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Polarizing Effects of Social Comparison

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Does exposure to others' judgments merely elicit conformity to what is observed? Two experiments are reported in which people who were merely exposed to others' responses tended not to conform to the average observed response but to exceed it in the socially preferred direction. These experiments complement social psychology's historic emphasis on conformity by suggesting that not only do people avoid being markedly deviant from others; they also act to differentiate themselves from others toward the extreme that reflects the group ideal.

Many recent studies demonstrate that group discussion will often amplify the dominant initial inclination of group members (see Myers & Lamm, 1975, 1976; and Lamm & Myers, 1978, for recent reviews). Attempts to explain this "group polarization phenomenon" have yielded some interesting related phenomena. One of these spinoff phenomena emerged from attempts to construct a partial explanation of group polarization based on social comparison.

If, as some suppose, people are motivated to see and to present themselves favorably, relative to others, then might this contribute to the strengthening of socially desirable tendencies in social situations? One way to examine this presumption is to merely expose people to others' responses, without discussion or any other treatment, and ascertain whether subsequent choices will tend to match the observed responses or to exceed them in the socially preferred direction. Two previous experiments (Myers, Bach, & Schreiber, 1974; Myers, Wojcicki, & Aardema, 1977) indicated that awareness of others' responses could elicit a deviation from the observed norm, as if to go it a step better.

The present series of experiments further explores the attitudinal effects of mere exposure to others' attitude responses. The purpose is, first, to

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ascertain whether the phenomenon will generalize across a variety of methods and materials and, second, to explore some psychological dynamics which might mediate the phenomenon.

The first experiment contrasted two explanations of this attitude-polarization effect. One version (e.g., Levinger & Schneider, 1969) proposes that when people respond alone they tend to compromise between their ideal preference, which is often toward an extreme, and the group norm, which they assume to be more moderate. The opportunity to compare attitudes informs them that the group norm is more sympathetic to their own preferences than they would have imagined, thus enabling them to respond in closer accord with their ideal. A closely related theory suggests that people want to see themselves as a step ahead of the average, yet not as markedly deviant. Roger Brown (1974) suggested that "To be virtuous, in any of an indifferent number of situations, is to be different from the mean—in the right direction and to the right degree" (p. 469). Both of these explanations imply that exposure to the group norm, or average, is sufficient to elicit a more polarized response.

Another version of social comparison theory (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 or just as a single nonconformer can liberate others from an imposed norm.

The first experiment contrasted these two versions of comparison theory by showing some people the average of others' responses to questions they were about to answer, while showing another group a more informative percentage distribution of others' responses (thereby exposing them to some extreme models). Exposure to the percentage distribution provides more than the single extreme model which Pruitt suggested is minimally sufficient to produce polarization, but this treatment does incorporate the necessary exposure to relatively extreme judgments.

EXPERIMENT I

Method

Subjects. Participants in the experiment were 171 introductory psychology students at Hope College.

Materials. Two sets of stimulus materials were used, thus enabling a reliability check on findings observed with either set of materials. One set was four "risky" and four "cautious" choice dilemma items, selected because previous research indicated that they elicited individual and group shift tendencies in either the risky or the cautious direction. Subjects responded to each item on the typical 10-step 1 (high risk) to 10 (low risk) probability scale.

The second set consisted of eight traffic felony cases, four of which were observed by Myers and Kaplan (1976) to elicit individual and group shift tendencies in the "low guilt"

direction and four of which had elicited individual and group shift tendencies in the "high guilt" direction. Subjects responded to these items on an 11-step 0 ("definitely not guilty") to 100 ("definitely guilty") scale.

The dependent measures were polarization scores. The polarization score on the choice dilemma items was the difference between the mean response to the cautious and to the risky items. The corresponding polarization score on the jury items was the difference between the mean response to the high guilt and the low guilt responses. Our expectation was that exposure to others' responses would increase the gap, or polarization, between responses to the risky and cautious items and between the low and high guilt items, although perhaps differentially for the two types of exposure.

Design and procedure. Several months prior to the experiment treatment, 67 students in a pretest condition individually completed each item. The exposure or nonexposure of either the average or full distribution of these responses constituted the independent variables.

