GROUP COHESIVENESS AS INTERPERSONAL ATTRACTION:

A REVIEW OF RELATIONSHIPS WITH ANTECEDENT AND CONSEQUENT VARIABLES [1]

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The cohesiveness of small groups is defined in terms of intermember attraction and the rationale for such an approach is discussed. The empirical literature, restricted primarily to investigations published between 1950 and 1962, is reviewed with the aim of evaluating the status of variables hypothesized as having antecedent or consequent relationships with interpersonal attraction. To this end, studies from diverse fields, for example, group dynamics, personality, and learning, are brought together and categorized. Theoretical positions concerned with the development of liking between persons and the effects which liking has upon subsequent behavior are also examined by specifying predictions from systematic formulations and comparing them with the research data. The major intent of this paper is to document relationships which have been clearly established and to identify those which are still equivocal or unexplored.

The authors are concerned here with research and theory relevant to the concept of cohesiveness. Their starting point in reviewing and categorizing the literature is the definition of cohesiveness as "that group property which is inferred from the number and strength of mutual positive attitudes among the members of a group [Lott, 1961]." While it may be said that this definition merely focuses on one of several components of cohesiveness, there is good reason to assume that interpersonal attraction, liking, or positive attitudes among group members, is central to the cohesiveness of small groups, whether other factors are also viewed as independently relevant or not.

Most researchers in the area have subscribed to the position introduced by Festinger, Schachter, and Back (1950) that the cohesiveness of a group, that is, the desire of individuals to maintain their membership in a group, is contributed to by a number of independent forces, but most investigations have focused on one force, intermember attraction. When investigators have desired to manipulate the cohesiveness of

groups, regardless of their nominal definition of the concept, the operations performed have typically involved telling the members of some groups that they would probably like each other, be congenial, etc., while telling others just the opposite. Further, in measuring the cohesiveness of experimental or naturally existing groups, some sociometric device is generally utilized to determine how much each member likes or is attracted to the other members. For the most part the other forces which are assumed to determine, or be reflected by, the cohesiveness of a group have received less attention, although some investigators have manipulated variables other than interpersonal attraction in varying group cohesiveness, and some have measured it along different dimensions. Definining cohesiveness in terms of interpersonal liking is, therefore, only relatively arbitrary.

Tagiuri (1958) has noted that

Factor analytic studies of mutual ratings by members of small groups concur on the presence of three basic factors: influence and initiative, task competence, and like-dislike. While the first two are not applicable to every group, the last one is always present. . . . [and] other things being equal . . . the category of like and dislike "packages" most of the determinants of interaction [p. 317].

In a more general vein, we may cite Bonner (1959):

If we analyze group cohesiveness . . . in terms of a group's attractiveness for its members, we are confronted by the obvious fact that without at least a minimal attraction of members to each other a group cannot exist at all [p. 66].

In the present discussion, we shall be concerned only with studies of interpersonal attraction among group members and the relation of interpersonal attraction to other group process variables. How do persons in coacting or interacting groups get to like one another? And, once they do to some measurable degree, what are the consequences of this state of affairs for the group or for the behavior of the members? We want to take stock of the answers which existing research has already given to these questions and then compare the empirical findings with theoretical statements, that is, with predictions which have been, or can be, made from some of the more systematic formulations of group behavior.

Considered in this review are investigations of real or simulated interaction among persons who are in association with one another on a relatively voluntary basis. Omitted are studies of special populations like prisoners or psychotics. Another limitation is provided by date of publication; our interest is in the recent research literature and the majority of the investigations considered here have been reported between 1950 and 1962. Other reviews have provided adequate coverage of the earlier literature (e.g., Cartwright & Zander, 1953, 1960; Kelley & Thibaut, 1954; Lindzey & Borgatta, 1954; Riecken & Homans, 1954; Roseborough, 1953; van Bergen & Koekebakker, 1959). We have also, for the most part, omitted unpublished studies and technical reports. Inevitably we will have bypassed investigations which some consider of utmost relevance despite our attempt at thoroughness within the limitations mentioned above.

The number of relevant and near-relevant papers is staggering, but while a small number of phenomena or relationships have been demonstrated over and over again, other relationships remain as hints, unexplored, or equivocal. We can hopefully document both the former and latter, helping researchers to move away from the known in the direction of either more refined investigations of clear

relationships or concentration on those which have not been certainly established. We will not deal with problems of methodology and measurement, but will focus on what has been shown to hold over a variety of situations, using various techniques to manipulate conditions and innumerable devices to infer changes in dependent variables.

ANTECEDENTS OF LIKING: EMPIRICAL RELATIONSHIPS

The research considered here will be discussed under classes of variables which have been empirically linked to the consequent attraction of one individual, A, to another individual, B. Within each category may be found a number of different types of investigation which can be roughly classified as follows:

1. Experimental manipulation of Variable X (or Variables X, Y, etc.) with consequent direct measurement of the dependent variable, liking, or some other dependent variable which is assumed to reflect interpersonal liking, for example, attraction to the group. In some cases this assumption will have been made by the original investigator; in others, by the present writers.

2. Natural groups which are known to differ in the degree of interpersonal liking existing among the members are compared on other variables to determine relationships with liking. In some cases it is reasonable to assume that these other variables antedate interpersonal feelings within the groups studied while in other cases the question of "which came first" cannot be satisfactorily answered.

We are primarily concerned with liking as measured by direct choice of A for B, or as measured by A's rating of B on a scale, where the criterion for choice or rating is of a general social nature as opposed to one of a specific work or task-oriented nature. Studies concerned with the latter have been considered if they were viewed as having relevance to more general attraction.

Interaction-Propinquity

A sizable number of studies have supported the general hypothesis that interpersonal attraction is a positive function of interaction.

Bovard (1951a, 1956a, 1956b) has shown that positive affect toward individual group members and toward the group as a whole will increase significantly more in group-centered classes where verbal interaction is encouraged than in leader-centered classes, and that the relationship between average interaction within groups and average affect ratings of individual members is approximately linear. McKeachie (1954), too, found that students in group-centered classes differed reliably from students in leader-centered classes in the direction of greater liking for their group. Propinquity in boarding school classes was reported to be very reliably linked with liking choices by Maissonneuve, Palmade, and Fourment (1952). Similarly, in college classes, seat neighbors were found to become acquainted with one another significantly more often than non-neighbors (Byrne & Buehler, 1955), and the intensity of the relationship formed (i.e., whether best friend, friend, or acquaintance) has been reported to be greater among the former than the latter (Byrne, 1961a).

Studies of other natural or semi-natural settings, outside of the college classroom, have also yielded evidence in support of the relationship between opportunity for interaction and attraction. Gullahorn (1952) observed and interviewed clerical workers in an office of a large corporation. He found that distance was the single most important factor determining rate of interaction between any two employees, and that there was a tendency for persons who interacted frequently to develop "sentiments of friendship." In a housing project for married veteran university students, the two major factors affecting friendship were found to be sheer distance between houses and the direction in which the houses faced (Festinger, 1953). In another study, sorority girls living together chose best friends among themselves (house residents) significantly more often than they chose sorority sisters who lived outside of the "house" in town (Willerman & Swanson, 1952). The sociometric preferences of bomber crew members were shown to be reliably predictable from a knowledge of their location and function on the plane, that is, from a knowledge of who they had the greatest opportunities to interact with (Kipnis, 1957).

In a summer camp, Sherif and Sherif (1953) divided boys into two groups by breaking up budding friendships. As boys in each of the new groups worked and played together, friendship choices were reversed or shifted away from the boys preferred earlier toward boys within the new group. A subsequent study (Sherif, White, & Harvey, 1955) duplicated these results. Similarly, Heber and Heber (1957) have reported that elementary school children increase their favorable ratings of each other on a social distance scale following common small-group experience, and Zander and Havelin (1960) found that among three-man groups of initial strangers in the Norwegian Navy, men preferred to remain in their own groups following a period of interaction. Both of the last mentioned investigations also demonstrated that the interaction-attraction relationship is subject to variation in degree as a function of conditions such as success or failure and task competence of group members.

Even in a competitive situation, individuals, following interaction, have been found to become more favorable in their ratings of the traits of both their own teammates and their opponents (Wilson & Miller, 1961), although the increase in favorableness for teammates and opponents is not the same under all conditions. Finally, the reduction of prejudice by white persons toward Negroes has been reported to covary with increased contact between persons of different color in situations as diverse as a meat packing plant (Palmore, 1955), a housing project (Deutsch & Collins, 1958), and a university classroom (J. H. Mann, 1959).

That sheer contact may be a necessary but not sufficient condition for attraction has been shown by other investigators. Festinger (1953), for example, has discussed a housing project in which few group memberships and little social life existed among residents. Here residents, who felt "forced" to live in the project by circumstances beyond their control (housing shortage), were largely negative in their attitude toward their community and neighbors. Gundlach (1956) found, among a sample of white women workers who were members of left-wing unions with strong fair employment practices, persons in one subgroup with high

education and high social aims who were in contact with Negroes of similar education and aims to be most hostile and derogatory toward Negroes. This subgroup was also most antiunion. The other white union members, on the other hand, exhibited far less prejudice than that reported for samples of the general population.

In two controlled studies, Stotland, Cottrell, and Laing (1960) and Stotland and Cottrell (1962) found no significant relationship between interaction and desire to get to know one's fellow group members. The interaction in these investigations conveyed no information about members' characteristics, was nonverbal, and only faces or heads of members were visible. This was not the case, however, in another investigation (of sorority girls residing in the same house) where only a slight correlation was obtained between ranks on a liking scale and frequency of interaction (Backman & Secord, 1962).

It seems likely, from the evidence available, that interaction, to produce attraction, should take place in a relatively neutral atmosphere in which there are opportunities for verbal communication or the observation of one another's behavior.

Special Characteristics of the Group Situation or "Atmosphere"

Cooperation. Stendler, Damrin, and Haines (1951) observed groups of second-grade children working for individual reward and for group reward. Only under the latter condition did positive interactions exceed negative ones. Groups of fourth-grade children were studied by Phillips and D'Amico (1956). In one condition rewards were distributed according to individual contributions while in another rewards were shared equally. Attraction to members of one's group, measured sociometrically, increased in more groups of the latter kind than in those of the former. Further, in those competitive groups where rewards were distributed fairly evenly because members were well matched, the level of intermember attraction either remained as it was or increased. Increased liking, acceptance, or friendliness among subjects who have cooperated on a task, in contrast to those who have competed, has also been

reported by Gottheil (1955) working with eighth-grade students, by J. R. P. French (1951) who studied adults attending a laboratory for training in group relations, and by Deutsch (1960) who varied the conditions under which reward was attained within college classroom groups.

In a recent study by Solomon (1960), pairs of subjects played a game while each partner was in a separate cubicle, unable to see the other, and communicated via electric switches. In such a situation, too, subjects who received a cooperative strategy from their partners (i.e., one promoting maximum mutual gain) tended to develop greater liking for them than did subjects who received a noncooperative strategy.

Negative findings have been reported by Rosenbaum (1959) who had pairs of male undergraduates discuss together for 20 minutes their choice of an ideal college. At the end, cooperating pairs (defined in terms of both members being eligible for reward as opposed to just one) differed significantly from competing pairs on a measure of assumed similarity of personality traits, but not on a social distance scale of desired relationship with partner. These findings contradict most of the others reported, but it is not clear what the responsible conditions might be. In a study by Myers (1962) members of competitive rifle teams were found to increase their esteem ratings of their teammates more than members of noncompetitive teams, but in this case the individual members of competitive teams were not working against each other, but were working together against other teams.

In summary, the hypothesis that persons will like one another if they have worked together for common rather than for mutually exclusive or individual ends is generally supported.

Democracy. White and Lippitt (1960) have reported that, in the classic experiment on social climates conducted by Lewin and his co-workers in 1939, when the boys' groups were supervised by a "democratic" leader there was more friendliness among the boys than when they were supervised by an "autocratic" or "laissez-faire" leader. There was, further, greater group mindedness, more

mutual praise, and more spontaneous subgroups of five and four—one representing the greatest possible unity in a five-person group. No sociometric data were obtained in either of the two experiments comprising the investigation, and judgments of friendliness are based primarily on the analysis of conversations. It is regrettable, then, that so few other studies have been designed to specifically test the hypothesis that between similar groups, differing only in leadership style, members of democratic groups will like each other more than will members of autocratic ones.

Inconclusive data bearing on this question were obtained by Rehage (1951) in a study of eighth grade social studies classes. In one class planning was done by pupils and the teacher, while in the other it was done by the teacher alone. Students in the two classes had been matched on IQ scores and on an acceptance-rejection index. At the end of a year there was no difference between the two classes in acceptance-rejection indexes of pupils, but there was a difference in general group structure: well-defined subgroups present at the beginning tended to persist in the traditional class, whereas friendship patterns had been "modified perceptibly" in the other.

Berkowitz (1953) has also reported relevant data from an investigation involving observation of seventy-two actual conference groups in government and industry and the testing and interviewing of individual participants. Leader permissiveness in discussion content was found to correlate positively with an index of group cohesiveness (which included a measure of personal liking among members), especially in groups characterized as having "urgent problems" to solve. Further analyses indicated, however, that in groups which were permissive with respect to content the cohesiveness index correlated positively with leader control of group process and with functional differentiation of leader's role, and negatively with percent of participation and problem solution by members. Individuals in the groups studied by Berkowitz shared, apparently, "an expectation . . . that the designated leader, the chairman, is to be the major behavioral

leader in the group," and the more this was true, the more satisfied were the members with their conference.

That there is a clear and simple relationship between democratic participation and consequent liking among group members seems doubtful. It is more likely that the degree to which group members' role expectations are fulfilled is the more significant variable in producing satisfaction with the group and with each other.

Acceptance by Others

A number of studies have followed the general procedure of manipulating conditions so that A believes himself to be liked (or not liked) or accepted to some degree by B, and A's attraction toward B is subsequently measured. In an investigation by Backman and Secord (1959), for example, subjects were given the names of others who would most *probably* like them (as judged by the experimenter's evaluation of personality test data). At the first interaction session the number of these "probable likers" chosen as desired "team partners" was significantly above chance. At subsequent interaction sessions (during which the subjects got to know one another) this initial effect disappeared. In variations of this procedure, Kelley and Shapiro (1954) and Dittes and Kelley (1956) found that subjects made aware of positive ratings of themselves presumably made by their fellow group members differed significantly from others made aware of negative ratings in their desire to remain in the group or to work with the other members. The dependent measures used in the earlier study included ratings of individual co-workers. Simiarly, Dittes (1959), who permitted subjects to see fictitious ratings of themselves by others, found that the more accepted members were significantly more attracted to the group qua group and that this was more true of persons with low as opposed to high self-esteem.

In a study of the consequences of rejection, Pepitone and Wilpizeski (1960) demonstrated that in the no rejection condition, where the subject believed himself to be significantly more liked by his group members (two confederates) than in the rejection

condition, he also tended to like his fellow members reliably more. Pepinsky, Hemphill, and Shevitz (1958) manipulated rejection and acceptance by having stooges react negatively or positively to attempts at leadership by subjects. Under the first condition, the confederates received a disproportionate share of negative sociometric choices while under the second, favorable choices were randomly distributed between confederates and other subjects, and the groups were significantly higher in "morale." Harvey (1962) has shown a relationship between subjects' reevaluations of friends and strangers and the ratings presumably received from the friends and strangers: "agreement or near agreement of the source's with subject's self-ratings resulted in subject becoming more positive toward the source, particularly the stranger source. . . ." Also concerned with rejection, Snoek (1962) compared its effects when of an invidious and noninvidious nature, the latter being impersonal and not implying negative evaluation of the rejected person. Subjects exposed to the latter condition showed a greater reduction in attraction to the group as measured by the question, "Do you want to remain a member?" but the reason for rejection did not make a difference on a measure of rejected subjects' desires for contact with individual members. The reasons for rejection differed not only on the invidious-noninvidious dimension, but also in terms of a subject's expectation that he might join the group (bridge club). When the rejection was invidious it was based on personal qualities and skill (open to change), but when non-invidious it was based on the subject's sex, that is, the other group members preferred to have a girl. Utilizing a procedure designed to induce not rejection, but simply a "fear of rejection" in some groups and not in others, de Charms (1957) found a tendency (nonsignificant) for subjects in the former to find their groups less attractive, as inferred from responses to a questionnaire.

Some studies have manipulated acceptance by varying status within the group. In a role-playing situation, Zander and Cohen (1955) found that subjects playing high-status persons were significantly more attracted to their groups than those playing low-status persons, and the former also differed from the latter in having perceived themselves as making a good first impression and having influenced the group. Berkowitz and Macauley (1961) reported that subjects who believed themselves to have been elected by other group members as discussion leaders tended to be more highly attracted to their fellow members both as social companions and work partners if they also believed that their high status could drop.

