GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR

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I. Introduction ................................. 145
II. Effects of Group Discussion .................. 147
   A. Overview of Recent Empirical Research ...... 147
   B. Group Polarization in the "Real World" ... 154
III. Theoretical Explanation of Group Polarization and of Other Group Effects ............ 164
   A. Application of Social Decision Rules by Group Members .................. 164
   B. Responsibility Dynamics .................... 166
   C. Informational Influence ..................... 169
   D. Social Comparisons ....................... 174
IV. Conclusions ............................... 186
   References ................................... 187

I. Introduction

Research on the effects of social interaction in small groups, a central concern of social psychology back in Kurt Lewin's day, took a backseat during

1The authors are listed alphabetically since they made approximately equal contributions, Lamm being primarily responsible for Sections II, A and III, B and Myers for Sections II, B and III, C and D, all other portions being a joint effort. The writing of this chapter and the authors' work reported in it were supported by grants from the Deutsche Forschungsgemeinschaft (to Lamm, Sonderforschungsbereich 24, Universität Mannheim) and the National Science Foundation (to Myers). We are grateful to Robert S. Baron, Martin Kaplan, Charlan Nemeth, and Dean G. Pruitt for their helpful comments on earlier drafts.

145
most of the past 25 years while social psychologists concentrated on the intrapersonal dynamics of attitude change and other social cognition. Recently there has been a renewed interest in the interplay between psychological and social processes, particularly in the small group and its effects on attitudes, decisions, and other responses.

The most striking example is the several hundred research studies on group-induced shifts in attitudes and behavior, especially on the group polarization phenomenon (né “risky shift”). Following Moscovici and Zavalloni (1969), investigators have used “group polarization” to signify group-produced enhancement of a prevailing individual tendency. This phenomenon was first noted in research with Choice Dilemma items where it was observed that items which elicit relatively risky initial tendencies generally elicit shift further toward the risky extreme after discussion (the so-called “risky shift”), and items which elicit relatively cautious initial tendencies are likely to elicit postdiscussion responses which are even more cautious.

Previous reviews of these findings have mirrored the state of the literature. The first round of reviews analyzed evidence for the existence of a risky shift phenomenon and possible explanations of it (R. D. Clark, 1971; Dion, Baron, & Miller, 1970; Kogan & Wallach, 1967; Pruitt, 1971a, 1971b; Vinokur, 1971). Some of these reviews hinted that “risky shift” might be a misnomer, since the phenomenon was possibly one instance of a more pervasive group influence phenomenon that had no intrinsic connection with risk-taking. Subsequent research confirmed these speculations, so a second-level review (Myers & Lamm, 1976) focused on the generality of the group polarization effect across a variety of laboratory tasks. By the time that review was written in the summer of 1974, the generality of the phenomenon was well-established. In fact, seldom in the history of social psychology has a nonobvious phenomenon been so firmly grounded in data from across a variety of cultures and dependent measures. The cross-national authorship of this chapter is indicative of the cross-national character of this literature. This phenomenon is not likely to become an historical curiosity which fails to generalize across time and people. We concluded, therefore, that the reality of the group polarization effect was more certain than its explanation, although much progress had been made in winnowing unfruitful theories and in refining explanations which were congenial with the facts.

Our present chapter will differ from these previous reviews in its focus on the most recent empirical and theoretical advances and in its consideration of

2The Choice Dilemmas represent fictitious everyday life situations in which a protagonist is faced with the choice between a risky course of action (e.g., buying stocks; undergoing surgery) and a cautious alternative (e.g., investing in blue chips; remaining in the present ailing state of health). This is the decision task on which the “risky shift” was discovered. The subject must respond by indicating the minimum odds of success—that is, the highest risk of failure—at which he or she would still recommend that the riskier of the two given actions be chosen.
whether the laboratory-based polarization phenomenon is also evidenced in real-world situations. By centering our scrutiny of group interaction effects upon the group polarization phenomenon we hope to progress toward a better general understanding of group influence processes. This understanding should specify the limits of group polarization and give us insight into other effects of social interaction.

Before commencing our overview of recent empirical findings we would like to sharpen the concept of group polarization with four observations. First, remember that group polarization refers to a strengthening of the dominant tendency, not to increased cleavage and diversity within a group.

Second, it denotes an exaggeration of the initial mean tendency derived from data averaged over groups. (This includes between-subjects designs where baseline choices made alone are compared with choices made by other people following group discussion of group decision.) "Group polarization" does not suggest that, despite ceiling and regression effects, a particular group that is initially quite extreme will shift even further toward the extreme than a more moderate group from the same population. It says, rather, that the average group score tends to be amplified by discussion.

Note, third, that the polarization hypothesis is a more precise prediction than group extremization, which denotes movement away from neutrality regardless of direction. Thus if a jury moved from a predeliberation opinion of "probably guilty" to a verdict of "definitely not guilty" their shift would be an instance of extremization but not of polarization.

Finally, group polarization can occur without individual group members becoming more polarized. This could easily happen if a sharply split group of people converged on a decision which was slightly more polar than their initial average.

II. Effects of Group Discussion

A. OVERVIEW OF RECENT EMPIRICAL RESEARCH

Our review of research will give closest attention to research reported since the cluster of earlier reviews in 1970 and 1971. In particular we will concentrate on studies appearing since 1974 when our own previous review was written. A variety of decision tasks—nonevaluative judgments, attitudes, legal decisions, risk-taking, ethical choices, etc.—have been the subject of recent research. Although our organization of studies into such areas is somewhat arbitrary, it may be helpful in ascertaining whether group polarization occurs across various dependent measures or whether group effects vary with the decision task. Studies concerned with applied settings will be discussed in Section II, B.
1. Social and Political Attitudes

a. Studies Finding Group Polarization. A number of attitude studies indicate that the group polarization phenomenon generalizes beyond the Choice Dilemmas (Myers & Lamm, 1976). These studies have included attitudes concerning De Gaulle and Americans (Moscovici & Zavalloni, 1969), one's college and a rival college (Doise, 1969), "issues raised by the events of May 1968" (Paicheler & Bouchet, 1973), diverse social issues (Gouge & Fraser, 1972), and racial attitudes (Myers & Bishop, 1970).

Two more recent studies (Paicheler, 1976a, 1976b) found polarization of attitudes toward women's emancipation. Groups of French students held initially favorable attitudes toward women's liberation (in one experiment an average of 1.10 over 10 items, on a -3 to +3 scale), and discussion moved them toward more favorable attitudes (about 1.80).

Stephenson and Brotherton (1975) provide a nice field demonstration of group polarization. Mining supervisors indicated on a 7-point scale whether they thought that a given statement described the ideal mining supervisor. Two types of groups were assembled: homogeneous ones, in which all agreed or all disagreed with the given statement, and heterogeneous ones, in which half of the group was located on one side and half on the other side. Homogeneous groups manifested polarization after discussion whereas heterogeneous ones did not.

b. Studies with mixed evidence on group polarization. In other studies there was asymmetry in shift, rather than a polarization of whatever attitude tendency was initially dominant.

Myers and Bach (1974) observed polarization toward greater pacifism in groups of "doves," but depolarization (i.e., also shift toward greater pacifism) in "hawks." (They attribute the latter shift to the existence of an external norm of pacifism.) Myers (1975) observed polarization toward even more feminist attitudes by groups whose members already held prediscussion, profeminist attitudes, but no shift by antifeminist groups. Although this resulted in a net increase in intergroup polarization, as predicted, the asymmetry in shift is again possibly explained by the existence of an external, liberal norm. Cvetkovich and Baumgardner (1973) found group polarization on punitive/nonpunitive attitudes toward civil disobedience. Furthermore, they found a shift toward more nonpunitive attitudes even for those mixed groups where no initial "nonpunitive" dominance was evident (initial average of .01 on a scale of -3 to +3). In addition, they found no polarization for groups whose initial attitude was on the punitive side (.91). Estimates obtained from subjects indicated that the shifts obtained were in the direction of what group members perceived to be the dominant (nonpunitive) reference-group position ("external norm").

Some puzzling findings on the effects of group discussion-to-consensus
come from a recent study by Kerr, Davis, Meek, and Rissman (1975). Using a scale from 1 (bad) to 7 (good), they found no shift toward the other side of the scale in attitude toward the New Left (3.84–4.29), and a decrease in favorability of attitudes toward Frenchmen (4.41–4.06) and toward Nixon (3.45–3.23).

In summary, it seems that in these attitude studies where group polarization is not evident in every condition, shift occurs in the direction of what participants believed to be the position held by their respective reference group. In all cases, this external norm has represented the progressive or liberal side of the continuum.

2. Judgments

There is some evidence that group discussion can polarize judgments of fact. However, the phenomenon is more reliably confirmed with tasks requiring more subjective evaluation, a recent example being the polarization of ratings concerning the importance of values (life goals) (Billig & Cochrane, 1976).

3. Interpersonal Impressions

Several experiments gave subjects the task of evaluating, on a global good–bad dimension, a person described by certain cues. By and large these investigations confirmed that discussion tends to strengthen initial impressions (Myers & Lamm, 1976, p. 608).

4. Evaluations of Given Courses of Action

Some experiments had participants indicate their preferences regarding imaginary courses of action. For example, Myers and Bishop (1971) devised imaginary decision situations in which a protagonist faced two alternative courses of action, one of which was favored by most subjects in the experiment. These prediscussion preferences were generally polarized by subsequent group discussion. In other studies the three possible Choice Dilemma outcomes (risky action–successful, risky action–not successful, cautious action) were rated as to their desirability/undesirability. The results provide further evidence for group polarization: Outcomes found initially to be (un)desirable were rated as even more (un)desirable after group discussion (e.g., Vinokur, 1971).

5. Risk-Taking

a. Hypothetical life-decision situations (Choice Dilemmas). There are scores of studies using Kogan and Wallach's (1967) Choice Dilemmas (see footnote 2) as a risk-taking instrument. Several investigators have constructed items with different content (e.g., consumer products that might or might not prove satisfactory) but with the same format as the Kogan–Wallach Choice Dilemmas. Some researchers have used a rating scale (degree of preference for the risky vs. the cautious course of action). By and large, risky shift is obtained
on items which elicit risky individual responses and cautious shift is obtained on items which elicit cautious individual responses.

Research by Burnstein and Vinokur (e.g., Vinokur, 1971) suggests that the risk-shifting items are those where the risky action is perceived as optimal (i.e., where its "subjective expected utility"—as measured through ratings of the likelihood and desirability of its possible outcomes—is greater than that of the nonrisky action), and that the caution-shift items are those where the nonrisky action is perceived as optimal. Similarly, Marquis and Reitz (1969) and Davis, Kerr, Sussman, and Rissman (1974) found shift toward risk on monetary bets with positive expected utility and shift toward caution on bets with negative expected utility. This is generally in line with the group polarization hypothesis in that cautious shift occurs on items for which individual responses favor the cautious side of the risk—caution scale, and risky shift occurs when there is an individual preference for the risky side.

b. Gambling behavior Several types of gambling or betting tasks have been used to investigate the effects of group interaction on risk-taking. We will consider here only research where the riskier alternatives did not have higher expected value than the less risky options.