The 52 participants in the subsequent average exposure condition were informed, on half the items, of the mean response by their peers in the pretest condition (e.g., on one choice dilemma item "average = 4.48" appeared at the appropriate point in the margin). The 52 participants in the percentage exposure condition were simply exposed, on half of the items, to a bar graph which was laid out along the response scale and which indicated the percentage of pretest participants who had selected each response. Each participant in these conditions thus served as both an experimental subject (on the items where they observed others' responses) and as a control subject (on items where they responded, just as did the pretest subjects, without feedback about others' responses). This exposure was rationalized with the following instructions.

> In some of our previous experiments we've had group discussion of these items. The problem with this is that it allows some individuals to dominate a group, while the opinions of quieter people get ignored. So on some of these items we'll give you information about the opinions of other people [an identified class from a preceding semester] without the conformity pressure that sometimes occurs in group discussion. Although people sometimes find it helpful to consider the positions of other people when forming their opinion, what we're really after is your own personal opinion of these questions.[1]

The design was appropriately balanced to control for the order of treatment (exposure vs. no exposure). Since whether one was exposed to others' responses during the first or second half of the experiment had no effect on the results, no further mention will be made of it. We also balanced the items with which the exposure and no-exposure treatments were attached so that no item differences were confounded with the independent variables.

Results

The results are summarized in Tables 1 and 2. Two preliminary observations set the stage for the major experimental results. First, it may be noted that the no-exposure judgments were in a predominantly risky or cautious (or low guilt or high guilt) direction, just as we had expected. Thus there

[1] It might be argued that these instructions create an experimental demand for resistance to the social influence treatments. Such an effect is likely to be minimal since the instructions were not salient while subjects were completing the items. More importantly, any demand would work against the predicted social comparison effect and would be the same for both experimental treatments. Implied demand could not therefore account for any of the predicted results. Finally, Study II, which used a substantially different rationale for the social exposure, will be seen to replicate the basic effect observed in Study I.

TABLE 1

MEAN CHOICE DILEMMA RESPONSE, BY CONDITION

Condition	N	No exposure			Exposure		
		Risky items	Cautious items	Polarization	Risky items	Cautious items	Polarization
Pretest	67	4.34	7.62	3.28	—	—	—
Average exposure	52	4.45	7.80	3.35	4.04	7.92	3.88
Percentage exposure	52	4.27	7.55	3.28	3.79	7.98	4.19

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).

was a fair amount of polarization in the individual responses which we might expect the treatments to amplify. Second, the mean polarization scores for the experimental conditions were quite similar to the pretest polarization scores on the items for which experimental subjects, like the pretest subjects, had received no information about others' opinions.

But what about the items on which subjects were aware of others' responses. Were responses more polarized to these items? And were they especially polarized, as release theory implies, in the percentage exposure condition which included exposure to some relatively extreme responses? Analysis of the choice dilemma polarization scores indicated that the exposure treatments did, indeed, increase response polarization relative to responses on the no-exposure items of these two conditions, $F(1,102) = 8.15, p < .01$. Whether this exposure was simply to the average other response or to the full distribution of others' responses made no significant difference.

Analysis of responses to the jury items replicated these findings. Once again, there was a highly reliable effect of exposure, $F(1,102) = 24.92$, $p < .001$, but there was no effect of the nature of the exposed information.

TABLE 2

MEAN JURY ITEM RESPONSE, BY CONDITION

Condition	N	No exposure			Exposure		
		Low guilt	High guilt	Polarization	Low guilt	High guilt	Polarization
Pretest	67	35.43	70.75	35.32	—	—	—
Average exposure	52	36.54	71.83	35.29	27.12	72.79	45.67
Percentage exposure	52	40.19	74.71	34.52	31.15	78.37	47.21

Note. Response could range from judgments of no guilt (0) to high guilt (100).

Discussion

These results confirm that mere exposure to others' responses can be sufficient to stimulate people to exceed the self-presentations of other people. Since exposure merely to the others' average response was sufficient to stimulate this polarization it appears that people were reacting principally to their awareness of the group norm, or average, not to the exceptional extremists who happened to embody their inclinations more strongly than did they.

Our second experiment used a between-groups methodology 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? Social comparison processes could very possibly produce an additional increase in polarization (assuming the ceiling has not been reached) as subjects again present themselves as being more in the preferred direction than average.

EXPERIMENT II

Method

Subjects. Participants in this experiment were 120 introductory psychology students at Hope College.

Materials. The stimulus items were the same eight choice dilemma items used in Experiment I. The dependent variable was, again, a polarization score, defined as the mean gap between responses to the risky and cautious items.