In a questionnaire study of staff members in a child welfare agency, Jackson (1959) obtained some evidence that professional personnel selected by co-workers as being the "most valuable" in terms of their contributions tended to be more attracted to their groups and its members, especially if they were in high contact with one another. Also utilizing a natural environment, Newcomb (1956) studied seventeen men, initially strangers, housed together in a dormitory. Throughout the period of interaction there was a positive relationship between liking of others and believing oneself to be liked by them. Similar findings were reported earlier by J. R. P. French (1951) and Tagiuri (1952). French found that among the bases on which friendship choices were made among group members was the extent of actual and expected reciprocation of choice, and Tagiuri, after investigating about thirty different groups, reported that the "relationship between perception of affect and affective response has been found to obtain generally, irrespective of the size of the group, the sex and the age of the subjects. . . ." Whether A's perception that he is positively evaluated by B antedates his liking of B is not clear from these particular studies, but the controlled experiments which have been cited amply support the conclusion that A will like B if B likes or accepts A. That, as we shall see later, one of the consequences of A liking B seems to be a tendency for A to perceive himself as also being liked by B lends additional significance to the importance of mutuality or reciprocation.

Frustration–Threat

Sherif and Sherif (1953) reported that the consequence of frustrating and competitive

intergroup relations for boys at a summer camp was to solidify "in-group belongingness and solidarity . . . and to strengthen in-group friendships." Earlier, Wright (1943) had observed the same general phenomenon. Pairs of children were subjected to frustration by the experimenter with a consequent increase in cooperative behavior and a decrease in time spent in conflict. No direct measure was obtained of friendship or liking. In another early study, the well-known "social climate" investigation by Lewin (cited by White & Lippitt, 1960) and his co-workers, the autocratically led, submissive, groups were found to surpass all others in the proportion of friendly remarks among the boys. Two other studies in which no direct data on intermember liking were reported are also relevant. Lanzetta, Haefner, Langham, and Axelrod (1954) and Lanzetta (1955) found that groups of reserve officer trainees working, in one study, under the threat of "evaluation" and, in the other, under the stress of time and negative comments by the experimenter were more sociable, cooperative, and friendly than groups working on identical tasks but under no threat. More recently, Myers (1962) reported that individuals in three-man teams facing "adversity," that is, competition against other teams, pulled together and rated one another higher than did individuals in noncompetitive teams. Despite the fact that an absent member reduced his team's score on the day of his absence, absent members, too, were rated higher by members of competing groups. Members of competing groups also perceived themselves as being more accepted by their teammates than did members of noncompeting teams.

The findings of some investigators indicate that the shared threat-attraction relationship is influenced by other variables. Hamblin (1958), for example, demonstrated that group integration does not increase under threat or crisis when a likely solution requiring cooperation is unavailable to the group members. Some groups were subjected to arbitrary rule changes while playing a game; others were not. The former groups were observed to differ significantly from the latter in the following areas of behavior, exhibited after the "crisis": less helpfulness among members, less praise of others, and greater antagonism. No data were obtained, unfortunately, on groups subjected to threat where a likely solution *was* available. Data reported by Mann and Mann (1959) may be interpreted as supporting Hamblin's hypothesis. Classroom groups, meeting four times a week for one hour over a three-week period, were organized as task-oriented study groups to discuss assigned lists of reading or as free discussion groups. Ratings of the members' desirability as friends increased in the former groups and decreased in the latter where, according to observers, the subjects were frustrated and angered by the indefiniteness of their situation. As in Hamblin's study, perhaps these subjects saw "no way out."

That the threat shared by individuals should be one emanating from an *external* source in order for increased liking of one another to follow is suggested by the findings of Pepitone and Kleiner (1957). High status groups of boys at a summer camp (i.e., winners of two out of three tournament games) were told either that they would probably lose the tournament (threat) or that they would probably win. Following the threatened loss of status there was no change in the number of positive choices made among teammates while among those told they would probably win there was an increase in positive choices. In this study threat was operationalized by a prediction of failure made by a source external to the group but failure would necessarily result from poor playing on the part of the boys themselves.

It is apparent from the studies cited that definition or manipulation of "threat" varies from one investigation to the next. It has, for example, been equated with intergroup competition, with frustration or negative treatment, and with threat of failure. In other research (e.g., Burnstein & McRae, 1962) poor evaluation of group performance on a task has been used to induce a condition of "shared threat." Such studies, in which actual success or failure constitutes the major independent variable, will be discussed separately in a subsequent section. Despite differences in the operations used to create a stressful situation, the evidence examined

provides a fairly consistent pattern. We suggest that attraction among individuals will be found to increase when their common threat stems from an external source (i.e., is not a function of their own lack of skill), when there exists the possibility that cooperative behavior may reduce or eliminate the threat, and when single individuals cannot escape from either the group or the threat.

Status

Status Similarity. Thibaut (1950) manipulated the status of teams of boys by assigning differential roles to each team in a series of games, and the boys subsequently chose teammates for a further game. Those in high-status groups (especially peripheral or less popular boys) showed a significant increase in proportion of own-team choices. Popular or central members of low status groups which had been unsuccessful in an attempt to improve their status also increased their proportion of own-team choices. We shall consider this latter finding again in our discussion of the effects of the success-failure variable on interpersonal attraction. Our concern here is with the consequences of status defined by operations other than success or failure on a task. Further evidence appears in a report by Festinger (1953) in which he compared a housing project for married veteran students (Westgate) with a government project outside of a large city (Regent Hill). The inhabitants of the two projects were described as differing sharply in the evaluation of the prestige and desirability of their respective communities. The majority of those living in Regent Hill resented having to be there (because of the postwar housing shortage) and thought of their neighbors as lower class. The students of Westgate, on the other hand, were living among preprofessional peers and had a generally positive attitude toward their community. It is not surprising, then, that many more informal and formal groups were established and friendships developed among neighbors in Westgate than in Regent Hill. In another field study of industrial work groups, Seashore (1954) found a small but significant positive correlation between perceived status of one's job and an index of group cohesiveness (which did not include a measure of intermember liking). Since perceived status of job was determined by asking individuals whether they had a "good" job, it is not clear whether the obtained findings reflect a relationship between cohesiveness and job prestige or between cohesiveness and job satisfaction.

Other relevant research has been done on groups composed of members differing from one another in status. Individuals high in professional prestige, attending a one day conference, were found to prefer others like themselves for friendly interaction over individuals of lower status (Hurwitz, Zander, & Hymovitch, 1960). In a laboratory situation where status was manipulated by the desirability of job performed, subjects in high-status but mobile positions tended to accept persons at their own level and reject others (Kelley, 1951), although there were no significant differences between conditions in choice of best-liked person. Cohen (1958) has reported similar findings to Kelley's regarding high-status subjects. Jennings (1950) also found that mutual choice was greatest among the overchosen or high-status girls (the leaders) on a "live and work with" criterion question. Mutual rejection was also greatest among these girls, suggesting the operation of competition or rivalry (Homans, 1961) under the same conditions which produce attraction.

The above studies generally support the conclusion that members of the same high-status group or members of mixed-status groups occupying high positions will tend to like one another.

Status Dissimilarity. That the tendency for high-status persons to be attracted to others of high status (considered above) is probably independent of a similarity-attraction relationship is suggested by findings which indicate a general preference for high-status persons. Hurwitz, Zander, and Hymovitch (1960), for example, found that individuals low in professional status liked those of higher status more than they liked each other. Data on direction of communication support the sociometric findings. Masling, Greer, and Gilmore (1955), working with

military men, also found status to be highly related to sociometric ratings, and Tagiuri, Kogan, and Long (1958) reported that college preparatory students tended to choose (for a roommate), without perceiving themselves chosen in return, individuals with high choice status, while they perceived themselves as being chosen by individuals of lower status. In the previously mentioned Kelley study (1951), the low-task-status but potentially mobile subjects exhibited friendly behavior to high-status subjects, as judged from an analysis of written messages; this was not true, however, of low-status, nonmobile individuals. Cohen's (1958) replication of this study obtained similar data and, in addition, found that nonmobile, low-status subjects sent significantly more cohesiveness-enhancing comments to their own subgroup than did mobile, low-status subjects. The nonmobile, low-status subjects may have experienced a condition of common frustration which, perhaps, was a more powerful variable than status in influencing the development of positive affect toward other group members. Findings from another study (Thibaut & Riecken, 1955) suggest that some people may be more prone than others to be influenced by relative status in their acceptance or rejection of persons. Men high in authoritarianism, after experiencing aggression at the hands of an instigator, rejected him less if his status was high and rejected him more if his status was low than did less authoritarian men.

A number of investigations have found that individuals tend to like persons who have influenced them, and it seems reasonable to include such findings in the present discussion since the direction of influence is most usually from a position of high to a position of lower status. Whether influence precedes attraction, or vice versa, is, however, not clear, since the data have come from studies in which influence has not been manipulated. Perlmutter (1954), for example, has reported that within adult discussion groups the greater the perceived influence of a member, the more desirable were the traits assigned to him; in some groups a significant positive correlation was also obtained between the valence of a group member with respect to

"most prefer working with" and his perceived influence. Earlier, Lippitt, Polansky, and Rosen (1952), in a replication of an earlier study, found that boys in a summer camp situation tended to like those boys to whom they also attributed high power (or influence potential). Tagiuri and Kogan (1960) have reported positive correlations between liking of others and feeling influenced by them as well as between liking of others and feeling influential over them. The latter finding, together with evidence from Kelley (1951), suggests another phenomenon toward which additional research might well be directed. Kelley found that high-status, nonmobile subjects, that is, those not threatened by loss of status, exhibited as much inter-level friendliness as did subjects in the nonhierarchic control condition.

Status Congruence. Adams (1953) found that in bomber crews where members were in the same status relationship to one another on a number of different dimensions, for example, age, education, role prestige (where, in other words, status congruency was high), there were more friendships than in crews where status congruency was low. Similarly, in a study of supermarkets by Clark (cited by Homans, 1961, pp. 225 ff.), congeniality between "ringer" and "bundler" was found to vary with status congruence: Congeniality was high when the ringer was equal to, or higher than, the bundler in both general work responsibilities and social position. Exline and Ziller (1959) set up congruent and noncongruent decision-making groups in terms of status derived from each member's ability on a task and the worth of each member's vote. Congruent groups were rated by observers as significantly more congenial. An investigation by Raven and French (1958) is also relevant. They predicted that the more a supervisor was perceived as having a legitimate right to her position, the higher would be the ratings she received from group members on a liking scale. The results, although not statistically reliable, were in the predicted direction. Judging status along a standard of legitimacy may be considered of the same nature as comparing status on one dimension with that on another.

Behavior or Personality Characteristics

Here we will consider investigations which have related the attractiveness of an individual to his specific characteristics, regardless of those of the individual attracted to him or the nature of their relationship.

One class of such studies is represented by those in which persons differentiated on the basis of personality test scores are compared with respect to their likability or the extent to which they are chosen by others as friends (or on some related criterion). Masling et al. (1955), in two separate investigations with army men, tested the hypothesis that "equalitarians" will receive more sociometric nominations than authoritarians because they exhibit greater warmth and less hostility. This assumption was based on previous research by Sanford and by Eager and Smith (cited by Masling et al., 1955) in which equalitarians were found to be perceived as warmer than authoritarians, and camp counselors judged as hostile scored higher on a measure of authoritarianism than those not so judged. Masling and his co-workers found that a small but significant positive relationship between equalitarianism and sociometric choice did exist where army status was held constant. Chapman and Campbell (1957) have also reported a small, insignificant correlation in the same direction: highly authoritarian individuals (as measured by the California F Scale) tended not to be chosen as desirable teammates. In a different kind of study, Kates (1959) had subjects rate two stimulus persons described in case studies. The objectively more authoritarian person was perceived by the subjects as having greater power, exhibiting more leadership and being more personally attractive. He was not, however, judged as being more authoritarian. These findings, then, do not contradict those cited above since the difference in authoritarianism between the two stimulus persons was not recognized by the subjects.

A number of investigators have pursued the question of whether individuals with relatively positive self-concepts are more attractive or better liked than persons with less positive self-concepts. McIntyre (1952) found no significant difference, in responses to a self-attitudes questionnaire devised by

Phillips, between the most highly and the least accepted men within a college sample. A similar study by Fey (1955), using his own self-attitudes scale, also obtained no significant relationship between self-acceptance and acceptance by others, but subjects with high self-acceptance and low acceptance of others tended to be rejected by others. Positive findings with respect to self-acceptance and acceptance by others have been reported by Miyamoto and Dornbusch (1956) as well as by Reese (1961). In the latter study, of elementary school children, evidence was obtained for a curvilinear relationship, that is, high acceptance, measured by both rating and ranking, was found to be accompanied by moderate self-concept scores as measured by a scale devised by Lipsett.

Still other characteristics have been found to distinguish attractive, likeable individuals. Kelley (1950) had students in an economics class rate a substitute teacher, about whom they had previously received information, on seven personality-behavior scales, following a discussion led by the substitute. Those students to whom the substitute had been previously described as "warm" consistently rated him more favorably than those to whom he had been described as "cold." Using multiple criteria to determine acceptance and rejection among dormitory members at a girls' college, Lemann and Solomon (1952) found that highly accepted girls were rated by their peers as "generous, enthusiastic, and affectionate, while girls with low status were generally rated more stingy, apathetic, and cold." R. L. French (1951) obtained data among naval recruits which indicated that men with sick bay and disciplinary offense records tended to be less acceptable to their peers than were other men; and Tagiuri (1952), in comparing 15 maladjusted prep school boys (i.e., boys who had been seen by the school psychiatrist) with 15 well-adjusted boys, found that the latter received more positive sociometric choices from their peers than did the former. A similar phenomenon in a quite different environment has been reported by Speroff and Kerr (1952): Among a group of workers in a steel mill, interpersonal desirability was negatively correlated with number of personal accidents.

With the exception of Kelley's (1950)

study, the other investigations mentioned in the preceding paragraph leave unanswered the question of which variable, positive behavior or relative attractiveness, is antecedent and which is consequent. This is true, as well, of a study by Van Zelst (1951) in which construction workers who were rated high in desirability by others were found to differ significantly from those rated low, in being generally better adjusted to their jobs and more favorable in their attitudes toward the company. Causality is more apparent in findings reported by Kipnis (1961): Male freshmen who had ascribed negative traits to their best friends (more than to themselves) broke off these friendships, within a six-week period, more frequently than did those who had ascribed more positive traits to their friends than to themselves.

Pepitone and Sherberg (1957) found that subjects who read scripts of an incident involving a punishing person rated him significantly higher on a liking scale, that is, disliked him less, when he was perceived as having "good intentions" than when his intentions were believed to be bad. In another study with Wallace (cited by Pepitone, 1958), subjects who failed test items under arbitrary conditions imposed by the experimenter disliked him more than did subjects who failed justifiably. In both of these studies, an individual's attractiveness to others is seen to be influenced by his particular behavior in a given situation, regardless of whether this behavior is characteristic of his personality.

That both more enduring traits and situation-specific behavior determine attractiveness is suggested by the findings of Jennings' (1950) investigation of interpersonal relations among four hundred girls in a training school for delinquents. Girls who were overchosen by their peers on the criterion of "live and work with" are described by Jennings as sensitive "to the elements of the total group situation to a very much greater extent than the average member"; they contributed constructively to the development and positive experience of others, displayed high esprit de corps and tended to internalize private worries. Compared with the other girls, the highly chosen were less quarrelsome, less aggressive, more cooperative, and

more initiative-taking. Similar findings have been reported by other investigators. For example, with respect to the variable of sensitivity, Gage and Suci (1951) found that high-school teachers who were more accurate in predicting their students' opinions on school related matters were also those who elicited positive affect from their students. Popularity has been related to accuracy in the perception of others' interpersonal preferences within infantry rifle squads (Greer, Galanter, & Nordlie, 1954), and to accuracy in the perception of others' popularity and group dimensions within classroom groups (Bugental & Lehner, 1958). Other characteristics of liked persons, similar to those reported by Jennings, are also supported by subsequent investigations. Haythorn (1953) found, among naval reserve officer trainees, that those men who were most often chosen by their peers on a number of sociometric criteria were those who most facilitated the effective functioning of their groups, who were rated cooperative, efficient, and insightful, and who scored high on personality measures of maturity, adaptability, and acceptance of others. Positive relationships have also been reported between likability and number of interactions initiated in discussion (Norfleet, 1948), judged value of contributions to the group (Theodorson, 1957), and frequency of participation (Shelley, 1960).

In the Theodorson study, the cited relationship was limited to certain groups, those high on an index of cohesiveness. Other limiting conditions are suggested by an investigation by Bales (cited by Riecken & Homans, 1954). Individuals in problem-solving groups rank ordered each other on four criteria at the end of each of several meetings. Scores on "contributed best ideas to solve problem" and "did most to guide discussion" correlated highly with frequency of both initiation and receipt of interaction, but "like" scores correlated highly with the other scores only at the first meeting and not at subsequent ones. A man who had ranked high at the end of the first meeting on both the "best ideas" and the "like" scales tended to keep the latter status and lose the former by the end of the second meeting. Thus, in certain kinds of groups, specification of which is still unclear, "task master" and "good fel-

low" roles (Riecken & Homans, 1954) may be antithetical. In another investigation, Bales (cited by Homans, 1961) found that group members tended to dislike those leaders who talked more than they were talked to while leaders "whose ratio of receipts to initiations was high were apt to be chosen highly for both guidance and liking [Homans, p. 306]." Related to this general question, Jennings (1950, p. 272) noted that although many of the choices made on the "live or work with" criterion were the same as those made for leisure time companions, there were also differences; and the foundations for the latter choices seemed to be "based more exclusively in warmth and good feeling, as ends in themselves."

