develop any measures of group achievement that have the usefulness of many of the measures of individual achievement.

The determinants of member satisfaction have been studied as extensively as those of task effectiveness (for summaries, see Collins & Guerzow 1964; McGrath & Altman 1966). In brief, the relevant research indicates that a member's satisfaction is affected by (1) the status of the group—its successfullness, its task achievement, its prestige; (2) the interpersonal relations within the group—the attractiveness of the other group members, their attitude toward him, their attitude toward belonging to the group; (3) the member's role within the group—its prestige, communication centrality, power, significance, interest; (4) the direct rewards and benefits received from membership; (5) the group atmosphere, as determined by such factors as leadership style, group size, group composition, and (6) the nature and desirability of conflicting memberships or activities.

Little research has been done on the determinants of environmental input and of group viability.
There is, however, an extensive literature on member change. Much of the relevant research has been done under the rubric of conformity and deviation (for summaries, see Symposium on Conformity... 1961). Also, the growing literature on group psychotherapy (for representative papers, see Rosenbaum & Berger 1963) contains many insightful case discussions, even though the amount of systematic research is still quite small. [see Mental disorders, Treatment of, Article on Group Psychotherapy].

In addition, there is a rapidly developing list of publications dealing with human-relations training groups that are concerned with helping people learn how to function more effectively in groups. Here, too, the amount of published research is negligible. Nevertheless, since the stimulus to this approach to human-relations training came from the theoretical writings on re-education and reaction research of Kurt Lewin (1935-1946), much of the literature on training groups is imbued with social science concepts and suggests research. The major ideas of Kurt Lewin that underlie the training-group approach are that the re-education process basically involves the equivalent of a change in culture, and that for the individual to accept a new system of values and beliefs, he must come to value his membership in a group that has these new values and beliefs as a central component of its culture.

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[Other relevant material may be found in Social Psychology and in the biography of Lewin.]

BIBLIOGRAPHY