Design. The experiment unfolded in three stages. In the first stage 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 more control subjects answered without feedback, just as the pretest subjects did. Since the control condition was run simultaneously with the exposure condition it was possible to randomly assign subjects to the two conditions, thus establishing an appropriate comparison baseline for ascertaining the effects of the exposure treatment.

In the third stage 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.

Procedure. The entire experiment was run by a computer. Subjects were scheduled individually and sat at a Texas Instruments Silent 700 terminal which quietly printed at 360 words per minute (30 characters per second). The experimenter called the appropriate program and then left the room while the subject interacted with the machine. This not only eliminated any possibility of experimenter bias effects, but, more importantly, enabled the instant tabulation of responses and their presentation to subsequent subjects with precisely controlled format.

The machine first welcomed the subject to the experiment and identified the principal investigator who, thereafter, used the first person pronoun to communicate information. A short lesson instructed the subject how to use the terminal and it ascertained the subject's first name, which it later used to personalize the interaction.

The pretest and control subjects were simply given the eight choice dilemma items and asked for their choice on each. The exposure treatment was rationalized by informing subjects that "This computer process allows me to give you the responses of a representative sample of people who answered these questions just before you and to see what impression you form of this group of people" and that "When we are done with the experiment I will ask you for your impression of how intelligent this group of people was." As the response scale was printed for each item the computer constructed a frequency graph of the 30 responses to each item by printing a "%" next to each choice for each person who chose it.

Subjects in the exposure conditions were also asked, at the end of the experiment, to make a "snap judgment" of how intelligent these 30 people were in the way they answered these questions: "Pick any number between 0 (completely stupid) and 100 (brilliant) . . . [subject responds] . . . Thank you. How would you candidly rate your own performance on this same scale?"

Finally, about 15 to 20 min after sitting down, people were thanked by the computer (and by the live experimenter), requested not to discuss the experiment with students who might yet participate, and asked to address an envelope to themselves in which they were later sent an explanation of the experiment and its results. Although most of these subjects had no prior experience with the computer they had little difficulty interacting with it. Perhaps because of the unexpected ease with which they conversed with the machine, a number of subjects volunteered that their participation was an interesting experience.

Results and Discussion

As can be seen in Table 3, responses in the first exposure condition were more polarized than in the control condition for that stage, but the second iteration of feedback did not significantly exaggerate this polarization effect. A 2 (control vs exposure) by 2 (second vs third stage) analysis of variance confirmed this conclusion, since only the main effect for control vs exposure polarization was significant, $F(1,116) = 14.00$, $p < .001$. In both Experiments I and II polarization was contributed to more by risky than by cautious items, a phenomenon repeatedly observed on research with choice dilemmas.

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). If attitude comparison is strengthening the initially dominant point of view, then items for which there is clearly a preferred pretest tendency should elicit greater polarization than items initially near the

TABLE 3

COMPUTER EXPERIMENT: MEAN CHOICE DILEMMA POLARIZATION SCORES

Stage 1	Stage 2	Stage 3
Pretest = 3.55	$\text{Exposure}_1 = 4.45$ Control = 2.87	$\text{Exposure}_2 = 4.75$ Control = 3.73

Note. $n = 30$ for each cell. Polarization scores are the mean difference between responses to cautious and risky items.

neutral point. This correlation was, indeed, substantial (.87), indicating that risky shift was greatest on the initially riskiest items. Note that if any regression or ceiling effects were operating the correlation would have been in the opposite direction, reflecting a moderation of the initial extremes. This makes the polarization effect all the more striking.

But skewness was also highly correlated with both the initial and shift means for each item (r = .95 and .82, respectively). Perhaps, then, the polarization effect is a simple conformity effect. If observers conformed to the observed mode or median, thus eliminating the tail of an otherwise skewed distribution, a polarization of the mean response would result.[2] Three other findings suggest, however, that this is not the case. First, the relationship between skewness and shift was totally eliminated (in fact, slightly reversed, $r = -.11$) when the initial response average was partialled out, but the relationship between initial average and shift was left somewhat intact (r = .54) when skewness was partialled out. Second, exposure to others' responses did not produce much decrease in variability among responses. The average standard deviation among responses to each item was 2.29 in the pretest condition and nearly the same, 2.10 and 2.10, in the two exposure conditions. F test comparisons of the pretest and exposure$_1$ variances failed to reach the .10 level of significance for seven of the eight items. This indicates that no implicit group decision was emerging. Third, recall that in the previous experiment subjects who directly observed the mean response and were, therefore, not exposed to skewness, still exceeded the observed mean. These findings confirm other indications that skewness is no more than a small contributor to the polarization effect (cf. Myers & Lamm, 1976).