A large number of investigations concerned with individual personality and small-group performance (reported between 1900 and 1957) have been reviewed by R. D. Mann (1959). He concluded that the data on popularity support a positive relationship with "extroversion, intelligence, adjustment, and conservatism."

It is apparent that the attractiveness of an individual is enhanced by certain behavior which may be either temporary and situation bound or enduring and central to his personality. This behavior, as seen from the research summarized above, can be described in terms of warmth, equalitarianism, good adjustment, sensitivity, helpfulness, and so on. Such behavior might be further described, more generally, as that which should result in interaction that would have pleasant, as opposed to unpleasant, consequences.

Similarity

No other variable considered thus far has been the object of more investigation than this one. One of the major problems, however, is that the question of whether mutual attraction is a consequence or an antecedent of similarity is not always answered, although there have been a few controlled studies directed specifically at clarifying the direction of the relationship. A related problem in this area of research concerns the measurement of similarity. B's similarity to A is sometimes objectively determined; other times A simply perceives B as similar to himself (and perhaps

erroneously). In the latter case, does A perceive B as similar to himself because he likes him, or is he attracted to him because he believes that B is similar? It is probable that both relationships hold, but here we shall be concerned with the latter. Data bearing on the former will be considered later when we examine findings relevant to the consequents of attraction between persons.

Background (Race, Ethnicity, Occupation, Age, etc.). In a laboratory group composed half of Jewish girls and half of Catholic girls, the girls in each category split their votes equally between Jews and Catholics before members were identified by religious affiliation. After identification, the Jewish girls continued to split their votes, but the Catholic girls overchose within their subgroup (Festinger, 1950b). In a subsequent situation where religious identification of the *voter* was not possible, both Jewish and Catholic girls voted in the direction of their respective subgroups. Choice on the basis of similar religion has also been reported by Goodnow and Tagiuri (1952) among boys attending a liberal preparatory school; and Zaleznik, Christensen, and Roethlisberger (cited by Homans, 1961, pp. 214 ff.) found that in a Boston industrial plant persons in the Irish majority were much more likely to be approved and accepted than those of a different ethnic background. Other investigators have reported similarity of occupation to be a basis for friendship choice among adult members of training groups (J. R. P. French, 1951), and similarity in the education and salary of fathers to be a basis for not desiring a change in roommate among freshman girls (Broxton, 1962).

In a field study by Seashore (1954), the cohesiveness of industrial work groups, measured by responses to questions about the group as a whole, was found to be positively related to within-group age variance, not age homogeneity, and not at all related to similarity in educational level of members. Cohesiveness did correlate positively and significantly, however, with the percentage of members in the group who had had over three years of service with the company. It is not surprising to find that the importance of similarity on particular attributes will

vary in different group situations, or, in other words, that homogeneity with respect to a given characteristic will not be related to friendship choices in all groups. Thus, Lazarsfeld and Merton (1954) have reported that within each of two housing communities, Craftown in New Jersey and Hilltown in Pennsylvania,

the degree of similarity . . . of close friends varied greatly for different attributes . . . from the almost complete limitation of intimate friendships among those of the same race and sex, to entirely negligible selectivity in terms of educational status [p. 22].

Further, religion was an important selective factor in Hilltown, but not in Craftown, where similarity in political values took precedence.

What may be operating in the tendency to make positive choices for individuals similar to ourselves in background characteristics is suggested by the results of two studies reported by Byrne and Wong (1962). In the first, Wong had subjects indicate their feelings about strangers on whom only minimal background data were provided. As expected, highly prejudiced white subjects responded more negatively to a Negro than to a white stranger, while subjects low in prejudice did not. The second study tested the hypothesis that highly prejudiced white subjects assume a greater degree of *attitude dissimilarity* between themselves and an unknown Negro than between themselves and an unknown white person whereas subjects low in prejudice do not. The hypothesis was supported. Of further interest is the analysis of actual attitude similarity; there were not significant differences between a sample of white and Negro subjects on 26 items, indicating that the dissimilarity highly prejudiced white subjects perceived between themselves and Negroes was a function of their prejudice. A question is raised by these findings which merits investigation: If we tend to believe that persons who are like ourselves in some salient background characteristic are also similar to us in attitudes, will it also be the case that when A perceives B to share a number of his attitudes that he will assume B to be similar to himself in background?

Attitudes. In a further study by Byrne and Wong (1962), white subjects were provided

with both background information and the results of a 26-item attitude questionnaire (dealing with a range of issues from God to television) for either a white or Negro stranger and asked to indicate their feelings toward (i.e., liking of) the stranger by checking one of seven statements. Half of the subjects were led to believe that the stranger's attitudes were in complete agreement with their own in direction, while the other subjects were led to believe that the stranger's attitudes were opposite to theirs. Personal feelings toward the stranger were found to be significantly influenced only by attitude similarity and not by race of the stranger, or by the subject's degree of prejudice. These data and other findings reported by Rokeach (1960) indicate that belief congruence may, under certain conditions, be more important than race in determining interpersonal preference. In this connection, Triandis (1961) has pointed out that whereas belief similarity may be more important than ethnic similarity with respect to friendship choices, this is not the case with respect to relationships "involving relatively large social distance, such as acceptance of a person as a neighbor or as a student in one's university."

Similarity in interest was found to be more closely associated with clique membership than either grade or neighborhood in a study of adolescents in a California high school (Marks, 1959), although the interests which were relatively homogeneous within cliques differed with the sex of the group. From this study it is not possible to determine clearly whether common interests preceded clique formation or whether membership in the same group gave rise to shared interests. In some other investigations, however, there is less ambiguity regarding the independent and dependent variables. Broxton (1962), for example, found that freshman women who, at the end of five weeks, did not desire to change roommates were more similar to their roommates in certain attitudes, for example, toward drinking and smoking, than were women who did want to change.

A considerable amount of relevant data has been reported by Newcomb (1958, 1961) from a large-scale study of university men, initially strangers, who were housed together

in a dormitory. Measures of attitudes toward 100 objects, as diverse as President Eisenhower, house rules, and classical music, were obtained prior to the boys' acquaintance with one another. For the first of two groups of seventeen students, "it turned out that clusters of most closely agreeing individuals, before acquaintance, were those most likely later to constitute cohesive cliques [Newcomb, 1958]." The preacquaintance indices of actual agreement did not predict to early sociometric choices, but to those made after the first two or three weeks, after, presumably, the men had had a chance to learn one another's orientations to various issues. The attitudes of the men remained, in general, relatively stable while their "high attraction preferences tended to change in favor of individuals with whom they were more closely in agreement [Newcomb, 1961, p. 254]." During the early weeks, judgments made by the men about each other's attitudes were related to their feelings of attraction, but their judgments tended to be not very accurate. "With the acquisition of new information about each other, estimates of others' orientations tended to become more accurate, and the preponderance of changes in attraction were thus influenced by considerations of reality [1961, p. 255]."

Byrne (1961b, 1961c) has supplied additional data relating attitude-scale agreement with liking and has also reported (1961c) that the effect attitude similarity has on attraction varies with strength of affiliation motivation. Subjects high in need for affiliation responded to a dissimilar stranger with dislike but subjects low in affiliation need responded with indifference. It can be expected that attitude similarity will not be given the same weight by all persons when they judge the attractiveness or likability of another individual, and further, that similarity on some attitudes will be more important for some people, that is, have more influence on such judgments, than similarity on others. Supporting data with respect to the latter expectation have been reported by Newcomb (1961), but both hypotheses are in need of further verification and refinement.

Some studies have shown a relationship between attraction and agreement on a variety of relatively specific issues, as distinct from general attitudes. Festinger, Schachter, and Back (1950) found that in a student housing project consisting of U-shaped courts there was relative homogeneity within courts with respect to attitudes toward a tenants' organization, and that those who deviated from the dominant attitude tended to be rejected on the sociometric question, "Who do you see most of, socially?" In another part of the housing area, however, consisting of rows of two-story buildings, the degree of homogeneity regarding attitudes toward the tenants' organization was even greater than within the courts, but deviates were not rejected. In a theoretical paper, Festinger (1954) reported data from a study by Festinger, Gerard, Hymovitch, Kelley, and Raven (1952) which had not been given in the original research paper. Groups of subjects had studied a labor dispute and then evaluated the union's behavior. After the experiment, the subjects had been asked how well they liked the other persons in their group. "In each of the eight different experimental conditions those who thought that the others held divergent opinions were less attracted to the group [Festinger, 1954]." Gross (1954) found that for some Air Force personnel interpersonal attraction was associated with common satisfaction with the Air Force, or agreement with respect to personal commitment to Air Force goals, while for other men attraction was associated with shared dissatisfaction with the air site and with their jobs. In Hilltown, one of the housing communities discussed by Lazarsfeld and Merton (1954), white residents tended to overselect as friends those with the same "racial attitudes." Newcomb (1953), similarly, has reported that in two replications of a study in a small college community, students at each extreme with respect to political attitudes chose, as friends, those like themselves. Altman and McGinnies (1960) have related similarity in ethnocentrism among group members to their attraction to one another. Six-man groups, of varied composition with respect to the California E-Scale scores of the members, viewed and discussed a film dealing with ethnic minorities and prejudice. Low-ethnocentric (E) subjects

were found to be more apt to choose other low-E subjects on an attraction question while high-E subjects divided their choices about equally between highs and lows. High-E subjects, however, were not as accurate as were low-E subjects in identifying the attitudes of other group members.

One study (Gage & Exline, 1953) has produced negative findings: no association between leisure-time, sociometric ratings of group members and either their actual or judged similarity in response to a series of opinion items regarding group processes and the study of human relations. Perhaps opinions on these questions were not especially important to the group members and a different set of items might have yielded different results. Newcomb's data (1961) suggest that agreement on some issues is more related to attraction than agreement on others, and that these are the issues about which the individuals are more concerned.

Provocative data within a different kind of research setting have been reported by Gerard (1961). Subjects in a modified Asch situation ranked highest, on a liking scale, the subject who always agreed with them in line judgments, and they ranked lowest the subject who never agreed with them. In addition, a group member who switched from disagreement to agreement either very early or very late in the judgment series was ranked higher than one who switched somewhere in the middle. In another investigation of an Asch group-pressure situation, Malof and Lott (1962), though they obtained no data on liking, found that the support of a Negro confederate who switched to making correct judgments was accepted by highly prejudiced white subjects (exposed to erroneous judgments by a white majority) almost as readily as it was accepted by white subjects low in prejudice. Acceptance of support was defined by a change, on the part of the critical subject, from incorrect to correct judgments following such a change by the confederate.

Agreement between Individuals A and B, not on Issue X, but on their evaluation of another individual, C, has also been shown to relate positively to A's and B's evaluations of one another. Newcomb (1956) found that this relationship increases over time among a

group of students living in the same dormitory, and Davol (1959) reported that among men in a Veterans' Administration domicile those who either liked or disliked another man in common tended to like each other.

If B's agreement with A on C enhances A's attraction to B, we can further suppose that B's agreement with A on A, that is, agreement with A's self-evaluation, should have the same result. Newcomb (1956) found this to be the case with respect to agreement on both positive and negative traits. Backman and Secord (1962), similarly, found that girls in a sorority house both like and interact most with those girls whom they believe see them as they see themselves (with regard to selected personality traits), and they like least and interact least with those girls whom they believe to have images of themselves at variance with their own. These data were unrelated to differences in the social desirability of the traits.

Deutsch and Solomon (1959) investigated the consequences of agreement on evaluation of task performance. Female telephone-company employees were led to believe that they had performed poorly or well on a task and then received either an unfavorable or a favorable note from one member of their group. Although there was a clear tendency for subjects to respond more positively to a favorable note writer under all conditions, when this was held constant it was found that a note writer was more favorably evaluated when her opinion of a subject's task performance was consistent with the subject's own than when the note writer's opinion was inconsistent with the subject's. A further study (Howard & Berkowitz, 1958), has shown that agreement among persons in their evaluation of an individual's performance also affects his attraction to them. Subjects whose task performance was judged by four observers tended to be less desirous of working with the one whose judgment deviated from that of the other three, regardless of whether the deviant evaluation was positive or negative.

A final group of studies relevant to the present discussion are those dealing with the relationship between acceptance of A by B and A's consequent attraction to B which we reviewed earlier. We assume that, in most

cases, acceptance by another is congruent with own feelings toward ourselves, that is, that self-attitudes tend to be favorable.

Values. The Allport-Vernon Study of Values (or one of its revisions) has been employed in a number of investigations to compare friends with nonfriends or persons who like each other more with persons who like each other less on similarity of value profiles. Newcomb (1956), for example, has reported a significant relationship between actual similarity in Allport-Vernon scores and attraction and also between estimates of agreement (i.e., subjects' perceptions of how others would rank order the six values in the scale compared with their own rankings) and liking (Newcomb, 1958). This latter relationship was greater after fourteen weeks of interaction among men in a dormitory than it was after two weeks. A. J. Smith (1957), concerned with the causal direction of this relationship, gave to each of his subjects two partially completed Allport-Vernon booklets, one containing responses identical to those previously made by the subject and the other containing dissimilar responses. Subjects then rated each of the individuals, whose Allport-Vernon booklets they had presumably seen, on their desirability as social companions and as work partners. Acceptance on both measures was significantly greater for the hypothetical person with similar values. Reilly, Commins, and Stefic (1960) have reported a slight tendency in the direction of greater similarity in value scores between friends than between nonfriends. In still another investigation utilizing the Study of Values, Jones and Dougherty (1959) found that subjects with high political scores evaluated another politically oriented person favorably, especially when competitive interaction with him was anticipated. When no interaction was anticipated, subjects with a high political value score chose as "liking best" a political rather than an aesthetic person. When, however, scores on Christie's Mach IV Scale were used as a measure of political values, contrary findings were obtained. Individuals high on the Mach Scale, who can be described as manifesting a strong need to manipulate the social environment, tended to devalue others with a similar orientation. These findings anticipate others to be discussed below which indicate that either similarity or complementarity between persons may function to increase their attraction to one another, depending upon the nature of the characteristic (value or personality trait) and upon a number of other, as yet unspecified, conditions.

A nonsignificant correlation between value homogeneity and the ratio of in-group to out-group choices made by members of natural college groups was reported by Eisman (1959) and also by Ramuz-Nienhuis and van Bergen (1960) who replicated the Eisman study in Amsterdam. The later investigators noted, however, that an in-group to out-group choice ratio may "not reflect personal attraction very accurately," since feelings about other persons outside the group "will affect the choice ratio, while it has nothing to do with the feelings of personal attraction toward the group members."

Precker, in two studies (1952, 1953), found that students tended to choose peer group members for association after college, and also to choose as college advisors individuals whose rankings of 39 value categories were similar to their own, without knowledge of the rankings made by the others. The correlation between rankings was highest for mutual student choices. Data reported by Thompson and Nishimura (1952) are also relevant here if we can assume that a person's conception of the "ideal personality" is a reflection of his system of values. Each individual within a sample of eight pairs of best friends filled out a 100-item personality schedule under a number of different instructions, including rating the traits of ideal and friend. Significant positive correlations were obtained between the ideal personality ratings made by pairs of friends and also between the ratings of ideal and of friend by the same individuals. One further study seems pertinent to the present discussion. Thibaut and Kelley (1959) have suggested that it is costly (in terms of effort and expense) to maintain friendships over a distance and that such relationships would, therefore, "be expected to show relatively high value similarity." In support of this hypothesis, they cited data (p. 41) obtained by Williams and

others to the effect that greater agreement was found between a sample of individuals and their friends residing outside their immediate community than between the same individuals and their friends living close by.

Compatible Personality Traits. What constitutes compatibility has not, thus far, been clearly defined. Within the empirical literature there are numerous contradictory findings, but these apparent contradictions may simply reflect the fact that compatibility requires similarity in certain characteristics and *complementarity* in others. In other words, compatibility seems not to be an exclusive function of one variable or the other, but a complex function of both.

Some studies have shown a simple positive relationship between attraction and similarity of objectively measured personality traits. Lindzey and Urdan (1954) reported that pairs of students who chose to room together were more alike on personality measures than were those who rejected one another. Similarly, Izard (1960a), using Edwards' Personal Preference Schedule, found pairs of friends to be significantly more alike in profile scores than randomly established pairs. Izard also obtained significant positive correlations between friends, but not between random pairs on the specific traits of exhibitionism, deference, and endurance. In another investigation Izard (1960b) demonstrated that the similarity in personality profiles between friends exists prior to their acquaintance.