In one group of studies, subjects had to choose among different probabilities of winning, lower probabilities being associated with greater payoff. In these studies, the various betting items differ by the magnitude of the stake, but the expected value of the two choices is equal. In general, individual risk-taking is high and risky shift ensues when the stake is relatively small, and individual and shift responses are cautious with a large stake (e.g., Lamm & Ochsmann, 1972; Zaleska, 1974). Initial risk levels and risky shift were also smaller with actual money than with play money (Lamm & Ochsmann, 1972). These and other gambling studies indicate that the direction of group-induced shift generally varies in accord with the effect of the experimental parameters on individual betting tendencies; group discussion amplifies situational effects, just as the group polarization hypothesis predicts.

Blascovich and his associates performed a series of studies involving "blackjack," a casino game in which, on any particular trial, either the player or the house—whichever has the winning cards—obtains the stakes. Thus, the outcome alternatives are either to lose the stake one has put up, or to win twice its value. The size of the stake put up constitutes the measure of risk-taking. These studies provided for 20 trials to be played individually, then 20 trials to be played by groups (discussion with decision). Individuals in a control condition did not change in risk-taking over a second set of 20 trials, but groups did move toward higher risk (Blascovich, Ginsburg, & Howe, 1975). However, this was also found when the group context provided mere coaction without discussion (Blascovich, Ginsburg, & Veach, 1975).
Knox and Safford (1976) found greater caution in race track bets by groups than by individuals, confirming the results of McCauley, Stitt, Woods, and Lipton (1973). These instances of group caution appear to be further demonstrations of group polarization, since the median individual bets tended to be already toward the cautious end of the range of possible bets. But, as McCauley et al. (1973) point out, we cannot be sure whether this initial tendency corresponded to subjective perceptions of cautious bets.

c. Other risk situations. Malamuth and Feshbach (1972) found groups more likely than individuals to place risky station-to-station telephone calls rather than person-to-person calls despite the fact that the latter alternative was the rational choice (with the higher expected monetary outcome).

Finally, there are four field studies giving college students a choice among various examination or course-grading schedules. Three of these found that participants in groups chose safer alternatives than individuals deciding for themselves. In two of these studies the initial individual preferences are reported and, as we might expect, they were predominantly on the cautious side of the distribution of alternatives. A fourth, more recent, study (Yinon, Shoham, & Lewis, 1974) found a difference only when the students were role playing with no real stakes. But another study of real risk-taking found no difference in real versus hypothetical choice of dates or of course-grading systems (Spector, Cohen, & Penner, 1976).

It appears, then, that most of these various demonstrations of risky and of cautious shifts can be summarized as instances of group polarization.

6. Prosocial Behavior

Schroeder (1973) found that group interaction strengthened initial prosocial advice regarding donations of time and money. This is confirmed by other studies using questionnaire measures which report that prosocial values are amplified by group discussion (e.g., Muehleman, Bruker, & Ingram, 1976).

In contrast, Baron, Roper, and Baron (1974) found that groups were less charitable than individuals when it came to actually donating their own money. While it is not known whether initial choices were also subjectively stingy (which would make this another instance of polarization), this experiment does connect with some other experiments on group selfishness which we will shortly consider. Further work by Baron (Baron & Sanders, 1975) indicated that when individuals made decisions in groups (under majority rule) they were less likely to vote for altruistic actions that would cost them time or embarrassment than were individuals deciding alone.

7. Antisocial Behavior

Although many real-world examples of intense aggression in group contexts
come readily to mind, there has been little systematic inquiry concerning the effects of group interaction on aggression and other antisocial behaviors. Some studies of deindividuation (e.g., Diener, Fraser, Beaman, & Kelem, 1976) indicate that higher levels of antisocial behavior are exhibited in group contexts than when individuals are alone. But these studies did not involve any discussion among group members; each person acted individually although in a group context. Three recent experiments investigating the effect of group interaction on aggression are, therefore, of interest.

Yinon, Jaffe, and Feshbach (1975) had individuals and 3-person groups administer a learning task. Feedback for incorrect answers was to be given either by a flashing light or by one of ten levels of electric shock. Since expected monetary payoff for both the subjects and the supposed victim was zero if shock was never used, but payoff increased with shock level, most individuals chose to use some shock. As the investigators predicted from responsibility diffusion theory, groups administered even higher shock levels than did individuals.

Mathes and Kahn (1975) gave individuals and 3-person groups opportunities to punish by administering monetary fines. If the subjects had been previously insulted and fined by the learner they were more likely to behave aggressively, especially during the last half of the trials. During these trials the communicating groups assessed slightly higher fines, suggesting again that individual tendencies are amplified by the group.

In both of these studies aggression benefited the victim as well as the aggressor. In contrast, Wolosin, Sherman, and Mynatt (1975) gave individual and group decision-makers an explicit choice between self-sacrificial altruism and aggressive selfishness. Groups delivered more than twice the number of shocks—on 74% of the trials as compared with 34% of the trials by individual subjects.

It is interesting that these three studies, which were conducted independently and published almost simultaneously, all compared the aggressiveness of individuals and 3-person groups, all reported higher levels of aggression in the groups, and all resurrected as a possible explanation the concept of diffusion of responsibility (which was one of the first suggested explanations of risky shift). We will return to these findings in our later theoretical discussion.

8. Interparty Conflict

a. Negotiation. Several studies have investigated the effects of intragroup discussion on aspirations or demand levels concerning an upcoming negotiation. Discussion generally led to a tougher negotiation stance (higher aspirations or higher opening bids).

Rabbie and Visser (1972) found that discussion-to-consensus led to higher aspirations in a tariff-negotiation simulation when subjects were given a strong
bargaining position. Louche (1975a), using a very similar procedure and the same negotiation task, had subjects discuss and decide unanimously on their intended initial demand and found increased demands following discussion. In a subsequent study Louche (1975b) compared the intended initial demands made by individuals preparing negotiations in isolation, by coacting individuals, and by interacting individuals. More extreme initial demands were made by interacting groups than by isolated individuals (with coacting individuals intermediate). Also, in the interacting and coacting conditions the two parties’ opening positions were further apart from each other, as compared with the individual condition. This last finding is quite similar to the findings that intragroup discussion leads toward greater attitude cleavage between separated homogeneous groups. A recent study by Holmes, Ellis, and Rosenbaum (1976) also found an extremization of demands through intragroup discussion preparatory to negotiations in a tariff conflict.

The group-induced extremity in the above studies might be partly due to in-group feeling created by assembling several subjects espousing the same side of an issue. In fact, all the cited studies except Holmes et al. (1976) either preselected subjects according to their attitudes concerning labor-management or had them choose the side they preferred. This was not the case in Lamm and Sauer (1974). Pairs of subjects were to negotiate the distribution of some money between themselves. First, however, they discussed their intended initial demands with other individuals whom they were not competing against. This discussion produced a significant shift toward even higher demands; this shift did not occur in a coaction control condition where subjects individually reconsidered their initial demands. The same pattern of results was obtained in an additional experiment (Lamm, unpublished observations) where subjects in the group condition were told that they would negotiate as one party against the other party.

b. Other conflict situations. In a study using the Prisoner’s Dilemma game, Rabbie and Visser (1976) had either individuals or groups (dyads or triads) confront each other. The intragroup discussion concerned items of a questionnaire which measured goal orientations (e.g., toward cooperation or toward competition). This was administered after the first and the last trials of the game. In several experiments it was found that subjects in dyads manifested more defensive orientations (e.g., “lose as little as possible”) than did subjects playing individually. In addition, groups faced with a competitive counterpart were more likely than individuals to make the competitive (defensive) choice.

Myers and Bach (1976) also used a Prisoner’s Dilemma format to compare individuals and groups. Discussion on any trial concerned the alternative to be chosen (the price level in a simulated gas price war). No differences between groups and individuals were found, all choices being highly competitive. But in
postexperimental ratings individuals tended to perceive their own actions as more justified than their opponents' actions and groups were even more inclined toward this self-justification.

9. Conclusion

This overview of recent experimental research on the effects of group interaction is generally consistent with the group polarization hypothesis. When individuals exhibit a dominant initial tendency this inclination is usually amplified by subsequent group discussion. We have, however, noted several exceptions and these, too, deserve explanation within any comprehensive theory of group influence. First, however, we will consider the extent to which these experimental findings connect with observed group influences in real-world situations.

B. GROUP POLARIZATION IN THE "REAL WORLD"

With the phenomenon and its external validity on a variety of measures now established, the literature has the potential to evolve into a more mature stage—experimentation and naturalistic observations which relate the laboratory phenomenon to group influences in the real world. Although it is too early to judge how extensive or productive this state will be, we hope, by offering some rudimentary observations, to stimulate more laboratory research directed to application and more field research. Is group polarization a hothouse laboratory phenomenon or does it also occur in situations with self-evident import, such as when groups make business, political, or legal decisions? And are there any useful practical applications which may be derived from the principles developed in the laboratory?

Simultaneous with these new extensions must be further refinements in theoretical explanation. There is a two-way street between theory development and the empirical extensions. On the one hand, theoretical advances occur when a variety of observations are integrated into a broad perspective and linked with other research and theory. Extensions of the phenomenon stimulate theory development since the theories must be capable of accounting for the empirical findings. This was evident when risk-specific explanations of the risky shift phenomenon dissipated with evidence that the group effect was, in fact, not specific to risk measures. At the same time, the development of a more adequate understanding of the dynamics of the phenomenon is a prerequisite for specifying the real-world situations in which it will occur. Thus we will later give close attention to the most recent developments in theoretical explanation of group polarization and other group effects.

Research connecting group polarization with important real-world phenomena may be classified in two areas: experiments—in the lab or in the
field—which investigate possible implications of group polarization for socially relevant attitudes, decisions, and actions; and *naturalistic observations* of apparent group polarization dynamics, often by investigators unaware of the experimental literature.

1. **Experiments**


Most of these investigations confirmed a group polarization effect; some did not. Some were conducted by experimental social psychologists who had previously conducted laboratory research on group influence; increasing numbers of studies are being conducted by people from other fields who wish to explore possible extensions of social psychological findings into their own subject matter. A noteworthy example of this trend are a set of new studies exploring group-induced polarization of political attitudes and decisions (Blascovich, 1976; Kirkpatrick, 1975; Kirkpatrick, Bernick, Thomson, & Rycroft, 1975; Kirkpatrick, Davis, & Robertson, 1976; Kirkpatrick & Robertson, 1976; Lewin & Kane, 1975; Moscovici and Zavalloni, 1969; Myers & Bach, 1974). One fascinating experiment [reported separately by Minix (1976) and Semmell (1976)] engaged groups of army officers, ROTC cadets, or university students in discussion of hypothetical but credible international military crises, each of which involved some threat to the United States. Instead of the usual 10-point numerical scale, the respondents chose one of ten response options, ranging from bilateral negotiations to use of nuclear force. On each of the six cases the student groups were somewhat more inclined to recommend diplomatic alternatives than were the army officers, and on each case these student versus officer differences were further polarized by deliberation within their own groups. Regardless of whether the discussion proceeded to consensus or to a majority vote the officer groups generally came to recommend even more forceful initiatives while the students moved slightly toward even less forceful responses. The ROTC cadets were intermediate in both initial and shift scores. These results closely parallel our earlier observations of increased intergroup polarization following discussion within separate groups of high- or low-prejudice people (Myers & Bishop, 1970) or within groups having traditional or liberal attitudes regarding women’s roles.
(Myers, 1975). They also underscore Sidney Verba's contention that face-to-face groups

are the locus of most political decision-making, they are important transmission points in political communications, and they exercise a major influence on the political beliefs and attitudes of their members. (1961, p. 2)

In a study of social psychological processes in crowd behavior (N. R. Johnson, Stemler, & Hunter, 1977), laboratory subjects read hypothetical situations "presenting dilemmas of choice for incipient crowds" (e.g., a crowd of blacks gathering after "police brutality") and were presented with seven different actions varying in their extremity (from doing nothing to violence). Discussion prompted more extreme actions, just as in the experiment noted above. N. R. Johnson et al. (1977) suggest that "further experimental research of this nature... might lead to better grounded theories of collective behavior" (pp. 186–187).

a. Jury decisions. Among the various arenas of experimental extensions we have chosen to take a closer look at one which seems of special interest to social psychologists and which has been the subject of several very recent reports: group discussion effects on the judgments of simulated jurors. The judgments of jurors and of juries have been the subject of considerable recent scrutiny (witness excellent reviews of the current literature by Davis, Bray, & Holt, 1978; Kaplan, 1975). A small subset of these studies examines the jury as a small group. Among the questions which small group researchers may ask of the jury is, do decisions following jury deliberation differ in any predictable way from the average predeliberation opinion of individual jury members? If group polarization is at work then we may expect to find that the initial inclinations of jurors will be amplified by their subsequent deliberation.