Was the failure to obtain significant further polarization after the second exposure treatment a ceiling effect artifact? At least two results indicate otherwise. The nearly equivalent variance among responses at all three stages of the experiment suggests that responses were not becoming squeezed against the ceiling. Moreover, the average response after the first exposure (3.44 for risky items and 7.89 for cautious items) was no more extreme than the best shift-eliciting items are to begin with.

Recall that at the end of the experiment we also asked exposure condition subjects to evaluate the intelligence of their own judgments and of those which they had observed. Twenty of the first 30 subjects judged their own responses as superior to others and only three made the reverse judgment (the remainder rated self and others equal). This confirms in a new way previous observations that people tend to perceive themselves as superior to the average member of their groups or as closer to the social ideal than

[2] A previous piece of evidence contradicts this idea. Myers, Bach, and Schreiber (1974) found that subjects' average perception of the mean of observed responses was actually quite accurate, yet they responded beyond it.

their average peer (cf. Lamm & Myers, in press). The last 30 subjects were, however, somewhat less decisive in declaring their own superiority (14 rated their judgments as superior to others' and 7 as inferior). This was likely due to the fact that the responses they observed were closer to the valued extreme and to the responses which they themselves made.

Some have interpreted this phenomenon of favorable self-perception as the product of ignorance of others' judgments. If you do not know where other people stand it seems reasonable to estimate their responses as more neutral than your own. Social ignorance obviously does not apply to the present results. Subjects had directly observed others' responses and they still perceived their own as superior.

There is ample evidence that the polarizing effects of group discussion are due in large part to the exchange of persuasive arguments (Myers & Lamm, 1976). The polarizing effects of attitude comparison noted here might also plausibly be interpreted (as by Burnstein & Vinokur, 1977, and elsewhere) 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 may also be an information-processing effect. Social comparison theorists need not deny the possibility of tacit cognitive mediation of social comparison effects. Further research using simple judgment tasks which could not plausibly engage persuasive arguments (e.g., taste preferences) could test the mediational role of self-generated persuasive arguments.[3]

CONCLUSIONS

These experiments indicate that comparison-induced polarization occurs using different methods and stimuli. The phenomenon appears to be reliable and generalizable, although subtle. These results are something of an exception to recent research which demonstrates the innocuousness of presenting subjects with statistical information concerning others' behavior (in contrast to the potency of vivid, concrete cases; Nisbett, Borgida, Crandall, & Reed, 1976). Perhaps if we had used a "warmer" face-to-face method of presenting others' opinions polarization would have been even greater. The experiments do not, however, clearly indicate whether observing others' responses liberates people to express their

[3] An interesting recent exchange between proponents of social comparison theories (Sanders & Baron, 1977) and of persuasive arguments theory (Burnstein & Vinokur, 1977) indicates that it is difficult to differentiate these two classes of theory. Sanders and Baron suggested that social comparison may "trigger cognitive processes involving a reconsideration of the original position in terms of what is admirable and socially desirable." Burnstein and Vinokur extended their persuasive arguments theory to encompass the processing of images, tacit arguments, and nonvebal mental representations. Thus both Sanders and Baron and Burnstein and Vinokur seem to agree that while social comparison is not necessary for attitude polarization it may provide polarization by eliciting some type of cognitive processing.

secret inclinations (Levinger and Schneider, 1969) or motivates them to "one-up" the self-presentations of other people as an image-maintenance strategy (Brown, 1974; Jellison & Arkin, 1977; Sanders & Baron, 1977).

The plausibility of image-maintenance dynamics is enhanced by some independent lines of research which add credence to the presumption that there *is* a human concern for perceiving and presenting oneself favorably which may contribute to the amplification of socially desirable response tendencies. Fromkin (1970, 1972) and others provide 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 undistinctive. People feel better when they understand themselves to be unique and they will act in ways which create a sense of individuality.

The present research is congenial to the presumption of this personality research and theory 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 suggestion complements social psychology's historic emphasis on conformity and the avoidance of deviance.

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