In a different kind of study, Cohen (1956) paired subjects on the basis of similarity or dissimilarity in ego defenses, or preference for projection. Following discussion of defense-provoking stories, the similar pairs were more attracted to one another than the dissimilar pairs while the projection-preferring pairs were least attracted to one another. These data suggest that sheer similarity in certain personality characteristics may not be conducive to satisfying interpersonal relations, and that compatibility between the traits of one individual and those of the other must be more broadly defined. Winch (1955) and Winch, Ktsanes, and Ktsanes (1955), for example, who compared husband-wife pairs with randomly matched men and women on

need patterns (as measured by the Thematic Apperception Test and interviews) found the existence of complementarity among the married pairs, especially with respect to the assertive-receptive dimension. In another research context, Gross (1956), studying informal groups within an Air Force population, reported that some groups were composed of men with dissimilar characteristics and that in these "symbiotic" groups each man seemed to have something to offer the other; other groups (consensual) were made up of men with similar characteristics who shared a goal or a set of values. Schutz (1958, 1961) has more explicitly defined and investigated these two kinds of compatible groups, which he called reciprocal when there was complementarity of three basic interpersonal needs, and interchange when there was similarity in interpersonal needs. He has shown that such groups tend to be productive and cohesive and that their members tend to like one another and to desire continued contact.

Negative evidence with respect to both similarity and complementarity has also been reported. Thus, Bowerman and Day (1956), using Edwards' Personal Preference Schedule, found no support for either homogamy or complementarity in the needs of 60 college couples, regularly dating or engaged; and Hoffman (1958) found no greater intermember preferences within groups that were homogeneous with respect to profiles on the Guilford-Zimmerman Temperament Survey than within heterogeneous groups. A confounding variable in the latter study, however, was the variation among groups in successful problem solution.

It has also been shown that under certain circumstances a person may choose to work on a particular task with a dissimilar fellow. Lerner and Becker (1962) demonstrated that a similar person is preferred for interaction in a mutual-gain or noncompetitive situation, while a dissimilar person is preferred for competition. No data were gathered on liking, but the results seem to suggest that the similar individual is the more likable since we prefer to share rewards with him. A related investigation was conducted by Israel in 1956 (cited by Homans, 1961).

Each subject saw both his score, on a series of logic tests, and that of the other members of his group. Each subject believed his score to be average while those of his fellow members varied from high to low. Subjects were then asked to rank order the others in his group with respect to their continuance in the group for further solution of logical problems. Under a condition where reward would be based on the group's total score, choices tended to go to high scorers; under a condition where reward would be based on score homogeneity among group members, choices tended to go to other average scorers; and under a condition where reward would depend on individual performance, choices tended to be directed toward low scorers. Again, these results do not indicate liking, but suggest, simply, that work-partner preferences will be made in such a manner as to maximize personal gain, although it was also the case that, overall, high scorers were most preferred.

A number of studies have been primarily concerned with the consequences for interpersonal liking of similarity not in the actual personality traits of individuals, as measured by some relatively objective instrument, but in the traits which they judge each other to have. Most notably identified with such research on "assumed similarity" is Fiedler. In an early investigation (Fiedler, Warrington, & Blaisdell, 1952), each of a group of fraternity members was asked to describe, by Q-sorting 76 personality items, himself and his ideal self, and to predict how his best-liked and least-liked fellow members would describe themselves. The results indicated that best-liked persons were perceived as more similar to both self and ideal self than were least-liked persons. No significant difference in similarity was found, however, between actual self-descriptions made by subjects and best-liked choices, and self-descriptions made by subjects and least-liked choices. The results of other studies have also suggested that assumed similarity with a liked person may be greater than actual similarity. Preston, Peltz, Mudd, and Froscher (1952), for example, found that husbands and wives tend to rate each other on specific traits in the same way they rate themselves and that this tendency is greater

for happy than for unhappy couples, but correlations between self-ratings were negligible. Similarly, Reilly et al. (1960), obtained no support for either similarity or complementarity in the actual needs of mutual friends, as measured by the Edwards test, but among 15 correlations of the actual scores of subjects on single personality needs and the scores they predicted for their friends, 10 were significant and positive.

Still other data can be cited which support a relationship between assumed similarity and attraction. Lundy, Katkovsky, Cromwell, and Shoemaker (1955) found that self-descriptions (on Minnesota Multiphasic Inventory items) were more similar to descriptions made of chosen persons than of rejected ones and, further, that the description of a best-liked person was significantly more similar to a subject's acceptable self (traits described for both self and ideal self) than to his unacceptable self, while the reverse was true of the description of a least-liked person. Finally, Kipnis (1961), from a study of changes in self-concepts, reported that a sample of male freshmen perceived smaller differences in personality between themselves and those whom they chose for a variety of friendly, interpersonal contacts than between themselves and those they liked least.

In some investigations, the personality traits of individual members have been determined by means of group judgments. Utilizing such a technique in three separate groups, Maisonneuve (1954) found that "people who are attributed similar profiles tend to mutually choose each other, or . . . people characterized in a similar way tend to associate." In a study by Zimmer (1956), a measure of the "behavior tendencies" of group members was obtained by pooling the rankings (on eight dimensions) of each other made by the members. A trend was found in the direction of greater disparity between the judged personalities of subjects and their choice of discordant (annoying) group members than between the judged personalities of subjects and those group members they considered harmonious. Still another variation in procedure and measurement can be found in an investigation by Stotland et al.

(1960). They asked each subject, following interaction with others on a task, to predict how the *majority* of the members in his group would respond to a 30-item personality questionnaire, and also to respond to it himself. When only subjects of no prior acquaintance were considered, those who indicated a high desire to get to know their fellow group members differed from those with low desire in perceiving the majority of the group as significantly more like themselves.

The findings reviewed above, relevant to the relationship between assumed or judged personality of others and attraction, do not, for the most part, provide a satisfactory answer to the question of causal direction, that is, whether A's perception of similarity between himself and B disposes him to find B attractive, or whether A tends to see in a likable B personality characteristics which are congruent with his own. We have assumed, from the context of the investigations reviewed in this section, that they bear on the former relationship; later on we will consider others which seem more clearly relevant to the latter.

When we put all the evidence together, there can be little doubt that individuals tend to prefer friendly associations with others who are compatible to themselves in interests, values or personality. The major problem in this area is specification of what constitutes compatibility in situations of varying characteristics.

Success–Reward

Shared Success or Failure. Typically, data concerned with this variable have been obtained from experiments in which the success or failure of small groups, working on a single task or series of problems, has been manipulated. Utilizing such a design, Shelley (1954) found that members of successful groups had a more favorable attitude toward their group than did members of groups experiencing failure. Steiner and Dodge (1956) in effect manipulated success and failure by interfering, in one condition, with messages sent by group members to one another via lights and buttons. In this condition ("perceptual inaccuracy"), incorrect messages were received, while in another condition there was no interference and hence "accuracy." When no specific rules had been provided by the experimenter for members to follow in performing their task (design reproduction on a checkerboard), the former condition was significantly associated with less task efficiency, with more criticism of the group, and with greater rejection of own group members for a new task. Working with groups of second- and fourth-grade children, Heber and Heber (1957) gave some groups a high score on an arithmetic test, some a low score, and some no score and then measured changes in the mean ratings group members gave one another on a social distance scale. Under the low score condition, the ratings decreased; under the success or neutral condition, they increased, with the effect showing greatest permanence after success. Pepitone and Kleiner (1957) introduced the threat of losing a game tournament to high-status (winning) teams. Where this threat was negligible, intermember attraction increased significantly more than within high-threat teams. Between low-status (losing) teams told they would probably win and those told they would probably lose, however, there was no difference in subsequent in-group choices. It is unfortunate that there are no data reported on the level of interpersonal attraction within the winning and losing teams after they had experienced success or failure and prior to the introduction of other variables.

In a study of attraction and personality similarity in which group success was not manipulated, Hoffman (1958) found that in homogeneous groups successful problem solving by the group was positively correlated with intermember attraction. More recently, Zander and Havelin (1960) investigated interpersonal liking as a function of variation in the task competence of trios within larger nine-man groups. Subjects in the most competent trios made significantly more work-partner choices and fewer rejections within their own subgroup than did subjects in the poorest trios. Similar findings obtained on a scale of general attitude toward the subgroup. (The perception of similarity among subgroup members on characteristics

other than task competence was also ma-
nipulated and found to have a greater effect
on the peer choices and group evaluations of
subjects in the poor than in the successful
trios.)

Both Wilson and Miller (1961) and Myers
(1962) studied the effects of success in
competitive situations and utilized, as mea-
sures of liking, personality ratings made by
each member of every other member. In the
first-mentioned investigation, winning was
associated with a larger positive shift in the
ratings given to their own teammates than
was losing; in the second study, high-success
teams increased significantly in esteem for
their teammates, while esteem for teammates
diminished in low-success teams. Phillips and
D'Amico (1956) had earlier reported that
within groups in which members competed
against each other, where rewards were evenly
distributed, there was either no change or an
increment in within-group choices on a socio-
metric question, in contrast to groups in
which rewards were not evenly distributed,
where within-group choices decreased.

Both Deutsch (1959) and Zander, Stot-
land, and Wolfe (1960) have reported data
indicating a positive relationship between
group success and the attractiveness of the
group as a whole; in the latter investigation,
however, responses to a scale measuring at-
traction to members of the group did not
differentiate between subjects in failing and
successful groups. There have been other
reports of equivocal or negative findings.
Thibaut (1950) found that groups of boys
who tried to obtain better treatment from
the experimenter and failed significantly in-
creased in cohesiveness (as measured by pro-
portion of own group choices), while groups
of boys who were successful in improving
their status did not. This difference in height-
ened attractiveness of own group members
held, however, only between the central
(more popular) members and not between
the peripheral members of unsuccessful and
successful groups. In a number of other
studies the experience of common failure has
been shown to influence the choice of one fail-
ing subject for another on a variety of criteria.
Shaw and Gilchrist (1955), for example,
found that after a sequence of task failures,

subjects chose among themselves for friendly
association more than they chose successful
individuals. The failing subjects, however,
had experienced interaction only with each
other. Berkowitz, Levy, and Harvey (1957)
found that subjects who were highly task
motivated and received unfavorable evalua-
tions of their task performance subsequently
rated each other as high in attractiveness
(on both work partner and social companion
criteria) as did highly motivated subjects
who received favorable evaluations. Burn-
stein and McRae (1962) studied groups of
four white subjects and one Negro confed-
erate in a situation where group members,
separated by vertical partitions, communi-
cated by means of written messages to solve
logical problems cooperatively. Following
evaluation of a group's performance, highly
prejudiced white subjects rated the Negro
higher on a liking scale when the evaluation
was poor than when it was good. For white
subjects low in prejudice, the performance
evaluations made no difference in their
rating of one another on the liking scale
under the different conditions.

Is the experience of common failure by
members of a group interpretable as shared
threat or stress emanating from a source
external to the group? It would be helpful,
relative to this question, to know whether
subjects in unsuccessful groups view their
common failure as arbitrarily imposed by
the experimenter or as due to their own lack
of ability. In the former case, but not in the
latter, heightened interpersonal attraction
would be expected. Pepitone and Wallace
(cited by Pepitone, 1958) have shown that
when subjects consider their failure arbitrary
or unjustifiable they dislike the investigator
more than otherwise, but no data were re-
ported on attraction to other group members.
We may make use of the Pepitone and
Wallace findings, however, in inferring that
arbitrariness of evaluation probably did not
operate as a variable in the Burnstein and
McRae study since there were no reliable
differences between the favorably and poorly
evaluated subjects in their ratings of the
tests' "fairness" or in how much they "liked"
the experimenter. It is possible that the
Burnstein and McRae findings are specific

to evaluations which prejudiced white persons make of Negroes, that is, Negroes are more attractive to such white persons when they are poorly evaluated than when they are favorably evaluated. Other data obtained in the same investigation suggest that this may be the case. Favorably evaluated subjects rated the communication skills of their fellow members significantly higher than did unfavorably evaluated subjects, *but* the Negro confederate was considered less skillful compared with the average group member by members of successful than by members of unsuccessful groups. Findings from another study (Katz & Cohen, 1962) also suggest that white persons may be less attracted to a skillful Negro regardless of their own effectiveness. Teams composed of one Negro and one white subject solved problems cooperatively. In one condition ("assertion training") the experimenter varied the information available to each partner so that only one could confidently propose the correct solution, but each partner was favored with the better information on half the problems. In the other condition ("no training") neither partner received sufficient information to permit him to propose the correct solution confidently. Following this experience the Negro subjects in both conditions expressed the same degree of preference for their partners (for a future experiment), but the white subjects who received "assertion training" preferred their Negro partners *less* than did those in the "no training" condition.

Equivocal findings with respect to the general proposition that interpersonal attraction will be greater in successful than in unsuccessful groups have been reported by Kleiner (1960). In group situations where one member was clearly responsible for improving group performance (or, more accurately, decreasing the "likelihood of failure") there was no significant increase in subjects' ratings of each other, but only in their ratings of the one member responsible for the improvement. On the other hand, in the condition where there was only a small reduction in likelihood of failure, group members tended to depreciate each other, apparently "holding

each other responsible for the relatively small improvement."

It seems clear that members of successful groups tend to like one another more than do members of unsuccessful ones. It is also true, however, that under certain conditions intermember liking follows shared failure, especially, we suggest, where the failure is perceived as arbitrarily imposed by an external source.

Attraction to Source of Reward. As in the case of shared failure, shared success, too, may be seen as emanating from an external source in a more or less arbitrary fashion, or it may be perceived as due to the skill or other characteristics of one's fellow group members. Such a distinction could not be made unambiguously in the case of the investigations discussed in the preceding section. Here we will consider research which has measured the attitudes of reward recipients toward those who were more or less directly responsible for the satisfying state of affairs.

The study cited above by Kleiner (1960) bears directly on the proposition here considered. Groups of two subjects and one "stooge" worked on puzzles, and their ability to solve problems was compared with that of business executives. In each group the stooge was clearly instrumental in improving group performance. When the improvement produced a large reduction in threat of failure, consequent liking and desire to know the confederate were significantly greater than when the threat reduction was small. Attraction to the helpful stooge also tended to increase more in groups under initially high threat of failure than in groups under low threat. A somewhat similar design was used to test a related hypothesis by Ziller and Behringer (1960). Groups solved problems and were informed of their success or failure. Into each group, then, a new member was introduced and a more difficult problem (which he could solve) was presented. The newcomer was rated higher by subjects in previously failing groups than in previously successful ones; it was in the former groups, of course, that his presence was associated with the greater improvement in group performance.

Earlier, Jennings (1950) reported that girls highly chosen by others to live or work with were sources of need gratification, and she suggested that choice on such criteria "may, in a sense, be considered 'earned' by the person chosen [p. 165]." Horwitz (1958) found that in an experimental simulation of a classroom situation the teacher was significantly more liked and was evaluated more positively on personal characteristics when he behaved in accord with the students' desires to repeat parts of a lesson than when he behaved in accord with his own desire, contrary to that of the students. In a different kind of situation (Solomon, 1960), subjects who communicated with unseen partners via electric switches developed greater liking for those partners whose game strategy provided them with maximum gain. Also reported have been data supporting a relationship between the feeling that one has influenced others (which we can assume to be gratifying or rewarding) and the liking of these others (Zander & Cohen, 1955; Tagiuri & Kogan, 1960).

Two studies have indicated that behavior by one person which is generally considered rewarding to another will not be so under all conditions. Howard and Berkowitz (1958) have reported that when judges disagree in their evaluations of a person's performance, the deviant judge tends to be seen as probably in error and tends to be rejected on a sociometric question regardless of whether his evaluation was positive or negative. Related findings were reported by Deutsch and Solomon (1959). Although subjects in their experiment tended, generally, to respond more favorably to persons who evaluated their task performance positively, they were less favorable if they had been led to believe by another source that their performance was poor, and under this condition they responded favorably to a negative evaluator. It appears as if a "correct" judgment may constitute desired behavior in situations where individuals received feedback about their actions from more than one source and adopt either one or the majority evaluation as their standard.

Individual Reward in the Presence of Others. A different interpretation of the role of success in influencing liking between individuals is that A's attraction to B does not depend upon B's having also shared success within the same group nor upon B's instrumentality in obtaining reward for A; instead, B's presence when A experiences a satisfying state of affairs is hypothesized as being a sufficient condition for enhancing A's attraction to B. The first two conditions have not, unfortunately, always been clearly absent in the investigations we will consider below.