Since actual juries may not be directly observed while deliberating, investigators have used simulations of the jury process. While this procedure enables experimental control, it is obviously several steps removed from the courtroom—in the composition of the subjects engaged, in the complexity of the case material, and in the artificiality of the experiment in contrast to the drama and the responsibility which a real juror confronts. At best, these experiments are therefore only suggestive of group processes which may operate in courtrooms.

Several studies reveal a clear polarization effect in mock juries. Myers and Kaplan (1976) and Kaplan and Miller (1976) had jurors discuss traffic cases in which defendants were made to appear guilty or not guilty. After discussing low-guilt cases subjects became more definite in their judgments of innocence and more lenient in recommended punishment. After discussing the more in-
criminating cases, the jurors polarized toward harsher judgments of guilt and punishment.

Hans and Doob (1976) engaged a heterogeneous sample of adult Canadians in individual or group judgment of a burglary case in which the jurors were informed or not informed of the defendant's prior conviction record. Group discussion magnified the effect of this independent variable. As Hans and Doob conclude,

What is most striking about the overall pattern of results obtained is that what is apparently a weak manipulation (one prior conviction) in the individual verdict condition proves to be a strong manipulation in the group verdict condition. [p. 243]

Davis, Kerr, Stasser, Meek, and Holt (cited in Davis et al., 1978) found that individual jurors given a harsh criterion of reasonable doubt gave a significantly higher number of guilty judgments than did individuals given a milder criterion, and that this difference was even larger in the corresponding group decision conditions.

Kaplan (1978) contrived discussions of a manslaughter case by note-passing. This produced a polarization of opinions even when the information received from others contained the same number of guilt- and innocence-supporting arguments the subject had just cited. That is, although the information each subject received was no more extreme than what she/he already possessed, this information was sufficient to intensify responses.

Rumsey (1975) had individuals and 4-member mock juries assign penalties for crimes. Penalties were more severe for important crimes than unimportant crimes and discussion exaggerated this difference. However, penalties were also more severe when the crime was intentional rather than unintentional and discussion did not exaggerate this difference.

Two other studies reveal hints of a group polarization effect by manipulating group composition rather than the case stimuli. Vidmar (1972) composed groups of jurors high or low in dogmatism. The high-dogmatism juries shifted toward harsher sentences following discussion and low-dogmatism groups shifted toward more lenient sentences, but this was despite the fact that the high- and low-dogmatism juries did not differ in their predeliberation judgments. Laughlin and Izzett (1973) observed that groups composed of subjects which were attitudinally similar to the defendant shifted toward greater leniency following group discussion, whereas subjects who were attitudinally dissimilar did not shift.

Practical applications of jury composition have been attempted in a couple of celebrated cases by social scientists who provide the defense with survey-based profiles of jurors likely to be sympathetic to the defendant (Schulman, Shaver, Colman, Emrich, & Christie, 1973). A seeming assumption here is that a
small edge in jury composition may be magnified into a substantial later advantage to the defense.

Other jury studies seem on the surface less congenial to the group polarization principle. Izzett and Leginski (1974) observed that an initial tendency for unattractive defendants to receive harsher sentences than attractive defendants was reduced rather than magnified by discussion.

There appears to be a general trend toward greater leniency after discussion (Davis, Kerr, Atkin, Holt, & Meek, 1975; Davis, Kerr, Stasser, Meek, & Holt, 1976; Foss & Foss, 1973; Gleason & Harris, 1976; Laughlin & Izzett, 1973; Rumsey, 1975, 1976; Rumsey & Castore, 1974; Rumsey, Laughlin, & Castore, 1974; Wahram, 1977; although not Heimbach, 1970). In some of these experiments it is difficult to know whether this represents group polarization or not. It appears, however, that leniency is, in general, the socially valued tendency. Silzer and Clark (1978) report that most of their 420 subjects perceive themselves as more lenient than a typical jury would be, and that 86% would rather free a guilty person than convict someone who is innocent. This confirms the earlier conclusion of Kalven and Zeisel (1966) that the paramount value underlying jury decisions is “innocent until proven guilty.” So once again, the external norm as well as the prediscussion tendency helps predict shift.

Some evidence from actual courtrooms is available. Kalven and Zeisel (1966) reported that the initial majority was predictive of the jury decision in 90% of 225 trials, a tendency confirmed in experimental studies by Davis and colleagues and by Nash (1973).

Walker and Main (1973) compared civil liberties decisions by individual federal district court judges with similar decisions by 3-judge panels. The group judgments differed substantially from the individual judgments: 65% libertarian by groups versus 30% by individuals. (This is contrary to the group polarization hypothesis, which would predict that the trend toward nonlibertarian judgments observed in the individual condition would be even stronger in the group condition.) A subset of these decisions also involved rulings of the constitutionality of statutes. Main and Walker (1973) observed that these constitutionality decisions were also more libertarian in the group condition (65% vs. 45%). We will have more to say later about this anomalous finding that the trend of individual decisions was reversed by the group condition. Walker and Main (1973) speculated that the preexisting private values of the judges were actually prolibertarian but their individual decisions were compromised in the face of antilibertarian public pressure. Presumably these private values were released and reinforced in the professional group context.

2. Naturalistic Observations of Social Polarization

If group polarization is something more than a laboratory creation of social
psychologists, then we may expect that instances of it will already have been observed and noted by social scientists who are unfamiliar with the experimental literature. Before we offer several examples a word of caution is in order. While these observations carry the force of naturally occurring reality, it is difficult to disentangle causes, correlates, and effects. The most that can be said is that these interesting observations are consistent with the experimental literature.

b. Student change during college. A number of investigations of student development have revealed an "accentuation phenomenon." As Feldman and Newcomb (1969) expressed it:

Initial differences among students in different colleges and in different curricula are accentuated or amplified as students progress through college. Instances of this same phenomenon also occur with respect to initial differences among students entering different types of residences [p. 209].

For example, the tendency for fraternity members to be more conservative and prejudiced than independents tends to be larger among seniors than among freshmen and sophomores.

Chickering and McCormick (1973) concluded from their decade of research on student development at various colleges that if the students who enroll at a particular college have a predominantly practical-vocational outlook they will emerge even more that way. Colleges which attract more intellectually oriented or nonconformist students will further strengthen these tendencies in their students. Another more recent study provides the same conclusion:

In short, the qualities students bring to college generally tend to persist and become accentuated as a result of their college education [Wilson, Gabb, Dienst, Wood, & Bavry, 1975, p. 123].

Other data by Astin and Panos (1969) and B. R. Clark, Heist, McConnell, Trow, and Yonge (1972) confirm the same point.

It is, to be sure, not entirely clear what produces this accentuation phenomenon. Students are not only attracted to and interacting with similar others, they are also taking classes and concentrating their attention on activities which are compatible with their inclinations. It seems, nonetheless, reasonable to expect that, as Feldman and Newcomb (1969) surmise, the accentuation phenomenon occurs partly because "the reciprocal influences of members of one another reinforce and strengthen extant orientations" (p. 223).

c. Social conflict. The possibility that intragroup discussion might enhance intergroup polarization was suggested by an experiment (Myers & Bishop,
which composed homogeneous groups of relatively high-, medium-, or low-prejudice persons. Discussion with similar others significantly increased the attitude gap between the high- and low-prejudice groups.

Some field observations are consistent with these laboratory findings. Coleman (1957) concluded from his analyses of opinion polarization during community conflict that

> group discussion . . . is such an important phenomenon in community controversies that in the case studies examined most descriptions of behavior during the intense part of the controversy were descriptions of discussion and of attempts to persuade or reinforce opinion [p. 18].

Homogeneous grouping was an apparent source of community polarization and the occurrence of social conflict further heightened

the proliferation of associations among those who feel one way, and the attenuation of association between those who feel differently. One’s statements meet more and more with a positive response; one is more and more free to express the full intensity of his feeling [p. 14].

This dynamic can be seen at work in the well-known Robbers Cave experiment (Sherif, 1966) in which the competition and intragroup dynamics moved the rival groups to extreme antagonism and perceptions of one another, and in the Stanford Prison Experiment (Zimbardo, 1975) in which the aggressive reactions of guards appeared to feed on one another in spiraling escalation.

Intragroup interaction may magnify conflict partly because, as we noted earlier, the tendency of individuals to justify their own behavior when in conflict is intensified by discussion—people in groups are even more inclined toward self-justification (Myers & Bach, 1974) and are likely to make higher demands for themselves (Lamm & Sauer, 1974). This phenomenon of group-enhanced self-justification is part of the “groupthink” process which Janis (1972) has proposed to help explain political decision fiascoes, such as the escalation of the Vietnam War.

Gang delinquency provides yet another example. Enduring gangs reportedly differ sharply from one another but develop homogeneous within-group attitudes. Cartwright (1975) concludes that this occurs as a result of group processes such as “interstimulation” among gang members and “a process of summation, or progressive urging on of members from one deed to another” (p. 7).

Riley and Pettigrew’s (1976) findings of attitude polarization in naturalistic situations may also reflect a group polarization effect. The racial attitudes of white Texans were measured by surveys before and after two dramatic events: the desegregation of schools in Little Rock, Arkansas, in 1957, and the assassina-
tion of Martin Luther King and subsequent civil disorders in 1968. The preevent attitudes of various demographic groups differed as one might expect: Lower-class people were more segregationist than middle class, East Texans more than West Texans, old people more than young, etc. What effect would dramatic events likely have on these intergroup attitude differences? Recall the experimental observations that intragroup discussion can polarize intergroup differences; prediscussion differences between army officers and students (Semmel, 1976) and between high- and low-prejudice groups (Myers & Bishop, 1970), for example, were amplified by intragroup discussion. Riley and Pettigrew’s field observations parallel these experimental studies. Group opinion differences were generally heightened by the dramatic event; the initial opinion tendency of each demographic group tended to polarize following the dramatic event. Riley and Pettigrew labeled this the “counterceiling effect” to stress that

this effect occurs when the greatest change, either positive or negative, occurs for demographic types with the least range to exhibit change.... Were the basic change scores corrected for ceiling and floor effects, the apparent effect... would be considerably more striking [pp. 1006-1007].