Bass (1955) had subjects in a group rank words according to high-school boys' familiarity with them, first privately, then after group discussion, and then again privately, followed by the correct ranking given by the experimenter. Each person's own success or failure was found to be a significant determiner of his attraction to the entire group. Group goal attainment in this study was unrelated to individual attainment which was primarily a function of individual competence. Similar data have been reported by Spector (1956). Among men operating in the laboratory as military intelligence decoding teams, those "promoted" to sergeant judged their team as being significantly more attractive, and desired to remain within it, more often than those not promoted. Further, among the promoted subjects those who believed the probability of promotion to be low were even more favorable in judgments of their group than were those who believed the probability of promotion to be high. Although it is not clear what the achievement of higher status would depend upon, it is doubtful that the subjects believed their teammates to have been instrumental in their promotion or nonpromotion. An experiment by Lott and Lott (1960) was specifically designed to test the hypothesis under present discussion. Three-member groups of children played a game in which some members were successful and others were not. Later, on a sociometric test given outside the game situation, the successful children chose a reliably greater proportion of their fellow group members than did the unsuccessful children. Whether the former believed that their fellow members had contributed to their success is a question on which, unfortunately, no data were obtained. James and Lott (1964) extended the above experiment by varying

the frequency of reward obtained in the presence of others and by using an additional test of attraction to group members. On each of the tests significantly more of the subjects who received six rewards chose fellow members than did those who received three or no rewards; no reliable differences were found between the latter two conditions. In both this and the previous study the number of rewarded subjects within each group varied, and later examination of the data has revealed some tendency for rewarded subjects to prefer other rewarded subjects.

Indications that certain personality factors may affect the influence which one's own success or failure has on our affective reaction to others may be found in data reported by Stotland (1959). Members of small groups first worked together, then separately. In the latter condition some failed and others succeeded on either a group relevant or irrelevant task. Attraction to the group was then measured by two questions: Would you like to meet with the group again? How much do you like the other members? Success on the individual tasks was associated with reliably more attraction to the group than was failure, but among those who failed, subjects with high self-esteem found their group more attractive than subjects with low self-esteem. There was no reliable difference between high- and low-esteem subjects who succeeded.

Negative findings have been reported by Rosenbaum (1959) who found no reliable difference in responses to a social distance scale (regarding their partners) between subjects who failed and those who succeeded on a discussion task. Instead subjects who were given no feedback about their performance liked their partners significantly more than did those given either favorable or unfavorable evaluations. It may be important that half the subjects were told that both partners would fail or succeed together, while the other half were told that if one partner succeeded the other would fail. No measure of the interaction between this cooperation-competition variable and success-failure is given.

Attraction to Successful Persons. Gilchrist (1952) found that successful individuals tend to be chosen for further activity by both other successful and unsuccessful persons. While this kind of choice does not necessarily indicate "liking," Gilchrist also reported a generally greater choice of successful subjects for social interaction (to speak to at the next meeting, have coffee with, double date with). Berkowitz (1957) reported, as an incidental finding in a study designed to test another hypothesis, that subjects liked their partners (simulated) better when the latter were supposedly proficient on a task than when they were supposedly poor. In another investigation (Berkowitz et al., 1957) where the performance of group members was evaluated by "experts," highly task motivated subjects generally indicated greater attraction to favorably evaluated than to unfavorably evaluated group members on both work partner and social companion questions. In still another relevant study by Stotland and Hillmer (1962), similar data were obtained: Subjects tended to show a greater desire to converse with a hypothetical person they were told was good at a task than with one they were told was poor.

What the effect one's own success or failure may have on the tendency to find a successful other attractive is an important question on which empirical attention needs to be directly focused. Existing data have not clarified the nature of the interaction between the variables of own goal attainment and others' in affecting interpersonal attraction. It is probable also that the interaction will vary from one set of circumstances to another. We have already seen that in certain cases unsuccessful persons show a preference for others who are "in the same boat," but the general nature of conditions under which this occurs is far from clear. We have also seen that when a white person and a Negro are equally competent on a task, the former tends to find the latter less attractive (because it violates the white person's expectations or reduces the value of his own attainment?). It is possible that under still other conditions the variables of own and other's success may operate independently so that an individual will be more positively disposed toward the members of his group or toward persons in his immediate environment following his re-

ceipt of reward, but his attraction toward other rewarded persons will be even greater than that toward nonrewarded ones. Future research might profitably be directed toward clarifying such questions and focusing on the interaction of variables.

Reduction of Cognitive Dissonance

It has been suggested that one way of reducing dissonance relative to cognition of another person is by increasing one's attraction toward him. In such a case it must be assumed that alternative methods of reducing dissonance are either unavailable or less likely to occur for one reason or another.

Supporting data have come from an investigation by Aronson and Mills (1959). They predicted that persons who undergo an unpleasant initiation in order to gain admission to a group and then find that the group has not been worth such pains (a dissonant cognition) will consequently exaggerate the group's positive characteristics. An alternative way to reduce the dissonance by convincing oneself that the initiation was not very unpleasant was made unlikely by the use of a severe initiation condition involving the reading aloud of obscene words. University girls undergoing this procedure were expected to find the group into which they were accepted more attractive than girls who were accepted without undergoing an initiation or whose initiation was "mild." After the subjects heard a "very dull" taped discussion, presumably being carried on by the group, they rated both the discussion and the participants. Responses to both measures supported the hypotheses.

It may be important that in this experiment the subjects were *accepted* into the group. It is possible that acceptance after a severe initiation is more valuable, more rewarding, than acceptance after a mild or no initiation. A condition of no-acceptance following the initiation procedures, with the same dull discussion and its participants subsequently evaluated, should provide worthwhile data.

Schopler and Bateson (1962), to test another alternative explanation of the above findings, replicated the Aronson and Mills study under somewhat altered conditions of

subject recruitment and the addition of two new experimental groups. They found that subjects in the severe initiation condition rated the content of the dull group discussion significantly higher than did subjects in a mild initiation condition (the control group), thus confirming Aronson and Mills. Subjects who received a severe initiation, however, and also heard the experimenter *disparage* the discussion, did not differ in their ratings of the discussion from the control subjects and made reliably lower ratings than did subjects in the severe condition. Working within the Tribaut and Kelley (1959) theoretical system, Schopler and Bateson explain their results by arguing that in the severe condition, high dependence upon the experimenter is produced and, thus, a greater necessity for subjects to increase their power:

One of the likeliest ways of increasing power which was available . . . was to conform to the opinion of the *E* [experimenter], who strongly implied that the *S*s [subjects] would like the discussion [Schopler & Bateson, 1962, p. 637].

In the disparage condition, introduced by Schopler and Bateson, where the experimenter predicted to the subjects that the discussion would probably not be good or exciting, the subjects rated the discussion low. Another condition introduced by Schopler and Bateson yielded ambiguous results. Of more concern to us are the findings with respect to ratings of the discussion *participants*. Although severe condition subjects rated the participants higher than did either the control or disparage condition subjects, none of the differences were reliable.

ANTECEDENTS OF LIKING: THEORETICAL EXPECTATIONS

The foregoing review of research, organized in terms of empirically tested relationships between a variety of conditions and consequent interpersonal attraction, should, we believe, have demonstrated at least one point. If we define the cohesiveness of small groups in terms of the positive judgments which members make of one another, then a great deal is known about the conditions under which cohesiveness is likely to develop. We suggest that the conclusion of Cartwright

and Zander (1953, p. 80; 1960, p. 79) that there is "very little systematic knowledge about the conditions which heighten cohesiveness" is not an accurate reflection of the present state of affairs, although perhaps we do best to remove the qualifying adjective "systematic." We must, similarly, question Shaw's (1961) statement that little sound research has been carried out in an attempt to investigate group development. We do share, with Shaw, the conclusion, that there is "a tendency to ignore much of the literature relevant to the problem under consideration . . . in both theoretical works and research reports." This state of affairs is no doubt related to the vastness of the existing literature as well as to its generally nontheoretical nature.

We turn now to a consideration of theory, to attempts which have been made, in other words, to predict specific relationships on the basis of a set of more general principles.

Balance or Congruity

Heider. Most clearly identified with the above position as explicitly related to the question of attraction between persons is Heider (1946, 1958). His most basic concept, that of the "balanced state," refers to a situation in which the perceived units (i.e., persons in a subjective relationship, or person and some object or idea) and the experienced sentiments (i.e., like or not like) "co-exist without stress [1958, p. 176]." He maintains that under most conditions there is a general tendency towards a balanced state, that this is the preferred state of affairs. From this general principle follow a number of specific predictions.

We will consider here only those predictions in which sentiment formation is the dependent variable: A person tends to like a similar individual (but not when the similarity carries with it disagreeable implications, as, for example, when the other individual has the same disability as the person); A person tends to like another with whom he has contact (but not if continued interaction yields the perception of dissimilarity with the other); A person tends to like a familiar other (but not if the other is dissimilar). In each of the above hypotheses it

is B's similarity to A which underlies A's attraction to him. Further, if another individual's behavior is perceived as congruent with a person's values, the person will tend to like the other. Whether similarity is implied by "balance" or whether it has some *other* value is not clear. We may note Heider's statement that ". . . it is satisfying to find support for one's own view [1958, p. 196]," but we are not sure whether support for one's own view is seen as "satisfying" a person's need for balance; that is, whether because A relates to B they should be similar to one another to achieve a balanced state or whether support for one's view "satisfies" a different motive. Since balance is said to be achieved "if the relations between . . . entities are all positive [1958, p. 202]," it may be that Heider considers similarity to be intrinsically *positive*.

There are two other relevant hypotheses which are, at least superficially, unrelated to similarity: A person tends to like another whom he has benefited and also one who has benefited him. To be benefited by a person one dislikes or to benefit someone one dislikes would obviously be disharmonious or incongruous.

All of the above predictions have been supported to varying degrees by empirical data, although surprisingly few investigations have been explicitly designed to test Heider's system. More often, the hypotheses tested in relevant research have been unrelated to any systematic point of view or have stemmed from other positions. Heider's influence is apparent, however, in other theoretical formulations. Newcomb (1953), for example, has similarly built a system around the basic principle of balance, postulated a "strain toward symmetry," and stressed the role of similarity between persons as the major determinant of attraction. We interpret Newcomb's more recent position, however, as more relevant to a reward framework and will, therefore, return to it below.

Festinger. The increasingly influential theory of cognitive dissonance has been applied to the prediction of behavior in social contexts in a paper by Festinger and Aronson (1960). This theory, too, focuses on balance and rests upon the basic assumption that

individuals who experience simultaneous cognitions which are contradictory or inconsistent with one another will tend to reduce this incongruity (dissonance) by changing one of the cognitions in the direction of consistency with the other.

Regarding the problem with which we are here concerned, Festinger and Aronson have suggested that liking for an individual or group of persons may be a dissonance reducing mechanism. When, for example, a person has invested time or effort in order to interact with other persons and then finds that they are less pleasant than he had anticipated, he is faced with dissonant cognitions.

There are at least two ways that a person could reduce dissonance in such a situation: (a) he could undervalue the amount of his investment . . . or (b) he could overvalue the group by emphasizing its positive aspects . . . [p. 220]

We have previously considered evidence relevant to this hypothesis.

Reward

It is possible to find reinforcement propositions within the more recent theoretical statements of a great many social psychologists (e.g., Allport, 1962; Bass, 1961; Miller, 1963). It is, for example, taken for granted that individuals are attracted to groups as a direct function of the satisfaction they are able to derive within them. Our particular interest here is in more explicit propositions regarding attraction to individuals.

Lazarsfeld and Merton. Although these writers have stressed common values as the dominant factor in friendship formation, the variable of reward seems, nevertheless, to be more primary. "For those with similar values," Lazarsfeld and Merton (1954) suggest, "social contact, because it is rewarding, will motivate them to seek further contact." In some cases friendships will form before the individuals become aware that they differ on particular issues. If there have been sufficient prior rewards, that is, sufficient areas of similarity, then some disagreement can be tolerated, but the tendency will be to modify opinions and come closer together if the friendship is to endure, since "common values make social interaction a

rewarding experience." They suggest that the most critical evidence with respect to this question might well be obtained from data on broken friendships.

Newcomb. Resembling the above in general outline, Newcomb's position is more detailed and refined. He has chosen to distinguish between attitudes toward objects and attitudes toward persons, using the term "attraction" to refer to the latter (Newcomb, 1956), and postulated that the reinforcement which one person experiences as he interacts with another is the major independent variable determining attraction to the other. Specifically, positive attraction is conceptualized in terms of reward-associated attitudes, and negative attraction in terms of punishment-associated attitudes (Newcomb, 1960). Thus, behind the relationship between propinquity and attraction, according to Newcomb (1956), is the fact that "when persons interact the reward-punishment ratio is more often such as to be reinforcing than extinguishing." In the same vein preference for persons resembling others whom we like is accounted for by the "principle of generalization," that is to say, thresholds for interaction with such persons are lower and "the likelihood of the rewards of interaction with such persons is greater [1956]" than for others.

Perhaps Newcomb's most unique contribution to systemization in this area has been his emphasis on the role played by communication in the maintenance of friendship. Communication is recognized as the major interaction process through which individuals can reward one another. In addition, accurate communication is, in itself, rewarding, and consequently "reward value will attach to the co-communicator—which is to say that positive attraction toward him will increase (other things equal) with frequency of accurate communication with him [1956]."

Similarity between persons, again because it is rewarding, is said to account

for more of the variance in interpersonal attraction than does any other single variable [1956, p. 579].

Newcomb has refined this relationship by noting that similarity, to be an effective determiner of interpersonal attraction, must

refer to attitudes toward valued objects, that is, those which are "important and relevant [1958]."

An individual tends to be attracted toward others who are seen as viewing as important the same things that he himself regards as important, and as taking attitudes toward them that are similar to his own. Upon first acquaintance, persons are "scanned" for clues to their attitudes, but initial judgments are not likely to be very accurate about a very wide range of objects. At first, therefore, attraction should be more closely related to perceived than to actual agreement. Given ample opportunity for association and communication, judgments tend to become more accurate [1958, p. 188].

These predictions have been verified in Newcomb's (1961) later research.

From the above it is clear how Newcomb relates proximity to similarity and then to attraction. It is only to the degree that proximity "facilitates the development of perceived similarity of attitude [1956]" that it contributes to attraction. Communication is also related to similarity since the latter tends to result from the former, at least with regard to the object of communication, and both accurate communication and similarity are independent sources of reward (1958). In like manner, the fact that individuals are attracted to persons who reciprocate their feeling is seen as "a special case of perceived similarity," assuming that self-attitudes tend to be favorable.

Newcomb (1960) is also concerned with the categories of reward which are significant to interpersonal relations and has distinguished among *admiration* (A attributes likable characteristics to B), *reciprocation* (A perceives B as liking him), and perceived *support* (A attributes to B attitudes similar to his own). A's attraction to group members would then depend upon two major parameters: his "hierarchy of 'appetites' for reward" (his motives), and "the reward possibilities that other members have to offer."

A considerable body of data already provide support for the major predictions within Newcomb's theory. Most valuable for future research would, we believe, be exploration of the manner in which the parameters mentioned in the preceding paragraph function in determining attraction.

Homans. In his recent book, Homans (1961) has strongly embraced modern learning theory as a source of principles regarding social behavior. As compared with Newcomb, therefore, Homans' theoretical propositions are more explicitly phrased in behavioral terms, but both systems depend upon the basic concepts of reinforcement and punishment.

Homans is concerned with both activities (overt behavior) and sentiments (overt behaviors which provide visible signs of internal attitudes and feelings), but since the former concept includes the latter, no separate sets of propositions are required. A primary assumption is that the activities and sentiments which one individual emits in response to another are reinforcing or punishing to some degree or "more or less valuable" to the other (p. 34). Special stress is placed on social approval (a sentiment) as a generalized reinforcer. The value of a reward to a person will depend upon his relatively constant past experience (his genetic and cultural character) and his present state of deprivation. "Costs" are subtracted from reward to measure the individual's "profit," or net reward.

In Homans' terms,

cohesiveness refers to the *values* of the different kinds of rewards available to members of the group: the more valuable to a group's members are the activities (or sentiments) they receive from other members or from the environment, the more cohesive it is [p. 88].

With regard to interpersonal attraction, the following major hypothesis is derived from the general assumptions: The more valuable a person's activities are to others, the greater is the esteem in which he is held (p. 164). From this, in turn, follow certain specific expectations, for example: Persons will provide more value to one another if they share the same orientations, or have similar backgrounds (p. 214 f.); Because some individuals provide the most value to others, mutual choice will be greatest among high esteem, or overchosen, persons (p. 164 f.); Individuals tend to prefer high status individuals because such individuals have most likely acquired their status by rewarding others, and

hence they are associated with the expectation of reward (p. 314).

Homans has suggested, further, that men tend to value "fair exchange" or "distributive justice." This "is realized when the profit . . . of each man is directly proportional to his investments: such things as age, sex, seniority, or acquired skill [p. 264]." From this follows the specific expectation that a condition of status congruence among persons will be conducive to mutual esteem or congeniality.

The relationship between interaction and favorable sentiments is also explained on the basis of the value derived from the interaction:

the chances are that each one [of an interacting pair, for example] will find some of the other's activities valuable, if only because they may be obtained at less cost from him than from a third party at a greater distance: the distance of a source of reward adds something to the cost of getting it [p. 183 f.].

Homans has considered the contradictory findings which have been obtained with respect to the liking of leaders. He points out that a man "earns authority by acquiring esteem, and he acquires esteem by rewarding others [p. 314]," but since a man holding authority is likely also to incur costs on others by use of punishment or simply by depriving others of the chance to be the leader, the sentiments which develop toward him are likely to be ambivalent (p. 299 f.).

Homan and Newcomb offer similar predictions from similar frameworks, but Homans' specific accounting of "costs" has permitted a more detailed explanation of certain phenomena. Investigations designed to test the hypotheses relating both rewards and costs to esteem, or liking, are needed.

Thibaut and Kelley. An analysis of social behavior strongly resembling that of Homans' has been published by Thibaut and Kelley (1959). Although the Homans' (1961) book which we have cited above appeared subsequent to that of Thibaut and Kelly, we are considering the respective systems in the present order because they seem to fall best into these positions on a continuum of similarity.

Like Homans, Thibaut and Kelley analyzed social interaction in terms of rewards (satisfactions or reduced drives) and costs (physical or mental anxiety which serves to inhibit performance). In addition, they introduced the concept of *control,* which is described as mediated by one's ability to affect the outcomes of another's behavior. Thus,

the problem that confronts a number of people if a continuing relationship among them is to be viable . . . is defined in terms of the possibilities the participants have for contributing to or detracting from each other's outcomes [p. 4].

A unique feature of the Thibaut and Kelley approach is its distinction between two evaluative standards which persons apply to the outcomes, that is, to the rewards and costs, of interaction. One standard is in terms of what the person feels he deserves, based on his past experiences and present motivation (the *comparison level*), while the other is in terms of available alternatives and is the lowest level of outcomes which the person will accept (the *comparison level for alternatives*). A person's dependence upon a group (or another individual) is said to be a function of the latter, but his attraction to the group or other individual depends upon the former. The two evaluative standards, however, are not independent. "Since outcomes from the best alternative relationship are included among those that determine the CL [comparison level], the CL and CL_{alt} [comparison level for alternatives] will tend to be positively correlated [p. 102]," and so, then, will be dependence and attraction.

It is with attraction that we are concerned, and Thibaut and Kelley (p. 24) proposed that a "person's attraction to a dyad depends upon his evaluation of his outcomes in relation to his CL . . ." Specific relationships between antecedent variables and interpersonal attraction are explained in terms of both *"ability to reward* each other and the *cost of providing this reward."* Value similarity is important to friendship because "in many value areas an individual is in need of support"; agreement is therefore rewarding. "In other words, provision of opinion support may be considered as having learned reinforcement value [p. 42]." Where complementarity contributes to the rewards ob-

tained from interaction, then it will be positively related to attraction (p. 47). Similarly, we tend to prefer high status people because they "have greater extrinsic means . . . for rewarding others," or association with such persons may simply provide the reward of "prestige [p. 48]."

Other Reinforcement Formulations. The theories of Homans, of Thibaut and Kelley, and, to a somewhat lesser extent, of Newcomb are concerned with the entire sphere of social behavior. We have selected only what we believed to be most relevant to the present problem. Other formulations have been more narrowly concerned only with attraction among persons.

Pepitone (1958), for example, maintains that the simple common assumption that attraction to an individual "depends upon the amount of 'reinforcement' or 'need satisfaction' obtained from that person . . ." is far too general to provide an understanding of determinants. "What we want to know is what particular factors reinforce, reduce tension, etc. . . ." He has suggested that important dimensions are those of responsibility (for an act), intentionality (i.e., good, bad, or none), and justifiability (on some logical, social, or ethical standard). According to Pepitone, each of these has a predictable relationship with attraction: A's attractiveness to B will vary with the degree of B's responsibility for positive or negative acts, with B's intentions, and with the degree of justifiability of the positive or negative acts. These factors vary the value to one individual of the specific behavior of another. They *weight* the value (valence) of acts, and it is the value of his acts which determines the attractiveness of the actor. Status is related to attraction, for example, via the mediation of the above constructs, since high status persons will be seen as more responsible for an improved state of affairs, as having good intentions, and as being justified in their behavior.

A number of empirical studies, referred to earlier in this paper, designed by Pepitone and his co-workers to test his predictions, have yielded generally positive results.

Hypotheses regarding attraction among group members have been derived from the general propositions of Hullian behavior theory by Lott (1961). Attraction is rephrased in terms of positive attitudes and defined, following Doob (1947), as implicit, anticipatory goal responses. On the basis of a sequence of learning theory principles, it is expected that stimuli associated with reinforcement can eventually evoke the implicit and anticipatory component of the response to reinforcement, the goal response. Hence, the "primary condition for the development of mutual positive attitudes among group members" is said to be "the attainment of goals or the receipt of rewards in one another's presence." Secondary hypotheses regarding antecedents take into account frequency of reward and delay of reward. It is also predicted that the more closely or the more frequently a particular group member is related to the achievement of goals, the greater will be the strength of the positive attitudes developed toward him. This latter hypothesis may be interpreted as relevant to status and leadership. Studies designed to test this formulation have been cited earlier; other investigations are in progress.

Overview. There is clear agreement among many contemporary theorists that attraction will follow if one individual either directly provides another with reward or need satisfaction, is perceived as potentially able to do so, or is otherwise associated with such a state of affairs. Furthermore, the specific antecedent variables which empirical research has shown to be related to interpersonal attraction can, for the most part, be interpreted in support of this general proposition. The data on propinquity, group climate (including cooperation, democratic leadership, etc.), acceptance, status, personality characteristics, similarity (or complementarity), and success are all predictable from a general reinforcement position. It is more difficult to deal with the research findings on mutual threat or failure. If it can be shown clearly, however, as some investigators have suggested, that mutual threat increases interpersonal attraction only under conditions where the possibility exists of a cooperative solution to the common problem, then the latter condition could be identified as the source of reward.

Consequences of Liking: Empirical Relationships

The investigations which are considered in this section may be roughly divided into the following types:

1. studies in which natural, existing groups are first measured for the degree of interpersonal attraction among their members, and scores on this measure are then related to some other variable;

2. studies in which groups assumed to differ in level of liking among members (as for example, groups of friends and groups of strangers) or groups known to differ on some variable which is assumed to reflect interpersonal attraction are compared on some other variable or dependent measure;

3. experiments in which interpersonal liking is explicitly manipulated through instructions or some other operation, and its consequences for some dependent variable are subsequently ascertained;

4. experiments in which interpersonal liking is indirectly varied through the direct manipulation of some related condition, and measures are then taken on a dependent variable.

Expression of Aggression

In an early study, French (1941) observed groups of strangers and groups of team or club members in a frustrating situation in which the group attempted to solve insoluble problems. A variety of measures indicated greater expression of interpersonal aggression within the "organized" than within the stranger groups, without major disruption of group functioning. Similarly, Wright (1943) found that pairs of children who were strong friends expressed more aggression toward the experimenter than did pairs of weak friends when they were subjected to frustration. Pepitone and Reichling (1955) used instructions to create high- and low-cohesive groups. The instructions informed members of the former that they would make "an exceptional team" since they were well matched, compatible, and would get along well; opposite expectations were presented to members of low-cohesive groups. Following provocation by a rude and insulting assistant, high-

cohesive pairs were found to express greater hostility than low-cohesive pairs.

It has been suggested by Berkowitz (1958) that liking among group members has the effect of lowering inhibitions with regard to aggressive behavior. He has shown, however, in two investigations (Berkowitz & Green, 1962; Berkowitz & Holmes, 1960) that under conditions where aggression is displaced onto a person other than the instigator, generalization of aggression will vary positively with the degree of dislike of the person. In the first mentioned study, subjects who had been frustrated and insulted by the experimenter administered more shocks to disliked than to liked partners. In the second experiment, subjects subjected to similar treatment evaluated disliked partners on an adjective check list more unfavorably than they evaluated liked partners. Is it the case that a person will more freely direct hostility to the source of his frustration, that is, to an outside instigator, when he is in the presence of others whom he likes, but that he will tend not to displace aggression onto liked persons when disliked persons are as readily available?

Self-Evaluation

Manis (1955) has shown that, over time, there is a greater increase in agreement between the self-concepts of a sample of male freshmen and their friends' perceptions of them than between self-concepts and their nonfriends' perceptions of them. Two studies (Maehr, Mensing, & Nafzger, 1962; Videbeck, 1960) varied the evaluation made of subjects' performance by "experts." Assuming a tendency to be positively attracted to an expert, the results of these investigations may be considered relevant here: self-concepts were found to be positively influenced by both approval and disapproval. Thus, there appears to be some evidence that an individual will tend to change his self-evaluation in the direction of achieving congruence with the evaluation made of him by a liked other.

Negative evidence, however, has recently been reported by Pilisuk (1962). Subjects tended to retain favorable estimates of their own performance in the face of adverse criti-

cism, whether the criticism came from a friend or from a stranger. When the criticism was alleged to have come from a friend, however, the subjects made use of a wide range of rationalizations to explain their friends' behavior. Harvey, Kelley, and Shapiro (1957) and Harvey (1962) exposed subjects to gradations of fictitiously negative information about themselves and found, similarly, that whether this information came from a friend or stranger made no significant difference in subsequent self-ratings. Subjects in the latter investigation, however, attempted to explain friends' derogatory evaluations differently from strangers' and tended to reevaluate friends more negatively than they reevaluated strangers who had rated them unfavorably. In the earlier study (Harvey et al., 1957), on the other hand, it was found that strangers who had made negative evaluations tended to be subsequently devalued whereas distortions were made of the negative ratings themselves when these presumably came from friends. It is clear, then, that criticism by a friend does not invariably lead to changes in self-evaluation. Whether negative evaluation leads to greater attempts at rationalization or devaluation of the source or the use of different distorting mechanisms when the source of the criticism is a friend in contrast to a nonfriend is not clear.

Self-evaluation was found to be influenced by persons' evaluations of their friends in a study by Kipnis (1961). She compared self-evaluations of male freshmen with their evaluations of others and found that the subjects tended to describe themselves, after a six week period, in the same way that they had previously described their best friends. Subjects who had ascribed relatively "good" traits to their best friends as compared with themselves changed their self-evaluations in a favorable direction, and those who had ascribed "poor" traits to their best friends changed their self-descriptions in a negative direction.

Another small group of investigations has been concerned with evaluation of own performance as a function of the performance or ability of liked others. Data reported by Rasmussen and Zander (1954) from a field study of secondary school teachers indicated that those who evaluated their own teaching performance in a manner which deviated from their perception of the standards of their subgroup made higher failure scores the more they were attracted to the group. Failure was defined in terms of the discrepancy between own performance and ideal performance. Festinger, Torrey, and Willerman (1954) varied the scores made by group members on an experimental task and obtained support for their hypothesis that the

stronger the attraction of members to a group, the stronger will be the feelings of inadequacy on the part of those scoring less well than others and the stronger . . . [the] feeling of adequacy on the part of those scoring as well or better . . . [p. 173].

An experiment by Stotland and Hillmer (1962) has shown that identification is not necessarily related to attraction. Subjects who read that another person had been good at a clerical task evaluated their own performances on the same task more favorably than did subjects who read that the other person had done poorly. This effect was reported to be independent of the level of attraction to the model, although there was an overall preference for the "good" over the "poor" model on a "desire to converse with" question.

In general, the research on relationships between liking and self-evaluation has yielded equivocal results pointing to the need for further clarifying investigation.

Evaluation of the Situation

Marquis, Guetzkow, and Heyns (1951) have reported, from a field study of decision making conferences, significant positive correlations between a cohesiveness index and members' satisfaction with the group process and with the meeting. The cohesiveness index included observer ratings of liking among group members. Jordan (1953), in an investigation designed to test Heider's balance hypothesis, found that where two persons were described to subjects as liking one another, the situation which the hypothetical persons were in was rated as more pleasant than when the two persons were described as not liking each other. The relationship be-

tween persons had the most weight in influencing judgments of the situation, more weight than balance or imbalance in terms of agreement or disagreement between the two persons with regard to some object.

In a study by Exline (1957), subjects who had been told that they were in groups with well-matched, congenial others expressed greater satisfaction with their group's progress than subjects given the opposite orientation toward their fellow group members. Similarly, Libo (1953) had shown earlier that subjects told they were to work on a volunteered-for task with congenial group members differed significantly from subjects given the opposite instructions in their desire to stay with the group. Libo (1957) has also reported a significant relationship between the attraction of patients to their therapists, following their first interaction, and whether or not the patients returned for a second visit one week later.

That persons tend to respond favorably to situations in which liked others are present appears to be an empirically sound generalization.

Evaluation of Others

Perception of Similarity. A large number of investigations have provided evidence that persons will tend to perceive liked others as similar to themselves. The well known early study by Fiedler et al. (1952) confirmed the hypothesis that subjects will perceive fellow group members whom they like best as more similar to themselves (and their ideal selves) in personality than those whom they liked least. Corroborating data have subsequently come from samples of basketball and surveying teams (Fiedler, 1954), college freshmen (Kipnis, 1961), and sorority girls (Backman & Secord, 1962). Lundy, Katkovsky, Cromwell, and Shoemaker (1955) have also reported that personality descriptions of positive sociometric choices tend to be more similar to subjects' *acceptable* than to their unacceptable self-descriptions, while the reverse is the case for descriptions of negative sociometric choices. In a quite different research context, the investigation of marital conflict, happily married persons have been found to differ from unhappily married ones in attributing greater trait similarity to their spouses (Preston et al., 1952).

The same tendency to perceive preferred persons as being like oneself has been reported with respect to values and attitudes. Precker (1953) found that students attributed to their chosen advisers ratings of evaluative criteria which were similar to their own; and Davitz (1955) found that children at a summer camp tended to perceive their most preferred peers as liking the same camp activities that they did. Byrne and Wong (1962) obtained data indicating that highly prejudiced white subjects assumed greater attitude dissimilarity between themselves and an unknown Negro than between themselves and an unknown white person while white persons low in prejudice assumed the same degree of similarity with a Negro as with a white stranger. It has also been shown, among groups of Navy personnel, that persons tend to assume that individuals whom they like also like each other (Kogan & Tagiuri, 1958).

A number of other studies appear relevant here, although liking is not explicitly varied. Bieri (1953), for example, had some pairs of subjects discuss together and agree on conclusions about common experiences and preferred activities; control subjects wrote on these topics individually, back-to-back. Predictions about partners' responses to the Rosenzweig Picture Frustration Test were made before and after interaction. On the latter occasion, significantly greater similarity was found for the experimental subjects between their own responses and the responses which they predicted for their partners. In another investigation (Rosenbaum, 1959), subject pairs who had worked together cooperatively were reported to have subsequently assumed greater similarity with each other on personality traits than subjects who had worked competitively. Two studies (Smith, 1958; Stotland, Zander, & Natsoulas, 1961) have demonstrated that persons who are made aware of some similarity between themselves and another tend to perceive additional similarity.

Negative evidence has been provided by Lundy (1959). Subjects discussed a topic for

five minutes, first with one student, then with another. During one of the interactions, subjects were led to believe that their partners had selected them for the discussion, while during the other, subjects were led to believe the opposite. Assumption of similarity with one's partner (on the Allport-Vernon value scales) was found to be a function of order of interaction (greater on the second interaction), but not to be associated with the acceptance-rejection variable.

Favorable Judgments of the Behavior of Liked Persons. Horowitz, Lyons, and Perlmutter (1951) reported that, in a face-to-face discussion group, agreement by group members with one another's acts was directly related to whether the "actors" were liked or disliked. This finding emerged only from questionnaire data, however, not from the verbal record obtained during actual discussion. In a different kind of situation, a summer camp for boys, it was found that the performance of high-status boys on an athletic task tended to be overestimated by their peers, while the performance of low-status boys was underestimated (Sherif et al., 1955). Variations in judgments of performance were not significantly related to actual skill displayed on the task.

Two studies by Berkowitz (1956, 1957) provide additional relevant data. High liking within effective air crews was found, in the first investigation, to be accompanied by members' perceptions of high motivation in one another. In the second investigation, utilizing simulated groups, high liking between partners (manipulated by means of instructions with regard to probable congeniality of one's fellow members) was accompanied by high regard for one another's opinions.

Perceptual Sensitivity. Suchman (1956) has reported, from a study of three five-person student groups, that "people who showed more favorability toward others were more accurate in estimating their feelings." Exline (1957) similarly found that group members who were told that they were well matched and congenial were more accurate than members of noncongenial groups in perceiving the task-oriented behavior of their fellow members. Also somewhat relevant is a

study by Eisman and Levy (1960); they found that lip-reading was more accurate, the more the communicatee liked the communicator.

In a different kind of investigation Schutz (1961) composed groups so as to be homogeneous (compatible) with respect to members' interpersonal needs; after six meetings, group members were able to correctly identify the interpersonal characteristics of their group when the common characteristic of the members was expressed behavior rather than behavior desired from others.