The surveys conducted before and after the King assassination ascertained attitudes regarding interracial contact in a dozen different realms, ranging from formal contacts in public places to intimate contacts, such as living together as roommates. This enabled a comparison of attitude shift (before vs. after the event) within each demographic group. Recall that the group polarization effect was first defined by item differences. Individual Choice Dilemma items differ from one another in (a) mean initial response and (b) mean shift, and (a) and (b) are very highly correlated; items which elicit relatively risky initial tendencies elicit shift further toward the risky extreme after discussion. Once again, Riley and Pettigrew’s observations parallel the laboratory findings. Attitudes toward formal interracial contacts were initially most positive and also had the largest favorability shift. In fact, the rank-order correlation across the 12 interracial situations between preevent means and the amount of attitude change shortly after the assassination was +.965.

Although we cannot be certain what produced these attitude polarizations, it seems likely that dramatic events stimulate discussion. When the event is subject to multiple interpretations, intragroup discussion apparently intensifies the dominant local viewpoint. In the absence of dramatic events and their accompanying intragroup discussion, social influences that are common to all groups (e.g., the national media) may reduce attitude polarization.

The recent experiments on group aggression described earlier are germane to our understanding of the social origins of antisocial behavior. Recall that each of these experiments (Mathes & Kahn, 1975; Wolosin et al., 1975; Yinon et al.,...
1975) reported higher levels of aggression in 3-person groups than in individuals. These studies all resurrected the idea of responsibility diffusion, which is assumed to mediate decreased bystander intervention in the presence of others. Muehleman et al. (1976) make the interesting observation that helping behavior is most likely to be inhibited in group situations where appearing cool and unfoolish is a more dominant response to the situation than is helping. When an emergency situation is unambiguous and the helping response is therefore more predominant, the presence of others may increase helping.3

Freedman (1975) offers a similar theory about the effects of social density. Crowding, he suggests,

serves to intensify the individual's typical reactions to the situation. If he ordinarily would find the circumstances pleasant, would enjoy having people around him, would think of the other people as friends, would in a word have a positive reaction to the other people, he will have a more positive reaction under conditions of high density. On the other hand, if ordinarily he would dislike the other people, find it unpleasant having them around, feel aggressive toward them, and in general have a negative reaction to the presence of the other people, he will have a more negative reaction under conditions of high density. And if for some reason he would ordinarily be indifferent to the presence of other people, increasing the density will have little effect one way or the other [p. 91].

Although this sounds like a social facilitation effect, Freedman concludes—as have most theorists regarding group polarization—that the density-intensity effect is not an arousal phenomenon. Freedman (1975) believes it rather occurs because "high density makes other people a more important stimulus and thereby intensifies the typical reaction to them" (p. 105). This jives with Moscovici and Lecuyer's (1972) finding that less group polarization occurred when people sat in a straight line with reduced face-to-face contact than when they talked face-to-face—which surely made the other people more salient stimuli.

d. Group counseling. If the group polarization principle helps explain what some observers feel are negative effects of group interaction (not only conflict, but also the emergence of radical movements and the debilitating effects of group interaction in closed environments such as penal and mental institutions), then it may also help us understand group effects which are widely felt to be beneficial. Malamuth (1975) had groups discuss what advice they would give to real human beings whom they met and who were believed to be facing life

3Similarly, Diener, Westford, Dineen, and Fraser (1973) observed that a group context (without interaction) inhibited aggression, possibly because of participants' concern over peer opinion. Similar evidence was obtained by Diener (1976). An important task for the future is to investigate the effects of group interaction in conjunction with the effects of mere group presence, especially in the areas of prosocial and antisocial behavior.
dilemmas similar to some of those in the Choice Dilemmas questionnaire. Malamuth's (1975) peer counseling experiment, which was an analog to actual peer counseling programs, indicated that "such group counseling experiences result in a more extreme advice than that given by individuals" (p. 53).

Toch (1965) describes additional examples of the power of mutual assistance in small self-help groups. Social interaction in Alcoholics Anonymous and Synanon groups strengthens the members' commitment to shared goals. Members of TOPS (Take Off Pounds Sensibly) sing their weekly pledge:

<table>
<thead>
<tr>
<th>The more we get together</th>
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<tbody>
<tr>
<td>Together, together—</td>
</tr>
<tr>
<td>The more we get together,</td>
</tr>
<tr>
<td>The slimmer we'll be.</td>
</tr>
<tr>
<td>For your loss is my loss;</td>
</tr>
<tr>
<td>And my loss is your loss;</td>
</tr>
<tr>
<td>The more we get together</td>
</tr>
<tr>
<td>The slimmer we'll be.</td>
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</table>

\[ e. \text{ Religious fellowship.} \] Another apparent example of group polarization in natural settings is provided by various religious social support systems. Heightened religious identity is usually achieved by a substantial amount of interaction among members of the religious body and a certain amount of insulation from the surrounding society. As Thomas Kempis advised, "a devout communing on spiritual things sometimes greatly helps the health of the soul, especially when men of one mind and spirit in God meet and speak and commune together." Emile Durkheim theorized that "dynamic density" (the extent of intragroup communication) determines the intensity of religious commitment. Some sociologists of religion (e.g., Hoge, 1974) suggest that this may be one reason why the increasing individualism and social mobility of the modern age is associated with decreased religious commitment.

Perhaps American culture's most striking example of intense religious identity emerging from separation with similar others is provided by the Amish, who live, go to school, work, and worship only among themselves. In earlier eras small interacting groups contributed significantly to the dynamic of the early Christian church and, during the 18th century, to John Wesley's Methodist movement. According to a Wesley biographer (Schmidt, 1972), the mutual edification and commitment which occurred in these "classes" and "bands," as they were called, was the chief feature of the movement's structure. Close scrutiny of religious social support systems in When Prophecy Fails confirms the power of the small group to amplify the religious impulse (Festinger, Riecken, & Schachter, 1956; see also related observations by Batson, 1975; Hardyck & Braden, 1962).

In summary, there are multiple indications that the group polarization phe-
nomenon uncovered in laboratory experiments is indeed manifest in significant real-world situations as well.

III. Theoretical Explanation of Group Polarization and of Other Group Effects

These various demonstrations of group polarization—in the laboratory and in the field—motivate our search for an understanding of the phenomenon. Can we identify the dynamics of group influence which are at work? Might a satisfactory theoretical understanding of the phenomenon point to new research and application in areas which seem, on the surface, unrelated to group polarization?

The various reviews of 1970-1971 scrutinized a host of theories devised to explain the risky shift. Several viable candidates survived these reviews and will be described and evaluated here: social decision rules (schemes for combining individual positions into a group product), informational influence (cognitive learning resulting from the emission and reception of cogent arguments concerning the decisional issues), and social comparison effects resulting from mere exposure to others' positions. We will also consider responsibility dynamics, since the concept of responsibility diffusion, though largely discarded as an explanation of risky shift and group polarization, seems now to be useful for explaining some of the group effects summarized above—such as when groups behave more selfishly than individuals even when, contrary to the polarization hypothesis, this reverses the prevailing tendency among individuals.

These possibilities for group influence are not mutually exclusive. They may feed on one another or each may operate during different phases of the decision-making process, and the concepts themselves are somewhat overlapping (e.g., responsibility diffusion may be supported by available arguments). Yet, each of these theoretical perspectives has generated its own interesting research on group process. Thus each has been of value, even if the other theories could incorporate its predictions.

A. APPLICATION OF SOCIAL DECISION RULES BY GROUP MEMBERS

1. Introduction

One possibility is that the change in positions occurs because group members follow some rule for combining their individual preferences into a group decision (or into an implicit group decision in situations where no consensus is formally required).

A group decision rule (or "social decision scheme") represents a widely accepted norm, applicable in certain group situations, that specifies the weight that the various individual positions should carry in determining the final, group
product. No change in individual preferences needs to be assumed. A "pure" social decision explanation of polarization is based only on the distribution of positions favored by individual decision participants. Of course, elements of other explanations can be integrated with the "pure" theory of social decision rules as when Kerr et al. (1975) assigned greater weights to positions congruent with the external reference-group norm.

There are a number of possible rules (Davis, 1973), but the simplest and most familiar is majority rule. On a two-choice issue it predicts that the group choice would be the alternative espoused by the majority of members. When there are more than two alternatives, more complex decision rules are also possible. For example the position favored by a plurality (i.e., by more members than is the case with any other position) might tend to become the group choice.

The role of decision rules—(a) as a sufficient condition and (b) as a necessary condition—in choice shift can be tested (a) by constructing the decision situation such that decision rules could operate but other plausible factors (e.g., social comparison or relevant arguments) are not engaged, or (b) by engaging other factors in a situation where decision rules could not plausibly operate, and noting whether shift occurs.

2. Evidence for the Operation of Decision Rules

Many studies have been concerned with the possibility that skewness in initial responses predicts shift toward the mode of the distribution. Skewness suggests a plurality or even a majority around the hump of the distribution which might pressure minority persons out in the tail of the distribution to move toward the mode, thus creating an apparent polarization in the group average. Skewness will, in fact, often exist when the initial average response departs from neutrality, so a majority or plurality rule explanation of group polarization is quite plausible.

It is something of a surprise, then, that decision schemes which depend on skewness have been so clearly contradicted. Among the findings which we earlier enumerated (Myers & Lamm, 1976) are these: (a) both positively and negatively skewed distributions have produced risky shift; (b) polarization of the group median (which is, by definition, part of the majority) has been demonstrated numerous times, although the magnitude is often less than shifts in the group mean; (c) group shifts have occurred with dyads, where obviously no skewness can exist; (d) group shift can occur without group convergence, that is, without the emergence of any implicit group product; and (e) group shift sometimes runs counter to the initial majority, as when discussion moves participants to become more pacifistic, aggressive, self-serving, or lenient despite the fact that as individuals they did not behave this way. Of course, these latter findings run counter to group polarization itself and pose a problem for other theories as well.

However, not all group decision schemes are rooted in skewness. Indeed, it
is both the strength and the weakness of the social decision scheme approach that there are many possible mathematical schemes for combining individual judgments into a group product, each of which may be applicable under certain conditions, with certain tasks, etc. This has caused Graesser (1975) to suggest that the social decision scheme approach may not be falsifiable, since even if predictions from several particular schemes are rejected one may always argue that the correct scheme has not yet been identified. Of course, some philosophers of science argue that nonfalsifiability is a characteristic of all theory, but that nonfalsifiable theories can nonetheless provide useful ways of organizing experience.

If some mathematical combination of individual preferences is found to describe a particular distribution of group products quite well the question then becomes, are groups in fact applying this decision rule or might it only be a seeming by-product of some other group process? For example, if majorities rule in a particular situation, is this because of the decision scheme or because majorities emit more persuasive argumentation?

There is evidence that discussion does produce genuine internal preference changes, not just social decision scheme effects on overt responding (see, e.g., Burnstein, Miller, Vinokur, Katz, & Crowley, 1971). Thus it is fortunate that social decision scheme theorists are beginning to focus their considerable mathematical and methodological competency on the internal psychological dynamics of groups. If a given social psychological explanation is translatable into a social decision scheme it certainly should be so translated, because this permits a rigorous operational test of the explanation. It might also be useful to ask subjects directly about their preferences for particular rules in different types of decision situations and to ask participants after group interaction whether they sensed any implicit decision rule.