From data obtained in studies not directly concerned with perceptual accuracy but with assumptions of similarity or judgments of others' behavior (cited earlier), it is evident that subjects sometimes assume too much similarity to persons they like or overestimate the goodness of their performance. Liking, therefore, may lead to inaccurate perception, although it may be associated with an increased sensitivity to the behavior and characteristics of liked others. Differential dependent measures of sensitivity and accuracy are needed.

Perceived Reciprocal Attraction. From a variety of groups in different research settings (Tagiuri, 1958; Tagiuri, Blake & Bruner, 1953; Tagiuri, Bruner, & Blake, 1958), Tagiuri and his co-workers have reported that the tendency toward "congruency," that is, the tendency to assume that one's positive or negative feelings toward another are reciprocated, is the most powerful relationship obtained and is significantly greater than would be expected on the basis of chance (a robot model). Tagiuri (1958) wrote:

It is intriguing to ask whether congruency is a tendency for people to feel chosen by those whom they choose, or contrariwise, to choose those by whom they feel chosen. Undoubtedly, there are individual differences in the order of this cycle [p. 322].

In general, however, Tagiuri argued for the dominance of the former tendency, since individuals are usually first aware of their own feelings toward one another. Data relevant to the perception of "reciprocated attraction" have also been reported and discussed by Newcomb (1956, 1958, 1960).

Communication

The hypothesis that persons communicate more with liked than with disliked persons has been supported by a number of investigations but the results of other studies have indicated that in situations where opinions differ, and where there is pressure toward uniformity, individuals tend to increase their communication to deviates. In some of these latter investigations measures have indicated that the deviates are disliked or rejected while in others this must be assumed.

Kelley (1950) found that a larger proportion of students took part in a class discussion led by a substitute teacher when they had been informed that the teacher was "warm" than when they had been given the opposite information. Back (1951) compared high with low cohesive pairs (manipulated by instructions) with respect to communication patterns in discussion of a story derived from pictures and found significantly more "withdrawal" patterns among the latter. Grossack (1954) has reported that more notes were exchanged by subjects under instructions to "cooperate" with fellow group members than by subjects instructed to "compete" on an experimental task. In still another relevant experiment by Cervin (1956), the "solidarity" of three person groups was manipulated by having stooges agree or disagree with opinions expressed by the critical subject. Dependent measures indicated that both average degree of participation in discussion and response latency of critical subjects was greater in the "solidarity situation." Utilizing natural student groups, Lott and Lott (1961) obtained a significant positive correlation between cohesiveness, as measured by an index of interpersonal attraction, and median frequency of communication among group members on a discussion topic supplied by the investigators. Finally, Runkel (1962) has reported finding a relationship between the level of respect existing between secondary school teachers and how often they communicate with one another; the causal direction of this relationship, however, is not clear.

An investigation by Mellinger (1956) has provided interesting data not on frequency of communication but on the nature of communication as a function of interpersonal attraction. It was found that scientists in a research organization tended to conceal their attitudes about a particular issue when communicating with persons in whom they lacked trust.

In studies of small groups under pressure to achieve uniformity on a given question or problem, it has generally been found that communication tends to be directed more to deviants than to other group members, especially in relatively cohesive or homogeneous groups (Emerson, 1954; Festinger et al., 1952; Festinger & Thibaut, 1951; Schachter, 1951). More recently, Altman and McGinnies (1960) have reported that both heightened pace of discussion and frequency of opposition-directed remarks were positively related to members' valuations of their groups.

In the investigations cited in the foregoing paragraph, communication directed by group members to deviants consisted, primarily, of attempts to influence a change of opinion. It is probable, then, that the relationship between interpersonal liking and communication will vary with the conditions under which the interaction takes place.

Uniformity-Conformity

Most of the findings support a positive relationship between the degree of interpersonal attraction existing among persons and their consequent uniformity with regard to particular opinions, attitudes, judgments, or other behavior. Both attempts *to* influence, and successful influence *by*, liked persons have been shown. These two processes, which appear logically and empirically to operate together, are usually not separated, but some investigators have obtained measures of influence attempts as well as of resultant changes in behavior.

A study by Back (1951) is often cited in support of the hypothesis that pressures toward uniformity are greater in high than in low cohesive groups although Back's data provide only minimal support. Pairs of individuals worked on a story-writing task under different instructions with regard to personal attraction, task direction, or group prestige,

but whether the attempted variations in cohesiveness were successful is not clear. When both partners were taken into account, no significant differences were obtained between the high and low cohesive pairs on a measure of change following influence attempts, although in high cohesive groups there was reliably more change on the part of one partner.

The technique of manipulating group cohesiveness by telling subjects that they will probably like (find congenial) or not like one another has been used in a large number of investigations of the attraction-uniformity hypothesis. Festinger et al. (1952) told members of some groups that they would find each other compatible, congenial, and interesting, and would most likely get along very well. Such groups were found to exert greater pressures for uniformity of member opinion with regard to a particular issue under discussion than groups given the opposite orientation. Similar instructions were used by Berkowitz (1957) in a study where subjects worked under simulated group conditions, and conformity to the responses of partners on a task was found to be significantly related to liking of the partners. In an earlier investigation Berkowitz (1954) had related intermember liking with the persistence of group productivity standards for an experimental task similar to one utilized by Schachter, Ellertson, McBride, and Gregory (1951). This latter study found that persons in high cohesive groups followed presumed member suggestions for low productivity to a significantly greater extent than did members of low cohesive groups, but when the pressure was for high production, cohesiveness made no difference.

Other research in which interpersonal liking has not been explicitly manipulated may be considered relevant to the present discussion if we assume variation in the level of attraction among subjects. Thus, for example, Bovard (1951b) found significantly more convergence in perceptual judgments among members of group-centered classes than among members of leader-centered ones. These two types of classes differed in amount of student interaction. Similarly, Festinger and Thibaut (1951) reported that among group members told that they were with others similar to themselves in interest in and knowledge about a given problem there was greater change in the direction of opinion uniformity than among group members given the opposite instructions. Homogeneity was associated with increased uniformity only for opinions on a football strategy problem, however, and not for those concerning treatment of a delinquent boy. In a study by Grossack (1954), some subjects were instructed to work competitively and others cooperatively. The findings provided support for the experimental hypothesis that cooperating individuals (assumed by Grossack to manifest a cohesive group structure) will make more attempts to influence others and will accept more pressures in the direction of uniformity than competing persons. Kidd and Campbell (1955) varied the success of groups on an anagrams task and found, subsequently, that subjects in "success" groups differed significantly from those in "failure" groups in conforming more to purported group averages regarding estimated light flickers. Finally, Dittes and Kelley (1956) have reported that group members who received ratings of average acceptability from their fellows tended to show more conformity behavior than those who received low or very high ratings.

Another group of studies have provided data on differences in conformity behavior between groups which more clearly differed in level of interpersonal attraction. Thrasher (1954) investigated variations in perceptual judgment as a function both of gradations in stimulus structure and interpersonal relations. He found that the judgments of pairs of friends "were significantly more influenced by each other's judgments than the judgments of pairs of individuals who were not so positively involved (neutrals)." This was the case for stimuli of both intermediate and low structure value. From a quite different research setting, a field study of secondary school teachers, Rasmussen and Zander (1954) have reported that the discrepancy between perceived group standards (regarding teaching performance) and own ideal was smaller, the more attracted was a teacher to his group. From another field study, of decision-making conferences, it was concluded

that the achievement of high consensus is associated with warm and friendly personal feelings among the participants (Guetzkow & Gyr, 1954). Thibaut and Strickland (1956) compared conformity behavior within groups of positively associated individuals (fraternity pledges) and within groups of strangers. Under varying pressure of believing oneself to be in the minority with regard to judgments, the greatest positive relationship between pressure and conformity was found to occur in those "pledge" groups which had been given a "group" as opposed to a "task" orientation. A more recent investigation by Zander, Natsoulas, and Thomas (1960) reported that subjects who were most attracted to their group were also ones whose own aspiration level (or personal goal), with regard to an experimental task, was highly congruent with the goal of their group. In an investigation of natural student groups, Lott and Lott (1961) obtained a significant relationship between the degree of mutual positive attitudes existing among group members and their conformity to a purported group standard with respect to an opinion question.

One experimental approach to the question of uniformity pressures and group cohesiveness or of intermember attraction, has been the demonstration of less tolerance for, or greater rejection of, deviates in high cohesive groups. Schachter (1951) obtained data supporting this hypothesis in a study where cohesiveness was manipulated through the use of differential instructions and stooges expressed points of view at variance with majority opinion. Generally positive but not definitive findings were also obtained from replications of this study by Emerson (1954) and by Schachter, Nuttin, de Monchaux, Maucorps, Osmer, Duijker, Rommetveit, and Israel (1954). Similarly, Festinger et al. (1950), who studied two parts of a student housing project, reported that in one there was a high, significant, negative correlation between a sociometric measure of cohesiveness and the percentage of deviates (with respect to a particular issue) in residence courts, and that deviates in these courts tended to receive fewer sociometric choices than those who shared the majority opinion.

In the other portion of the project, however, neither of these findings was obtained.

Still another empirical variation has been the demonstration that individuals are more resistant to changing their opinions if these are shared by members of groups to which they are attracted. Gerard (1954), for example, reported that a paid participant who challenged the opinions of subjects, each of whom represented a group, was more effective in influencing those who were less attracted to their fellow group members. In an earlier investigation, Kelley and Volkart (1952) had obtained similar data from a natural setting. A sample of Boy Scouts heard a speaker criticize the Scouts' emphasis on camping and woodcraft. In general, those boys who valued their Scout troop membership least changed most in the direction of negative attitudes toward these activities.

We have classed together a group of studies in which influencer (model) and influencee (imitator) are distinct and clearly identifiable. Taken together, the results of these investigations provide considerable support for the proposition that an individual will tend to match his behavior to that of a liked other. In a laboratory study, Grosser, Polansky, and Lippitt (1951) had pairs of boys work together on block-designs. One of the boys, an experimental collaborator, varied his behavior with different partners so as to produce the conditions of high and low friendliness. Under the former condition as compared with the latter, there was more imitation by the subjects of certain aspects of the collaborator's behavior during rest periods. Lippitt, Polansky, and Rosen (1952) have also reported, from a field study at a children's camp which replicated earlier research, that the boys investigated were more likely to imitate the behavior of those to whom they attributed high power and that attributed power choices were highly related to judgments of personal liking. Harvey and Consalvi (1960) had groups of boys from a school for delinquents participate in a perceptual judgment task and found, in general, that the higher a boy's status (i.e., the more preferred he was as a teammate or team captain), "the greater his proportionate influence on members' judgments . . ." Another

investigation of children at a summer camp (Cohn, Yee & Brown, 1961) obtained measures of food and activity preferences and of interpersonal attraction. Over a 4-week period, a significant change in preferences was found in the direction of similarity with most liked peers. In addition, a high degree of correspondence was noted between actual eating behavior at meal time and measured attitude changes. Change in one's self-evaluation so as to match the characteristics perceived in one's best friend has also been reported, among a sample of male college freshmen (Kipnis, 1961).

Some studies have shown imitation of a stranger, or presumed previously neutral individual, under conditions designed to increase his attractiveness. For example, in one investigation (Kelley & Woodruff, 1956) college students listened to a recorded speech which advocated opinions contrary to the norms of their college. Some were told that the audience heard applauding the speaker consisted of faculty and alumni from the college; others were informed that the applauding audience was made up of anonymous outsiders. More opinion change in the direction advocated by the speaker took place under the former than under the latter condition. Burdick and Burnes (1958) manipulated another variable and found that a lecturer, after speaking pleasantly for an hour to a group of students, was effective in changing their opinions, while after speaking unpleasantly on a later occasion, he was significantly less liked than previously and students' opinions tended to change in a direction opposite to his. (In the same paper Burdick and Burnes reported finding a positive relationship between emotionality, as measured by the galvanic skin response, and disagreement with a liked experimenter.) Burnstein, Stotland, and Zander (1961) have reported that grade-school children tended to model their preferences regarding deep sea diving more after an adult described as highly similar to them in background and other attributes than after a less similar adult. Under conditions where subjects were not informed about the adult's degree of similarity to themselves, but were told about his sea diving ability, preferences of the

model were more accepted by the children as their own when he was described as capable than when he was described otherwise. Suggestive data have been reported by McDavid (1959) from a study of imitation among preschool children: A female model was found to be initially more effective in providing behavioral cues than was a male model. Another and more recent investigation of nursery school children (Bandura & Huston, 1961) varied the behavior of the female experimenter so that some of the children experienced two warm and nurturant play sessions, while the others experienced two cold, nonnurturant ones. There was more imitation of the experimenter's verbal and motor behavior by children in the former condition (except for aggressive behavior which was readily imitated by all subjects).

Although the empirical evidence favoring a positive relationship between interpersonal attraction and consequent behavior similarity is extremely impressive, there have been negative findings as well. Bovard, who had reported a positive relationship between interaction and convergence on perceptual judgments in one study (1951b), found in a later one (1953) that conformity on another perceptual judgment task was not reliably related to a measure of the average attraction of group members to their group. McKeachie (1954) compared group-centered with leader-centered classes and obtained equivocal results with respect to congruence between individual attitudes and perceived and actual group norms. Downing (1958) has reported failure to obtain a significant difference in level of conformity between members of high and low cohesive groups in an autokinetic response situation.

In a comparison among industrial work groups differing in cohesiveness, Seashore (1954) found that high and low groups did not differ reliably in within group variance with respect to members' judgments about a reasonable production level, but the within group variance in high cohesive groups was significantly less than in low groups with respect to *actual* production. Burdick (cited by Walker & Heyns, 1962, pp. 30–40), has also reported both negative and positive findings under different conditions. High liking for

other group members was found to be positively related to *nonconforming* behavior in one experiment and to *conforming* behavior in a second experiment. In the latter case,

conformity was made instrumental to being liked by other persons . . . by adding to the instructions the point that it is common knowledge that persons tend to like one another more, to get along better, when they agree about common problems [p. 34].

Task Performance

As was the case with respect to uniformity of behavior, there exists an extensive literature devoted to the relationship between interpersonal attraction and productivity.

One experimental technique has simply compared groups of friends (or positive sociometric choices) with groups of nonfriends on some measure of productivity. An early study by Husband (1940) found superior performance by pairs of sixth- and seventh-grade friends on word puzzles, jigsaw puzzles, and arithmetic problems. At three summer camps in which workgroups were formed according to choices made so that congeniality was maximized, "Observers reported a superior solidarity over former camps as reflected in such indices as greater participation in discussions . . . and more work accomplished [Faunce & Beegle, 1948]." Van Zelst (1952a, 1952b), experimenting in a natural work situation, grouped some carpenters and bricklayers into mutual choice pairs and found that they excelled over control pairs on such indices as savings in labor costs and materials, rate of turnover, and job satisfaction. A more recent laboratory investigation (Bjerstedt, 1961) found that groups of children composed of chosen workmates surpassed groups composed of nonchosen children on story-telling tasks; they made higher scores on indices of interest in the quality of performance (process time and amount of rehearsal), and they achieved better results.

Other studies have obtained correlations between measures of interpersonal attraction and performance on some particular task. Goodacre (1951, 1953), for example, reported significant positive correlations between various indices of group cohesiveness and the scores made by combat and rifle squads on field problems. Similarly, Berkowitz (1956)

has reported a significant relationship between aircrew members' attitudes toward one another and two criteria of their actual combat effectiveness; and Chapman and Campbell (1957), in a laboratory study, found that, "Ratings of a person's desirability as a teammate correlate significantly with the success of the teams of which he is a member." Positive findings have also been reported by Darley, Gross, and Martin (1952) from a study of women's residence units and by Gardner and Thompson (1956) from a study of fraternities.

Supportive findings may also be cited from investigations in which the independent variable may be assumed to reflect variation in interpersonal attraction; in some cases such variation has been shown, explicitly, to accompany the manipulation of conditions. For example, Sacks (1952) administered individual intelligence tests to three groups of nursery school children. The tester had previously established a "good" relationship with the children in one group and a "poor" relationship with the children in a second group, and she had had no prior contact at all with the remaining children. The scores of the children who were familiar with the tester were significantly higher than they had been 10 days earlier on an alternate form of the test whereas this was not the case for the control children; moreover, the retest increases of the "good" relationship children were significantly greater than the increases of the "bad" relationship children. According to Sacks, qualitative observational data support the fact that the children differed in the intended way in their attitude toward the experimenter. In a study of a chain of supermarkets, Clark (cited by Homans, 1961, p. 255) obtained an almost perfect correlation between an index of social ease (status congruency of "bundler" and "ringer") and an index of labor efficiency. Cervin (1956) varied group "solidarity" by having two stooges reinforce or extinguish the opinions of the critical member of each group. The same subjects "showed better and more even performance" when in the solidarity than in the dissolidarity condition. The compatibility of groups, defined by similar interpersonal orientations among group members, was

varied by Schutz (1955) and by Moos and Speisman (1962). Data from both studies show a tendency toward better task performance by compatible groups. Schutz's results also indicated that the difference between compatible and incompatible groups varied with the type of task. In an investigation by E. E. Smith (1957), group productivity was shown to be negatively affected by the presence of two silent members in five-person experimental groups; the silent members were perceived as being unpredictable.