B. RESPONSIBILITY DYNAMICS

1. Responsibility Diffusion

Despite the decline of responsibility diffusion as an explanation of risky shift, the concept appears plausible and fruitful in certain situations. Thus it has figured prominently in theorizing about why people are often less inclined to help when other bystanders are present (Latané & Darley, 1970). In decisions involving cost to an outside person it seems plausible to assume that group participants might come to feel less responsible when others are sharing accountability for that decision. Unlike decision rules and informational

4One recent study (Misavage & Richardson, 1974) indicates that interaction among bystanders increases the speed of helping presumably by a process of "focusing of responsibility." It appears worth the effort to pursue the idea that participation in discussion reduces one's sense of anonymity.
GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR

influence theories, the responsibility-diffusion mechanism might therefore be able to explain and predict shifts toward more self-serving decisions which (a) constitute depolarization, (b) take place in decision groups without discussion, and (c) occur independently of the distribution of initial preferences within the group.

There are a few well-done studies involving a costly decision for someone else, and they all suggest a responsibility-diffusion interpretation. Yinon et al. (1975) attribute their finding of greater risky aggression by groups to the presumed lesser personal responsibility experienced in groups. However, no measure of self-attribution of responsibility was obtained. Wolosin et al. (1975) used shock coupled with monetary gain for the decision-makers and explained their findings of more shocks administered by groups to a lesser sense of personal responsibility in groups. The responsibility self-ratings ("did you feel personally responsible for the shocks...") showed a marginal trend toward less felt responsibility in the group condition.\(^5\)

Mathes and Kahn (1975) had subjects administer monetary punishments for incorrect learning responses. Responsibility diffusion was invoked to explain the higher fine levels chosen by groups on later trials. These authors found that subjects did feel less responsible when they had fined the victim in groups.

Mynatt and Sherman (1975) used a false-feedback procedure so that the outcomes were the same in the group and the individual conditions. They found differences only when there were negative outcomes (the "advisee" lost money as a consequence of subjects' "wrong" decisions on a problem-solving task). This finding suggests that the responsibility-diffusion hypothesis is applicable only in the case of decisions that are costly to an outside party.

While the above studies rightly focused on decisions that brought definite costs to an outside party, it should be noted that the responsibility-diffusion mechanism is applicable also in risk-taking situations where the choice of a risky alternative involves the possibility of a costly outcome for the target person. The methodological problem here, in explaining any risky shifts, is to separate other processes facilitating risky shift (social comparisons, for example) from responsibility diffusion. This could be done by appropriate choice of risk-taking tasks—i.e., where risky positions do not indicate skill or other desirable characteristics—and by obtaining sufficient phenomenological data from the subjects. Self-reported responsibility dynamics might indicate whether subjects contemplate their possible guilt and accountability during the decision-making process or whether, as Blascovich has suggested (personal communication), differences

\(^5\)Note that here each subject, even in the group condition, had to actively press the "shock" button. (Generally—in a merely verbal joint group decision—a reluctant member can passively accept the emerging consensus by not perceiving himself or herself as responsible.) This may provide an explanation for the nonsignificant findings on responsibility self-ratings in this study.
between group and individual settings reflect post hoc attributions (justification of antisocial behavior).

Further, it should be noted that in the studies invoking responsibility diffusion, the alternatives which were more costly for the victim were those that provided more gain for the decision-makers (money, revenge, better learning by the victim). This suggests that responsibility diffusion, serving as a justifying mechanism, comes into play when conditions like selfish gain or angry arousal predispose subjects toward such behavior.

In summary, it seems that in situations involving costs to an outside party and gain to the decision-maker responsibility diffusion may provoke more self-serving action by groups. Perhaps this is why theologian Reinhold Niebuhr (1932, p. xii) was struck by the "inferiority of the morality of groups," which he ascribed to

the revelation of a collective egosim, compounded of the egoistic impulses of individuals, which achieve a more vivid expression and a more cumulative effect when they are united in a common impulse than when they express themselves separately and discreetly.

In view of the empirical evidence and the social relevance of group egoistic and antisocial behavior, responsibility diffusion deserves further research, especially research which carries the concept beyond the status of an after-the-fact conjectural explanation of observed results.

2. Responsibility 'Infusion'

As Baron and his associates (e.g., Baron et al., 1974) have pointed out, the making of a joint group decision renders these members dependent on one another. Thus even while it possibly reduces felt responsibility toward outsiders, the joint decision may also increase a sense of responsibility toward fellow members. This "responsibility infusion" norm prescribes abstaining from acts that would negatively affect other group members' welfare. If, for example, helping an outside person necessitates a sacrifice, then intragroup responsibility dictates that no decision be proposed that would commit the other group members to a course of action that would be costly for them. This is Baron et al.'s (1974) proposed explanation of "'stingy shift,'" and it is supported by secondary analyses performed by those authors (initially generous members, who decreased their pledge in their recommendation for group decision returned to their earlier levels in postgroup, private, decisions).

Baron and Sanders (1975) invoke responsibility infusion toward the ingroup and responsibility diffusion toward outsiders for their finding of less compliance with a favor requested by the experimenter when individuals decided on this request by majority vote than when they decided for themselves alone. Participants were less altruistic toward the experimenter when they knew that their decision could bind others.
Baron and his colleagues have thus provided evidence for a mechanism that can be expected to operate in group arrangements creating interdependence among members. Responsibility infusion predicts a group-induced shift toward less self-sacrificing behavior. It has also been invoked by Wolosin et al. (1975) as an alternative interpretation of their finding of group-induced preference for egotistic decisions.

Responsibility infusion can also be expected to reduce chosen risk levels in situations involving the possibility of actual negative outcomes (e.g., monetary losses), thus counteracting other processes that would entail shifts toward higher risk levels. It could therefore help explain the repeated finding of no shift, or cautious shift, on betting items with relatively large monetary stakes. The relevance of this mechanism is also illustrated when considering work groups which decide on their piece-rate. Casual observation suggests that members with greater capacity will frequently accept lower levels of output (and thus smaller gains for themselves) out of concern for their less capable fellow members.

A socially relevant direction for research is pitting the two normative orientations—responsibility toward an outside party and responsibility toward group members—against each other and uncovering the conditions under which responsibility diffusion and responsibility infusion can be minimized. Both imply social or interpersonal passivity and less willingness to help someone outside the group. Egotistical within-group processes are legion. Social psychologists should, therefore, investigate conditions and ways to counter these self-serving processes to the benefit of the outsiders in need of help.

We conclude, then, that while responsibility dynamics have not proven terribly fruitful as an explanation of group polarization, they may facilitate our understanding of certain other group interaction effects. Now we turn to two explanations of group polarization which have proven fruitful.

C. INFORMATIONAL INFLUENCE

Among the assorted explanations for group polarization, informational influence is the most strongly and consistently supported. Arguments which emerge during discussion predominantly favor the generally preferred alternative. Since it is unlikely that any given person will have already considered all these arguments or found them all salient, some of the discussion arguments are likely to be persuasive. By this view, group influence resides in the substance of what other people have to say, not merely in exposure to their positions. We will summarize quickly most of the evidence relevant to an information-processing explanation (see Myers & Lamm, 1976, for details and documentation), giving closer scrutiny to recent advances in it.

A number of experiments attempted to disentangle the argument-exchange component of group discussion from exposure to others’ positions in order to see if one of these components—exposure to others’ arguments or to their
positions—is necessary and sufficient for changed responses. These experiments clearly indicated that when, by various clever methods, subjects are exposed to relevant arguments but gain no information about others' positions, they nonetheless evidence the expected shift. In thus seems clear that arguments have a persuasive impact above and beyond any impression they convey about the positions of the persons who spoke them.

Another clever demonstration of the impact of informational variables comes from a recent study by Kaplan and Miller (1976). Simulated jury members were provided with tape-recorded arguments. In some juries all group members heard the arguments (through headphones) in the same order; in other juries each group member heard the arguments in a different order. Since recency effects made the later arguments more salient, the different-order condition diversified the distribution of remembered facts among jury members. This resulted in an enhanced group polarization effect in the different-order condition, since each group member had more information to gain from the discussion.

In addition to these experimental manipulations of the availability of arguments, other research has content-analyzed the arguments generated by individuals and groups. A look inside the "black box" of discussion revealed that the initial average response to an item predicts very well the trend of prediscussion and discussion arguments which in turn provide an excellent prediction of the mean shift on the item. Since the discussion content evidently mediates the relationship between the initial mean and the mean shift we may expect that if, in a given discussion, the spoken arguments depart from the initial responses it will be the arguments and not the initial response mean which will predict the direction of group shift (Myers & Bach, 1974).

Meticulous analyses of the presumed informational influence mechanisms, principally by Vinokur and Burnstein (1974, 1978), have established that response shifts are a function of the direction (pro-con), cogency, and novelty of each argument which the subject receives. Vinokur and Burnstein constructed a mathematical model of informational influence which has been successful even in predicting variation among group shifts within items. Since the prediscussion response means for particular groups do not predict variation among group shifts on a given item, this confirms that the discussion content—its direction, cogency, and novelty—is the crucial determinant of group shift, not the group's initial average. We shall elaborate on this in the following.

There presumably exists a pool of persuasive arguments for each item. A group that is quite polarized on a particular item before discussion is likely already in possession of most arguments which polarize a group. A less extreme group has more to gain from the sharing of arguments. This explains why a given group's initial response mean predicts so poorly how that group is going to shift, relative to other groups.

But why then does the initial item mean predict so well the general trend of
GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR

171

group shifts on that item? We have just noted that the prediscussion response trend predicts the preponderance of discussion arguments which, in turn, predicts the trend in group shifts. Still, we may inquire, why do the spoken arguments polarize opinion when they merely reflect what the average subject already possesses? For example, if on a Choice Dilemma item three-fourths of the individually considered arguments favor risk and, therefore, three-fourths of the subsequent discussed arguments favor risk, and thus the risk-to-caution ratio is unchanged by the discussion, why does the group become more risky?

Three reasons may be proposed. First, as Vinokur and Burnstein have demonstrated in their several studies, arguments which are consistent with the dominant tendency are perceived as more persuasive than opposite arguments; hence they apparently carry heavier weight. Anderson and Graesser (1976) have also recently observed that information of relatively extreme valence tends to be assigned greater weight than more neutral information.

Second, the spoken arguments do not, in fact, always mirror the distribution of individually considered arguments. People are more polar and decisive in discussion than when they individually list relevant arguments. For example, one recent study (Judd, 1975) observed that while 65% of written arguments favored the dominant alternative, the discussed arguments were even more imbalanced—79% favoring the preferred alternative (see also Bishop & Myers, 1974; Ebbesen & Bowers, 1974). This is consistent with evidence (Crawford, 1974; Manis, Cornell, & Moore, 1974) indicating that the social context can induce people to tailor their communications and with Janis's (1972) speculation that members of political decision-making groups will

show interest in facts and opinions that support their initially preferred policy and take up time in their meetings to discuss them, but they tend to ignore facts and opinions that do not support their initially preferred policy [p. 10].

When working alone the subjects are responding only to the materials; when engaged in discussion they are responding to other people as well.