That individuals who work together cooperatively are more productive on some criterion than group members who compete against one another has been demonstrated for classroom groups by Deutsch (1960) and by Smith, Madden, and Sobol (1957). Blau (1954), interested in the same variable, compared groups of employment agency interviewers and found, paradoxically, that competitiveness and productivity were "inversely related for groups but directly related for individuals in the competitive group." The competitive group was less productive than the group in which there were cooperative norms and in which competitive tendencies were curbed, but within the former group, the more competitive individuals were relatively more productive.

Not directly concerned with actual performance, but with individual aspiration levels for group achievement, is an investigation by Ex (1959). Subjects who worked with a sympathetic partner (a congenial confederate) were found to have higher levels of aspiration for their joint performance than subjects who worked with an unsympathetic partner.

Not all of the research findings in this area have pointed to the same conclusion. In an early study by Philp (1940), for example, in which pairs of kindergarten children who preferred each other or were strangers worked on simple tasks, the "quality of the response made during the two types of pairings" was reported to be very different, but there were no reliable differences in average performance or range of performance. In a far different setting, a field study of actual conferences, cohesive groups were found to be no more productive

than less cohesive ones (Marquis et al., 1951), and among industrial work groups a tendency was found for either high or low production among high cohesive groups, depending upon the group's standard (Seashore, 1954). That high cohesive groups can be induced to lower production or perform poorly has been demonstrated in experiments by Schachter et al. (1951) and by Berkowitz (1954).

Atthowe (1961), who measured the cohesiveness of decision-making pairs by their number of "we" versus "I" remarks, also found no relationship between this measure and task performance, while Adams (1953) has reported a curvilinear relationship between the degree of status congruence within bomber crews (which varied positively with friendship) and measures of their technical performance. It has also been suggested that under certain conditions there is a negative relationship between interpersonal liking and efficient task performance. According to Fiedler (1953), "quite in contrast to therapeutic and social relations, we find that psychological closeness and warmth in key members of small groups seems to be a detriment to effective team work . . ." under conditions where teams "want to get a job done." Similarly, Stogdill (1959) has suggested that "the effort that is devoted to the development of integration might be conceived as a subtraction from the efforts that are devoted to productivity [p. 269]." Supporting data may be found in investigations of machine operators in a shoe factory (Horsfall & Arensberg, 1949), of surveyor teams (Fiedler, 1954), and of rifle teams (McGrath, 1962). Hoffman (1959) and Hoffman and Maier (1961) have varied the homogeneity of members' personalities in problem-solving groups and found that nonhomogeneous groups tended to produce superior and more inventive solutions. In these studies data on intermember liking were not obtained.

Equivocal results have been reported by Yuker (1955), who used group recall as a measure of group productivity. In an interesting experiment, the leadership (democratic versus authoritarian) and cooperation-competition dimensions of groups were varied, and individuals recalled alone and collec-

tively a story which had been read to them while they were assembled in their four-person groups. The difference in accuracy between group recall and initial individual recall was found to be significantly greater in cooperative than in competitive groups, but there was no difference between demo-cratic and authoritarian groups, and neither the cooperation-competition nor the leader-ship variable was found to affect differences in accuracy between final individual recall and initial individual recall. Yuker's data, however, suggest that his groups did not differ reliably in cohesiveness. In a subsidiary analysis, Yuker found that the 10 groups in which there had been the greatest improve-ment from initial to final recall differed from the 10 groups in which there been the least improvement on three questionnaire items reflecting cohesiveness.

Findings relevant to the relationship be-tween liking and task performance are con-tradictory. It seems likely that in a task situation other variables such as the demands of the situation itself (instructions or job specifications), the standards of performance preferred by liked co-workers, and the degree to which sociability may interfere with the required behavior for a particular job, may be highly significant.

Learning

We are not concerned here with the ques-tion of whether learning in a group situation is superior to learning when alone, a question discussed often in the earlier literature (see Lorge, Fox, Davitz, & Brenner, 1958) and more recently by Gurnee (1962). Our inter-est is rather in those investigations which compare groups differing in the level of attraction among members or in some related variable. Such studies have been conducted in a variety of learning situations and have yielded generally equivocal results.

The major independent variable in studies by Perkins (1950) and Rehage (1951) was group- versus leader-centered classroom cli-mates. In the former, positive results were obtained with respect to the learning of child development material by in service teachers; in the latter, eighth-grade students under the "teacher-pupil planning" condition were

found not to differ significantly from those under the "teacher planning" condition in the "amount of social studies subject mat-ter learned." Calvin, Hoffman, and Harden (1957) investigated the effect of climate (permissive, democratic versus nonpermis-sive, authoritarian) on group problem solving. The trends in three experiments supported their hypothesis that a permissive climate is superior to a traditional one for subjects with high intelligence, but a handicap for subjects with only average intelligence.

In a recent investigation by Shaw and Shaw (1962) the sociometric composition of three-member groups of second-grade chil-dren was varied. The children, in their groups, studied lists of spelling words and were tested during both an early and late period of interaction. Spelling scores were found to be positively correlated with an index of group cohesiveness or intermember liking only on the first test; they were unrelated on the second test.

A number of relevant studies have been concerned with verbal conditioning as a function of the relationship between experi-menter and subject, or simply the attractive-ness of the experimenter. Binder, McConnell, and Sjoholm (1957) found a higher rate of learning (for "mildly hostile" words) by sub-jects whose reinforcements were provided by an attractive, soft-spoken young lady than by subjects reinforced by a very masculine, former Marine captain. No data were pro-vided on the subjects' attitude toward the two experimenters. On the other hand, nega-tive findings have been reported by Kanfer and Karas (1959). Prior to the conditioning of "we" or "I" some subjects had been tested by the experimenter and told that they did well, or poorly, or told nothing, while some subjects were given no prior experience with the experimenter. Those subjects who had interacted with the experimenter conditioned significantly better than those in the no ex-perience group but there were no reliable differences among the former in rate of condi-tioning or final response level. Although ques-tionnaire results indicated that the "failure" subjects considered the experimenter to be unfriendly and a source of discomfort, these subjects also said that they were more highly

motivated on the conditioning task. Using a similar design, Simkins (1961) obtained similar results. Hostile words were reinforced after subjects had had prior experience with the experimenter. When the reinforcement consisted of the experimenter's saying "good" or "that's fine," the "failure" subjects (i.e., those previously criticized by the experimenter) conditioned better than any other group of subjects; when points or pennies were used as reinforcers, conditioning was not related to the experimenter's prior behavior.

Weiss, Krasner, and Ullman (1960) also varied the experimenter's behavior to induce a hostile or a positive atmosphere prior to a critical series of conditioning trials. The hostile condition served to decrease responsiveness but did not affect reconditioning. Quite similar findings were reported by Reece and Whitman (1962). In this study the experimenter varied his expressive movements *during* the conditioning procedure and successfully induced perceptions of "warmth" and "coldness" by different subjects. Those under the "warmth" condition produced significantly more words, but the number of plural nouns (which were reinforced) was not affected.

Still another kind of manipulation was employed by Sapolsky (1960). Some subjects were told that they would be working with a congenial experimenter, while others were given the opposite instructions. A measure of the success of the manipulation yielded positive findings, and response acquisition was found to be significantly greater for high- than for low-attraction subjects. In a second study, Sapolsky varied the "compatibility" of subject-experimenter pairs by selecting them on the basis of scores on Schutz's Fundamental Interpersonal Relations Orientation-Behavior questionnaire and again obtained positive results. These data provide the clearest support for the proposition under consideration.

We must cite, finally, some unique findings reported by Horwitz (1958) who has conducted a series of investigations on the effects of the *veridicality* of one's expressions of like or dislike. In one study, a teacher deferred to students' desires under one condition and was, therefore, power *enhancing*

with respect to the students, while in another condition the teacher was power *reducing* and always acted upon his own desires. These manipulations, designed to produce liking or disliking of the teacher, had proved successful in previous investigations. Then, by manipulating information about group attitudes toward the teacher, either a veridical or non-veridical group norm was developed. Subsequently, on a type-setting task, the number of trials required to achieve two consecutive perfect performances was found to be significantly lower (i.e., faster learning occurred) under the veridical than the nonveridical condition. In other words, whether the students liked or disliked the teacher did not matter so long as the group norm was the same as the attitudes which were generated by the experimental manipulation of the teacher's behavior.

Overview

Compared with the empirical findings regarding the antecedents of liking, those relevant to consequences are far less clear-cut and definitive. This is reflected in the relative lack of theoretical concern with the effects of attraction, as we shall see below. Since applications of so-called group behavior principles are often urged in such fields as group psychotherapy, education, and community relations, it is vital to distinguish between validated and unvalidated hypotheses or to differentiate between principles which have been relatively well substantiated by research and those for which the empirical evidence is weak or contradictory. In the former category might be placed generalizations concerning the effect of interpersonal attraction on evaluation of the situation, on evaluation or perception of persons who are liked, and on uniformity of behavior or opinions on *certain* issues, perhaps those that are most relevant to the personal relationship. Hypotheses linking interpersonal liking with the expression of aggression, self-evaluation, communication, task performance and learning require additional refinement. In need of systematic coordination within some general framework are all of the variables which we have considered here.

CONSEQUENCES OF LIKING: THEORETICAL EXPECTATIONS

It is surprising to find that so little has been written of a systematic nature regarding the predictable effects of liking between individuals or among members of a group. Furthermore, in much of what has been written it is difficult to identify underlying general principles; the predictions seem, for the most part, to be more in the form of empirical generalizations, and consequently, one theoretical position cannot easily be distinguished from another. There are exceptions and some attempts at genuine derivation from sets of limited, broader principles.

Festinger

Festinger has not been concerned with interpersonal attraction, per se, but with a number of related social phenomena. He predicted, for example (Festinger, 1950a), that as forces to remain within a group increase (i.e., as the group's attractiveness increases), pressures to communicate will also increase. Social communication, according to Festinger, is a means by which individuals compare their opinions with one another (thereby validating them against the standard of social reality) and is a means by which individuals may more effectively progress toward a group goal. Both of these communication-provoking needs (or forces) are presumably greater in high-cohesive or more attractive groups. Elsewhere, Festinger (1954) more explicitly hypothesized that the greater the attractiveness of a group, the more important it is as a standard of comparison with respect to abilities and opinions. Further, the amount of opinion change on the part of an individual is a function of the forces acting on him to remain in the group, or, in other words, is a function of the attractiveness of the group, its members, or activities.

Heider

On the basis of the balance concept which underlies his predictions of interpersonal behavior, Heider (1958) has proposed that when one person likes another the following consequences will be probable: (a) Similarity will increase between the two persons with respect to their attitudes toward objects, events, or other persons, resulting from changes in the liker, changes in his perception of the object of his liking, or both; (b) The liked person will be approached or contacted and the liked person will be benefited or helped and will be perceived as benefiting the liker.

Newcomb

In Newcomb's theoretical papers (especially 1953) can be found considerable explicit discussion of the effects of interpersonal liking. His "strain toward symmetry" proposition leads to the prediction that the greater the valence of one person (B) for another (A), or "the more intense one person's concern for another," the greater is the likelihood that A will be sensitive to B's "orientations to objects in the environment," and that symmetry of orientations will be achieved. Perceived symmetry, as well as the achievement of objective symmetry, will vary as a function both of "intensity of attitude toward [issue] X and of attraction toward B."

An important refinement in Newcomb's position is represented by his hypothesis that there will be a greater range of subjects or issues "with regard to which there is strain toward symmetry" between persons more attracted to one another than between persons less so, and for the latter "strain toward symmetry is limited to those particular Xs, co-orientation toward which is required by the conditions of association." In a later paper, Newcomb (1960) proposed, in addition, that A will tend to endow B with "favorable attributes" if A is positively attracted or has a favorable attitude toward B.

Thibaut and Kelley

These theorists (Thibaut & Kelley, 1959) are concerned primarily with the consequences of one person's *dependence* upon another, rather than with one person's attraction to another. Although dependence and attraction are seen as tending to be positively correlated, the concepts are independently defined and related to other variables. High

cohesiveness, for example, is said to result from a condition of high interdependence among group members, a condition in which each member has high power over the other, or

can move the other through a relatively great number of reward-cost units above [p. 114]

the other's comparison level based on alternative group relationships. It follows, then, that in

high cohesiveness both the ability to make demands and the ability to resist them are greater than in low cohesiveness [p. 114],

producing a potentiality for conflict under the former condition. Cohesive groups, however, quickly find a procedure to avoid conflict: one member will have more power than others, or the members define a range of issues on which conformity is expected. When members have power over one another, this means that they have the ability to reward each other; this ability

seems to create further ability to do so . . . A will reward B in order to get B to produce behavior that he, A, finds rewarding. By so doing, A creates conditions under which, through association learning, B is likely to learn to like this behavior himself. The greater A's ability to reward B, the more this learning will occur [p. 115].

In this way, members of cohesive groups move toward similarity in values, attitudes, and behavior.

Other Approaches

With positive attitudes among persons defined in learning-theory terms as anticipatory goal responses having cue and drive properties, Lott (1961) has predicted consequences for group behavior derived from the Hullian framework. Since attitudes have drive value, the greater the degree of intermember liking the higher should be the general level of group activity, the quantity (not necessarily the quality) of task production, and the level of communication. Similarly based on the assumed drive value of attitudes is the prediction that more efficient learning should take place in high than in low cohesive groups or on the part of individuals who are in the presence of liked others.

It is also predicted that the "more cohesive the group the greater the probability that members will develop uniform opinions and other behaviors with respect to matters of consequence to the group." This hypothesis stems from the fact that stimuli which evoke anticipatory responses are thus able to function as secondary reinforcers since this property of a stimulus depends upon the stimulus being able to evoke an anticipation of reward. Persons who are liked, in other words, are sources of secondary reward. It can, therefore, be expected that the greater the interpersonal attraction among persons, the greater is their reinforcing potential, and the greater will be "the probability of uniformity among them on issues where deviancy is accompanied by withdrawal of group members from the deviant." Thus, uniformity is not always expected with respect to all issues. Lott and Lott (1961) have suggested further that a positive relationship between cohesiveness and conformity can be predicted

only in those situations where the stimulus features are similar, to some degree, to those which were present when group members acquired their secondary reinforcing characteristics. The principle of stimulus generalization, in other words, should be employed to predict the effectiveness with which group members can act as secondary reinforcers for one another in diverse situations [p. 411].

Some General Considerations

A number of years ago Albert (1953) raised provocative questions regarding the concept of group cohesiveness. He discussed the generality of its conceptual definition and the diverse and questionable attempts to operationalize it and asked, "is cohesiveness necessary?" We believe that at the present stage of development within the area of group behavior, we would do better to investigate more clearly definable factors such as interpersonal attraction, establishing relationships with antecedent and consequent variables. We have attempted here a beginning in this direction. Cartwright and Zander (1960) have suggested a similar approach:

The most important task for group dynamics, is to establish a generally accepted set of basic variables and concepts having clear empirical and conceptual meaning. . . . One part of the problem is to iso-

late the actual unitary variables or dimensions that make discernible differences . . . The differentiation of unitary variables can only be accomplished by empirical work which discovers what regularities are invariably found among measurements and observations [p. 46 f.].

We do not intend to throw out group concepts and to substitute for them concepts definable in terms of the behavior of individuals, but we believe it to be both more parsimonious and systematic to *begin* with the latter, our only source of data, after all. Motivation for group membership resides in the individual, and the consequences of group processes are seen in changes in individual behavior. Our thinking although primarily influenced by modern learning theory, is in accord with other contemporary positions within social psychology. Homans (1961), for example, maintains that "from the laws of individual behavior . . . follow the laws of social behavior when the complications of mutual reinforcement are taken into account [p. 30]." Floyd Allport's (1962) theoretical orientation is similar:

When the group dynamicist speaks of the "attraction of the group for the individual" does he not mean just the attraction of the individuals for one another? If individuals are all drawn toward one another, are they not *ipso facto* drawn to the group [Pp. 23–24]?

Allport has refined his early theoretical position which saw the explanation of social phenomena *"only in the psychology of the individual as he operated in situations with others* [p. 5]" to a view of groups as collective "structures" of articulated behaviors engaged in by interacting persons. In other words, what constitutes a group are *"particular give-and-take behaviors* [p. 13]."

A decade has passed since Riecken and Homans' (1954) excellent review of literature relevant to the "psychological aspects of social structure," but the need for codification of research findings, which they emphasized, is still a pressing one. Our aim, too, has been to place investigations under a "rationally ordered set of headings." We also share with Riecken and Homans the assumption that "there are no such things as contradictory findings," that such findings must have been reached in different circumstances

and that the search to identify the specific characteristics of these circumstances "is one of the most potent sources of growth in knowledge."

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