A third reason why discussion may polarize opinion, even if it only adds information having the same direction and cogency as existing information, is suggested by the set-size effect in studies of impression formation. Increasing the number of nonneutral trait adjectives describing a person results in more extreme evaluative judgments. It is therefore fortunate that students of information integration (Anderson & Graesser, 1976; Kaplan, 1978) are now applying their considerable theoretical and methodological sophistication to informational influence in group discussion. By experimentally constructing information, rather than depending on naturally occurring differences in arguments, these studies provide impressive new evidence for informational influence.

In Kaplan's (1978) experiments, subjects read transcripts of an attempted
manslaughter trial and then noted down five facts that they considered relevant for the verdict, each on a separate card. These cards were supposedly passed to jurors in other rooms while the subject received five cards from the other jurors, one from each juror. In the first experiment, half the subjects received facts in the same proportion as they had emitted. Thus if a subject cited four incriminating facts and one vindicating fact, she/he received five new facts in the same four-to-one ratio. Although proportionally similar to the subject's own information, this was sufficient to polarize judgments—making them harsher in a highly incriminating case and more lenient in a nonincriminating case.

A second experiment set normative influence against informational influence by informing the subjects of others' supposed judgments, which were always consistent with the dominant tendency of the case. If the facts provided were, however, opposed to the direction of others' verdicts, it was still the facts and not the exposure to others' supposed verdicts which determined response shift. That is, subjects who received facts in the opposite proportion to what they emitted (but from jurors who subscribed to the subjects' positions) shifted in the direction toward which the new information was pointing, as in the first experiment. This study is an improvement on previous ones which confounded the arguments with information about others' positions. (These experiments also demonstrate how information integration theory can handle depolarization or averaging effects as well as group polarization.)

A third experiment gave subjects five facts that were either redundant of one another or nonredundant and which supposedly originated either from five different jurors or all from one juror. The number of sources had no effect, but stronger shifts occurred with the more informative, nonredundant fact sets. These results can all be accommodated within information integration theory by assuming that a person's first response is a composite of a neutral initial impression (before reading the item) and the value of the information provided on the item. Individuals therefore enter discussion with a judgment which reflects the prevalent tendency of the information, but not as polar as the information would imply.

Subsequent discussion, provided it is proportionally similar in value to the original information base, increases the information integrated by the individual, offsetting the more neutral initial impression and thereby polarizing the postdiscussion response [Kaplan, 1978].

Anderson and Graesser (1976) provide an explicit test of the extent to which information integration models fit observed attitudes following group discussion. Unlike the approach of Bishop and Myers (1974) and Vinokur and Burnstein (1974, 1978), described above, information integration theory provides an umbrella which can incorporate a variety of plausible factors, including source effects and bare assertions without substantive content. To control the subjects' information resources each group member was primed with a different piece of information (two paragraphs of predetermined favorability about given
nineteenth-century presidents). The subject next shared this information with other group members and then openly discussed the presidents with the other group members. Although the shared information was, on the average, of the same degree of favorability as the initial information, this was nevertheless sufficient to polarize initial tendencies. If, for example, the members of a dyad or triad possessed moderately positive information, additional moderately positive information amplified their positive attitude. (This parallels the set-size effect in the impression-formation literature; people rather than pieces of paper were used as carriers of new information.) To provide a test of an averaging model of information integration, subjects were asked to estimate the weight (importance) and scale value (favorability) of their own paragraphs and of the paragraph summaries presented by the other participants. Note that in contrast to the molecular analyses of Vinokur and Burnstein, this molar analysis asks subjects to estimate the gross impact of a communication, including any persuasive effects not captured by merely summing the cogency of each bit of argument. Goodness-of-fit tests revealed that the information-integration model gave an excellent account of the subjects’ final attitudes regarding each president. These strengths of the information-integration model are somewhat offset, however, by the fact that the molar units (the paragraphs) which the subjects judged were close to the total stimulus (the president). That is, the composite of subjects’ judgments of what their attitude would be if based only on each paragraph predicted well their actual attitude based on all the paragraphs. Although the more molecular approaches suffer problems which the information-integration analysis remedies, they do at least provide parameter estimates which are made more independently of the measured attitude. Thus both approaches have made important contributions to our understanding of informational influence in group discussion.

While these various findings constitute compelling evidence of informational influence in group discussion, a final set of findings indicates that group discussion does something psychologically more interesting than merely permit information exchange. Passive receipt of arguments outside of an interactive context, or listening to discussions without participating in them, generally results in less shift than when people are actively engaged. This may result, at least in part, merely from increased attention to arguments in the interactive context. But it may also be that, stimulated by the discussion, people generate and share new ideas not previously considered by group members. Private thought can also induce a small attitude polarization (see Tesser, 1975; Tesser & Conlee, 1975). Indeed, this may have been the basis for the occasional but seldom replicated finding that private study can produce risky shift.6

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6Suspecting that pretest commitments may have inhibited response change in these failures to replicate the familiarization effect, Myers (unpublished observations) attempted to demonstrate a polarizing effect of private rehearsal without (vs. with) a pretest measure. No significant effect of private study and thought occurred in either condition.
The work of attitude researchers is germane here, for it appears that passive comprehension of arguments is not a sufficient condition for internalization of attitude change. As Greenwald (1968) has demonstrated, passive learning about the target of an attitude is not sufficient to change the attitude; the subject must actively reformulate, or rehearse, the information in order for an internalization of attitude change to result. (This observation parallels the thinking of theorists like Jerome Bruner and Jean Piaget, who have concluded that children's intellectual development takes place more by self-generated activities, such as active play, than by being passive while taught.) It seems quite reasonable to presume that the social confrontation inherent in debate and discussion motivates covert rehearsal, as when people quietly think about their next contribution.

Arguments that are openly expressed may be additionally important as a public verbal commitment toward whatever alternative is defended. Since these spoken arguments tend to favor the socially preferred choice more predominantly than to privately processed arguments, the self-attribution and dissonance-reduction dynamics that accompany such overt expression will likely contribute to attitude intensification. Although these and other possible mechanisms of group influence have not yet been fully explored, it nonetheless seems reasonable to presume that informational influence in group discussion involves group dynamics as well as a pooling of individually processed information. These group dynamics might be incorporated within the information-integration perspective by studying how they affect such factors as the distribution and weighting of pieces of information.

D. SOCIAL COMPARISONS

There is little doubt that the substantive information which is communicated and rehearsed in group discussion is an important source of group polarization. But in addition to this information processing, are there also social-emotional processes at work? Might social comparisons, motivated by a concern for perceiving and presenting oneself favorably, contribute to the amplification of dominant response tendencies? Several variations on social comparison theory suggest that mere exposure to others' preferences is a sufficient condition for shift. In general, this bag of theories (itemized by Pruitt, 1971a, 1971b) proposes that people modify their responses when they discover that others share their inclinations more than they would have supposed. This is presumed to prompt change either because the group norm is discovered to be more in the preferred direction than previously imagined or because people are released to more strongly act out their secret preferences after observing someone who embodies their ideal more strongly than they do.

1. Recent Theoretical Developments

Very recently, two research teams (Baron, Sanders, & Baron, 1975; Jellison
GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR

& Arkin, 1977) have offered creative adaptations of Festinger's (1954) theory of social comparison to account for recent findings. Jellison and Arkin (1977) take social comparison theory in a behaviorist direction by emphasizing the external rewards elicited by socially presenting oneself as basically similar yet somewhat distinctive in the socially approved direction. Taking off from Festinger's assumption of "a unidirectional drive upward in the case of abilities which is largely absent in opinions" (producing a competitivelike drive to see oneself as relatively high in ability, but a pressure toward uniformity in opinions), Jellison and Arkin (1977) suggest that people try to present themselves as relatively high in ability because external rewards, including the secondary rewards of social approval, are associated with high ability. The earlier research of Jellison and his associates supported the main assumption of their social-comparison-of-abilities theory by demonstrating that, on risk tasks involving skill, high risk-taking is associated with attributions of high ability. Risky shifts previously observed on skill tasks might therefore have occurred because moving to higher risk is a way of presenting oneself as high in ability. But what about nonrisk tasks? Jellison and Davis (1973) have demonstrated that greater extremity on the generally preferred side of an opinion issue can also be positively correlated with attributed ability. This extension of the theory to explain the general polarization effect requires that "polarization does not take place when extreme judgments on a task do not reflect ability..." (Jellison & Arkin, 1977). Thus a virtue of this theory is that it clearly suggests how it might be disconfirmed.

Whereas Jellison and Arkin (1977) modify Festinger's (1954) theory of social comparison by stressing external rewards and punishments, and excluding internal forces such as the cognitive need to define social reality and evaluate oneself relative to it, Baron et al. (1975) modify the Festinger theory by eradicating the dichotomy between the dynamics of ability comparison and of opinion comparison. People evaluate their opinions and traits, Baron et al. (1975) presume, much as Festinger supposed they evaluate their abilities. Differing amounts of many different types of personal attributes have differential social desirability and, as with abilities, one is evaluated in terms of how much of the attribute she/he possesses. Thus Baron et al. (1975) reconceptualize Festinger's distinction between ability and opinion comparison as rank-order evaluation and accuracy evaluation. People engaged in rank-order evaluation are concerned about their position relative to comparison others' on dimensions which have positive or negative social desirability (e.g., ability, honesty, prejudice). Accuracy evaluation occurs on dimensions which do not differ in social value, such that the premium is placed on being right, not on perceiving oneself as different from the group. Thus, if on a day when rain seemed imminent, a team of weathermen...
gathered at their morning staff meeting to agree on the chances of rain, they would not be expected to polarize toward estimating a higher probability of rain than reflected in their individual judgments. As Baron et al. (1975) point out, this modification of social comparison theory is not entirely novel, for other investigators (e.g., Wheeler, 1966a) have already demonstrated that the upward comparison drive extends to desirable traits beyond ability.

Baron and Roper (1976) supported this social comparison theory by demonstrating that polarization of judgments on an autokinetic conformity task occurred only if value was experimentally placed upon relatively extreme judgments. When people believed that larger estimates of movement indicated intelligence and ability, they made larger judgments in front of others than in private. When deviation was not an indicator of intellectual promise an averaging effect occurred. Since in this experiment the desirable extreme was associated with high ability, the results can be interpreted as supporting both the Jellison–Arkin and the Baron–Sanders–Baron versions of social comparison theory. Contrasting these theories requires a simple task which engages a clear social preference but which is unrelated to ability. Such an experiment will be reported later.

First, however, we quickly review the earlier findings relevant to social comparison theories (once again, see Myers & Lamm, 1976, for details and documentation). These results form the building blocks of the social comparison explanation and any complete explanation of group polarization will need to accommodate them.

2. The Foundational Assumption

The foundational assumption of social comparison theories is that people are motivated to see and to present themselves as better embodiments of socially desired abilities, traits, and attitudes than are most other members of their groups. This assumption is well-supported by various types of evidence. First, people tend to suppose that their own responses are closer to their internal ideals than is the group norm (operationally speaking, the average peer is guessed to have responded more neutrally than oneself). This seems to be a widespread phenomenon. For example, most businessmen perceive themselves to be more ethical than the average businessman (Baumhart, 1968), and most people perceive their own views as less prejudiced than the norm of their community (Lenihan, 1965). An exhaustive series of investigations with adolescent and adult French people confirms the same strong and consistent tendency: People tend to perceive themselves as superior to the average member of their groups (Codol, 1976). These perceptions are, of course, distorted; the average person is not better than the average person. (This tendency toward inflated relative self-perception is surely a source of much human discontent. When an employer awards merit raises and half of the employees receive less than the median increase, perceptions of injustice are likely to be widespread since few will perceive themselves as less competent than their average peer.)
Social comparison explanations presume that discussion exposes people to others' positions, causing them to adjust their own responses in order to maintain their favorable self-perception. There is a body of evidence which indicates that subjects do, indeed, realistically revise their estimates of the group norm after discussion. This even happens if arguments are exchanged but explicit mention of responses (positions) is prohibited, indicating that under normal circumstances arguments may serve to implicitly convey information about others' positions in addition to their direct persuasive impact.

Furthermore, it has been reliably demonstrated that people who deviate from one's own position in the idealized direction are more highly regarded than people who do not, or who deviate an equal amount in the other direction. A parallel finding exists in the attitude literature (Eisinger & Mills, 1968): We perceive extremists on our side of an issue as more sincere and competent than moderates.

While these findings are all well-established, their theoretical significance is still somewhat ambiguous. Just as social comparison theorists have noted that spoken arguments convey implicit cues about others' positions and may serve to rationalize shifts once people are motivated to change, so also have informational theorists reminded us that there are plausible informational influence explanations of the mere-exposure phenomena described above. Burnstein, Vinokur, and Pichevin (1974), for example, show that people who adopt extreme choices are presumed to possess cogent arguments and are perhaps, therefore, admired for their ability. Furthermore, the fact that subjects are much less confident about their estimates of others' choices than about the correctness of their own choices suggests that the tendency to perceive others as more neutral than oneself may simply reflect ignorance about others' choices. If you really do not know how other people feel, is it not reasonable to check a response near the middle of the scale?

In sum, the group polarization literature provides well-documented confirmation of hypotheses derived from the assumption that people are motivated to see and present themselves in a favorable light, relative to others. But the results are somewhat ambiguous because it is possible to construct a scenario which explains these findings without reference to normative social pressures or a desire to engage in rank-order evaluation.

It is therefore fortunate that support for the social comparison assumption has recently emerged from some independent lines of research. Schlenker (1975) has shown that people present themselves with a positive bias, unless public exposure is forthcoming that would debunk positive self-presentation. Fromkin (1970, 1972) provides evidence that people want to perceive themselves as somewhat different from others. Although a considerable body of research on conformity and reactions to being markedly deviant indicates that people are discomfited by being substantially different from others, it now appears that people also find it unpleasant to sense that they are undistinguishable. Fromkin
demonstrates that people feel better when they understand themselves to be unique and they will act in ways which will create a sense of individuality.

These conclusions are reinforced by Lemaire's (1974) analysis of the contribution to one's identity of differentiating oneself from others. McGuire and Padawer-Singer's (1976) observation that self-concept is defined by differences from comparison others further strengthens the point. When simply asked to describe themselves, sixth-grade children were more likely to spontaneously mention their distinctive attributes. Foreign-born children were the most likely to mention their birthplace, redheads their hair color, and so forth. These contemporary research findings will come as no surprise to personality theorists. As Fromkin notes, Fromm (1941), Horney (1937), and Maslow (1962) long ago proposed that people have a "need for separate identity" or "need for uniqueness." Situations which diminish one's sense of individuality purportedly revive the threat of "ego diffusion" (Erikson, 1959), an uncomfortable state of confused self-concept. These assorted observations lend strength to social comparison theory's assumption that people are motivated to see themselves as basically similar to others, yet different—in the right direction and to the right extent.

3. Perceived Differences and Shift

Given this diverse support for the foundational assumption of social comparison theory, the next question is whether this social motivation does, in fact, contribute to the observed effects of group discussion. This question has been pursued in two ways. The first has been to inquire whether the perceived difference between oneself and others correlates with an individual's shift score on a specific item. The expectation here is that people who most perceive themselves as outshining their peers will suffer most disconfirmation of their perceived relative positions and so should be most stimulated to shift when informed of the actual group norm. But, to the contrary, there is no such correlation between perceived deviation from the norm and subsequent shift, even when one's own initial choices are held statistically constant. This is a troubling finding for social comparison theory, although Baron et al. (1975) suggest that this low correlation may occur because even those who don't actually feel different beforehand may wish to present themselves as strong embodiments of the ideal once they get in the group context. They suggested, as we have (Myers & Lamm, 1976), that the extent to which people feel that their present positions underplay their ideals may be a more crucial element of social comparison dynamics. This conclusion is supported by Lamm's findings that groups composed of individuals with high self-ideal discrepancy on the issues discussed evidenced more shift than did groups with low self-ideal discrepancy (Lamm, Schaude, & Trommsdorff, 1971), but there was no difference in shift among groups of subjects who strongly underestimated peer positions and those who did not underestimate peer positions (Lamm, Trommsdorff, & Rost-Schaude, 1972).
Moreover, there are now several independent observations of group-induced shift toward the perceived group average (Baron et al., 1974; Myers et al., 1974; Vidmar, 1974). (Remember that most risky shift studies have found a shift away from the perceived group norm and toward more extreme risk.) In some of these studies it seems reasonable to presume that the subjects' ideal may in fact have been in the same direction as the perceived norm, but that a social constraint—surveillance by an experimenter who represented a conflicting norm—compromised the initial choices. In Freudian terms, the subjects may have compromised between two ideals: a secret id preference and a superego ideal. The observation of one or more peer group members espousing a permissive or aggressive response might then have released the average participant from the "superego" dictate. This conjecture finds support in the attitude research of Cialdini, Levy, Herman, and Evenbeck (1973). Subjects were observed to moderate their attitude position—to compromise their internal ideal by moving toward the scale neutral point—prior to an anticipated discussion. We presume that had Cialdini et al.'s (1973) subjects actually then engaged in discussion they might have been liberated to realize their internal ideals.

This enhancement of private preferences may help explain those anomalous findings in which, contrary to group polarization, groups shift away from the initial average tendency (e.g., Walker & Main, 1973; Wolosin et al., 1975; and jury studies showing a leniency shift). Perhaps, for example, individual participants in the Wolosin et al. (1975) study were hesitant to indulge their secret self-serving inclinations only so long as they were deciding individually. Observing someone else promote the self-serving action may have freed other subjects to express their impulses—meaning also that more new information would be learned and rehearsed in support of the emerging norm than for the initially favored choice. This interpretation is close to the responsibility-diffusion interpretation of these results.

4. Exposure to Others' Choices

The most direct evidence bearing upon a social comparison explanation of group shifts comes from those studies which provide the assumed necessary and sufficient conditions for shift—mere exposure to others' responses. One set of studies manipulated exposure to others' responses by providing fake norms. As these studies have shown, subjects move toward such norms, but this simply indicates that conformity effects can be demonstrated on Choice Dilemma items as with numerous other measures. Of greater interest is whether the effect of normative pressure is increased by making the fake norm consistent with one's ideal (vs. making it equally deviant from one's position in the direction opposite of one's ideal). Here the evidence is mixed, although data seem to be accumulating in support of the proposition that arguments or social pressures that are consistent with one's ideals generate more response change than pressures away
from one's position (Baron, Monson, & Baron, 1973; R. D. Clark, Crockett, & Archer, 1971; Ebbesen & Bowers, 1974; Paicheler, 1976a, 1977; Silzer & Clark, 1978).

A final set of studies has examined social comparison effects by exposing people to information about the actual initial choices of other people without any discussion or exposure to others' arguments, much as happens when people read the outcome of an opinion poll. Myers has recently conducted a series of such experiments which we will now review.

In one experiment (Myers, Bach, & Schreiber, 1974) subjects in a control condition simply indicated their positions on some Choice Dilemma problems. Subjects in a second condition were exposed to the distribution of these responses prior to making their own decisions. These subjects responded with more polarized attitudes (i.e., more extreme positions on the generally favored side) than did the control group. In other words, observation of others' responses stimulated a deviation from the observed norm—the opposite of conformity to the average.

Since this experiment, unlike previous experiments, used a between-groups design, we reasoned that the stronger social comparison effect observed in this study might have been due to the repeated measures designs of previous experiments which required subjects to first bind themselves to a pretest choice. It takes only a quick recall of some classic conformity studies (e.g., Asch, 1956) to realize that this was an excellent procedure for inhibiting response change. Consequently a follow-up study (Myers, unpublished observations) used a similar procedure except that half of those who observed others' choices did so after first making a pretest commitment and half did so without pretest. Attitude materials requested subjects to evaluate hypothetical positive or negative college professors (Myers, 1975). Although the social comparison effect was small, only those who had not made a pretest commitment evidenced significantly more polarized responses than the control distribution which had been observed.

Our subsequent experiments further explored the attitudinal effects of mere exposure to others' attitude responses. Their purpose was, first, to ascertain whether the phenomenon would generalize across a variety of methods and materials and, second, to explore some psychological dynamics which might mediate the phenomenon.

One experiment (Myers, 1977) compared two versions of social comparison theory. One version (Levinger & Schneider, 1969) presumes that exposure to the group norm, or average, is sufficient to stimulate a more polarized response, because people want to keep a step ahead of the average. The other (Pruitt, 1971a, 1971b) postulates that the key is not discovery of the peer group average, but rather observation of a group member who models the person's ideal
in a relatively extreme form. This supposedly releases people from the constraints of the assumed group norm, liberating them to act out their private inclinations, just as "trigger persons" can release latent impulses in a crowd situation.

These two explanations of attitude polarization were experimentally contrasted by showing some people a complete percentage distribution of others' opinions (therefore exposing them to some extreme models), while others learned only of the group average (norm). Two types of stimulus materials were used—jury problems (Myers & Kaplan, 1976) and Choice Dilemma items. To control for any time or subject differences between the pretest condition and the subsequent experimental conditions the experimental groups were exposed, in balanced fashion, to the pretest responses on some items but not on others, making each subject his or her own control. As Table I indicates, we observed with both item sets that responses were significantly more polarized ($p < .01$) on items where subjects had observed others' responses than on items where they had not. Contrary to release theory, exposure merely to the average other response was sufficient to polarize responses. Those exposed to the full distribution of others' choices were not significantly more polarized than those who merely witnessed the group norm.

A follow-up experiment (Myers, 1977) used a between-groups comparison to examine the exposure effect (instead of the more sensitive within-subjects design) and it asked an additional question of empirical interest: What if we took the relatively polarized responses of those who had observed others' choices and exposed a third group to these? Would additional polarization occur with a second iteration of the exposure treatment?

<table>
<thead>
<tr>
<th>TABLE I</th>
</tr>
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<tbody>
<tr>
<td>MEAN CHOICE-DILEMMA RESPONSE, BY CONDITION</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition</th>
<th>No exposure</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Risky items</td>
<td>Cautious items</td>
<td>Polarization</td>
<td>Risky items</td>
</tr>
<tr>
<td>Pretest</td>
<td>67</td>
<td>4.34</td>
<td>7.62</td>
<td>3.28</td>
<td>—</td>
</tr>
<tr>
<td>Average exposure</td>
<td>52</td>
<td>4.45</td>
<td>7.80</td>
<td>3.35</td>
<td>4.04</td>
</tr>
<tr>
<td>Percent exposure</td>
<td>52</td>
<td>4.27</td>
<td>7.55</td>
<td>3.28</td>
<td>3.79</td>
</tr>
</tbody>
</table>

Note: Responses could range from the risky extreme, which advised the proposed course of action even if its chance of success was only 1 (in 10), to the cautious extreme of 10 (in 10).
The dependent variable in this experiment was, again, a polarization score, defined as the mean gap between responses to four cautious and four risky Choice Dilemma items. In the first stage of the experiment 30 pretest subjects completed each item individually. In a second stage 30 more subjects were shown the exact distribution of responses by the 30 subjects preceding them in the pretest condition while 30 control subjects answered without feedback, just as did the pretest subjects. In the third stage of the experiment, two more groups were given the same treatments, except that those in the exposure condition were shown the responses of the preceding 30 people in their own condition.

The entire experiment was run by a computer as the subject sat at a high-speed terminal. This not only eliminated any possibility of experimenter effects but, more importantly, enabled the instant tabulation of responses and their presentation to subsequent subjects with precisely controlled format. As can be seen in Table III, responses in the two exposure conditions were significantly more polarized than in the control conditions ($p < .001$). The second iteration of feedback did not, however, significantly exaggerate the polarization effect.

We also correlated the initial response mean for each of the eight items with the polarization effect which each item elicited (second stage minus first stage). As you might expect, this correlation was substantial (.87), indicating that risky shift was greatest on the initially riskiest items. But skewness was also highly correlated with both initial and shift scores ($r = .95$ and .82, respectively). Perhaps, therefore, the polarization effect is merely the result of conformity to the observed mode or median, thus eliminating the tail of an otherwise skewed distribution. Two other findings suggest that this is not the case. First, the relationship between skewness and shift was totally eliminated when the initial response average was partialed out ($r = .11$), but the relationship between initial average and shift was left substantially intact ($r = .54$) when skewness was partialed out. Second, exposure to others' responses did not decrease variability among responses. This indicates that no implicit group decision was emerging.
Is this reliable comparison effect merely a hothouse laboratory phenomenon or might it also be observed in a natural setting? Our next experiment (Myers, Wojcicki, & Aardema, 1978) asked whether exposure to others' attitudes in a real-world setting could polarize initial attitude tendencies. Evidence from previous studies indicates there is no powerful bandwagon effect resulting from the publication of election polls (Klapper, 1964), but these studies generally present poll results from the general public, rather than from a significant social reference group. We expected that a small bandwagon effect might be obtained if exposure to the opinions of significant others informed people that their preferences were shared more strongly than they were aware. Our second purpose was, much as in one of the preceding experiments, to contrast release theory with the assumption that correctly perceiving the group norm (average) is sufficient to produce shift. Participants were 269 members of a local church who participated in an opinion polling survey designed in cooperation with the church leadership. Approximately one-third participated in a pretest condition by simply indicating their opinions regarding selected issues on a 7-point scale. These people also guessed how the average member would respond to each item. As can be seen in Fig. 1, they did, as expected, perceive themselves more strongly in the preferred direction than the average other member ($p < .001$). Remaining members were randomly divided into three conditions prior to completing the questionnaire some 3 weeks later. Control participants completed the items without information about others' responses. Participants in the average exposure condition were shown results from the first stage of the survey in the form of the average response to each item, while people in the percentage exposure condition were shown the complete distribution of responses. This treatment was introduced with an appropriate explanation and no one objected or later mentioned it when given a chance to comment upon the survey.

As Fig. 1 suggests, those exposed merely to the average pretest opinion were intermediate between the control and percentage exposure conditions. In this experiment it appeared that exposure to the group norm and to extreme models had small additive effects. An additional finding evaluated the presumption that if attitude comparison is strengthening the initially dominant point of view, then items for which there is clearly a socially preferred tendency should elicit greater polarization than items initially near the neutral point. This supposition was confirmed by correlational analysis.

Although this experiment indicates that a bandwagon effect can occur as a result of publishing the results of a local opinion poll, this effect may be limited to situations where a range of responses is offered, enabling people to differentiate themselves from the “average man” by moving a step ahead. In limited two-choice situations, such as in a presidential election, the need to differentiate oneself from the norm is not likely to result in a bandwagon effect.
Each of the comparison effects reported to this point might plausibly be interpreted (as by Burnstein & Vinokur, 1975) as resulting from stimulation to think up arguments which others might have had to justify their choices. Thus what appears at first glance to be a social comparison effect might in reality be an information-processing effect. Our latest experiment (Myers, 1977) examined this by using a simple judgment task which could not plausibly engage a set of rationally considered arguments. Under such conditions an informational influence explanation would predict no comparison effect. Recall also that contrasting the Jellison-Arkin and Baron-Sanders-Baron versions of social comparison theory required a simple task which would engage clear social preferences without involving perceived ability. According to the Jellison-Arkin position, polarization should occur only when an opinion issue involves a matter of fact, not "when there is no correct position on the issue because it is strictly a matter of judgment."

In this experiment pairs of high school seniors were asked to judge the attractiveness of 20 persons pictured on slides, half of them being attractive and following the publication of polls, or so we suppose. These speculations will be a subject of future research.
half of them unattractive. The procedure was simple: Person A viewed the first
slide on a slide viewer and announced his or her rating to the experimenter, using
a 100-point scale. Person B heard this judgment prior to viewing the slide and
also giving a rating. On the second slide person B viewed first and rated and then
passed the viewer to person A, and so forth. If this simple exposure is sufficient
to polarize responses, then we may expect that the second person judging the
slide will tend to give more positive ratings to the attractive slides than did the
first person and more negative ratings on the unattractive slides. As Table III
indicates, this expectation was strongly confirmed ($\chi^2(2) = 24.7, p < .0001$).
The second respondent was seven times as likely to give a different response as to
conform to the first response and when doing so was almost twice as likely to
deviate in the dominant direction—to go the first person one better—as to deviate
in the contrary direction. Analysis of variance confirmed that the mean polariza-
tion effect, though small, was highly significant ($p < .001$). We cannot imagine
how any type of group decision theory could be stretched to explain this simple
finding, but this comment is not to insist that a theory must explain all
phenomena in order for it to be useful for explaining certain other phenomena.

What have these experiments established? First, they indicate that
comparison-induced polarization occurs using a variety of methodologies and
stimuli. The phenomenon appears to be reliable and generalizable, although
subtle. Second, some theoretical explanations for the phenomenon appear inca-
pable of handling the results. It is difficult to conceive how all the findings could
be adequately explained by implicit group decision mechanisms, by the process-
ing of persuasive rational arguments, by the releasing effects of observing ex-
treme models, or by the social comparison of abilities.

These findings, taken in combination with the personality research on indi-
viduation noted earlier, appear to provide strong evidence for the presumption
that people want to differentiate themselves from others, to a small extent and in
the right direction. By “one-upping” the self-presentations of others, people can
see and present themselves as basically similar, yet desirably distinctive. This

<table>
<thead>
<tr>
<th>Stimuli</th>
<th>More positive</th>
<th>Same</th>
<th>More negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive</td>
<td>99</td>
<td>26</td>
<td>75</td>
</tr>
<tr>
<td>Unattractive</td>
<td>52</td>
<td>29</td>
<td>119</td>
</tr>
</tbody>
</table>

TABLE III
FREQUENCY OF SECOND JUDGMENTS EXCEEDING, MATCHING, OR MODERATING FIRST JUDGMENTS
conclusion provides a needed complement to social psychology's historic emphasis on conformity and the discomforting effects of marked deviance.

Notice, finally, how far we have strayed from the initial concern with risk-taking. What began as the risky shift phenomenon was transformed into research on polarization and other group influences. Our attempts to explain polarization then led us down several paths, including investigations of self-perception, self-presentation, and attitude comparison. These unanticipated discoveries and new directions typify the course of much scientific investigation.

IV. Conclusions

Having focused our chapter on the effects of group interaction and on the theoretical explanation of these effects, we conclude by briefly taking stock in each of these areas.

Anderson and Graesser (1976) have suggested a useful distinction between the attitude-formation and consensus-formation stages of the emergence of a group decision. (Communication theorists have further differentiated the stages of a group discussion, but this two-part distinction seems sufficient for the present.) Thus the social and informational dynamics which we have just discussed seem applicable to the attitude-formation stage. Social decision schemes and responsibility-diffusion dynamics seem germane to the consensus stage during which emergent attitudes are combined into a group product.

We have suggested how the dynamics of informational influence and social comparison usually polarize the dominant initial leanings of group members, and also why these dynamics sometimes move choices away from the action tendencies of individual respondents. Although the informational influence of relevant arguments has been experimentally separated from social comparison effects, we must remember that in natural situations there is no neat dichotomy. These processes will operate jointly and feed on one another. Arguments convey information about one's position. The desire to present oneself favorably motivates people to emit persuasive arguments in the presumed socially desirable direction. Indeed, the extent to which the social and information aspects of group discussion are interwoven is symptomized by the difficulty which experimenters have had in achieving a clean separation of the two. These two dynamics in combination help us understand why the effect of group interaction is likely to be a polarization effect when the initial sample average leans toward one side of the issue and when responses close to that pole are socially valued.

Sometimes discussions are carried forward to the point where a consensus emerges, either as a natural product of the discussion or as a result of an explicit requirement as in jury decision-making. This opens the door for the application
of decision rules and the introduction of responsibility dynamics, as well as possibly intensifying the persuasive argumentation. Although both decision schemes and responsibility dynamics seem linked to the consensus formation stage, it is difficult to completely separate them from the attitude formation stage since they may ride piggyback on the content of the discussion.

Existing research has seldom made this distinction between the attitude formation and consensus formation stages of group decision-making. As Anderson and Graesser (1976) admonish, the distinction seems worth making in future research by focusing attention on individual choices if attitude change is being studied and on the group product if decision schemes are being studied.

Has the original risky shift literature repeated the history of some of social psychology’s other literatures? Sometimes the discovery of an intriguing phenomenon stimulates a barrage of experiments which reveal that the phenomenon is more complex than first thought, at which point interest wanes as researchers move on, leaving a mess behind. Fortunately, this appears not to have happened with the risky shift. The discovery of risky shift ultimately led to a new and broader conception of the phenomenon which seems operative in real-world situations where group interaction affects people’s welfare. The theories devised to explain these group effects have generated new predictions relevant to our understanding of attitude change and of the social comparison process. Future study of group interaction seems, therefore, to have the potential of developing a creative synthesis between theory and its social usefulness, thus making this an area which fulfills Kurt Lewin’s vision for social psychology.

REFERENCES


Baron, R. S., Sanders, G. S., & Baron, P. H. Social comparison reconceptualized: Implications for choice shifts, averaging effects, and social facilitation. Unpublished manuscript, University of Iowa, 1975.


Burnstein, E., & Vinokur, A. What a person thinks upon learning he has chosen differently from others: Nice evidence for the persuasive-arguments explanation of choice shifts. *Journal of Experimental Social Psychology, 1975, 11,* 412–426.


GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR 189


Kaplan, M. F., & Miller, C. E. Juror judgment and discussion: Effect of variety of shared information on amount of polarization. Paper presented at the meeting of the Psychonomic Society, St. Louis, 1976.


GROUP-INDUCED POLARIZATION OF ATTITUDES AND BEHAVIOR

Paicheler, G. Norms and attitude change III: Homogeneous and heterogeneous groups. Unpublished manuscript, École Pratique des Hautes Études, 1976. (b)


