employment, to point to alternative ways of living by remaining inside the community and encouraged by us they will gradually bring to community life a new dynamism and a shift in power away from industrial institutions. Instead of rejecting the new unemployed as parasitic we will need to romanticise them as an elite moving into the unknown. For, whatever their gains, they will have to pay the price for making their own world within a hostile environment where absolute dependence has become the rule and man has all but lost his identity. At least we can assure these adventurers are so engaged of their own choice, unlike their less fortunate predecessors who were dispossessed of land and work. One thing is certain, however they choose to spend their time they will be doing more work than you or me.

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BIOGRAPHICAL NOTE

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ABSTRACT

Two experiments examined the group polarization hypothesis. In Experiment I group discussion polarized the evaluations of six hypothetical faculty members, three described positively and three negatively. 'Good' faculty were rated and paid even more favorably after group interaction and contrariwise for 'bad' faculty. Experiment II separated subjects into groups which were conservative or liberal in attitudes regarding women. Subsequent discussion of statements regarding the role of women yielded an increase in the attitude gap between the conservative and liberal communities.

INTRODUCTION

Social psychological research on the effects of talking in small groups indicates that responses following discussion may differ predictably from the average of prediscussion responses. Until the early 1970's, most of this research was conducted with choice dilemma items and the observed group-induced response changes were labelled the 'risky shift' phenomenon. The operational consistency afforded by repeated use of choice dilemma items facilitated the growth of theory regarding group-induced change, but the semantic label 'risky shift' tended to confine thinking to the dependent variable of risk-taking behavior.

1. This research was supported by a grant from the National Science Foundation (G-391-101). The contributions of Paul Bach and Janice Brandt in preparing for the experiment and of Vicki Mast in the analysis of the data are gratefully acknowledged.
Recently investigators (e.g., Fraser, Gouge, & Billig, 1971; Vinokur & Burnstein, 1974) have begun to view choice dilemma items as merely one sample point in a universe of pro-con choice dimensions. Accordingly, interest is shifting from the narrow study of group risk taking to broader concerns—the building of theory regarding the effects of group interaction and examination of the external validity of hypotheses derived from research with choice dilemmas.

The present research explores an empirical generalization which has emerged from research with choice dilemmas. The finding that group discussion of choice dilemma items tends to enhance tendencies initially favored in the subject population (c.f., Pruitt, 1971) has led to a generalized 'group polarization' hypothesis (Moscovici & Zavalloni, 1969): the average of group members' responses following group discussion will generally be more extreme in the same direction as the average of individual pregroup preferences.

Polarization at the level of the group average is what is observed on choice dilemma items and denoted the risky shift, and it is what is investigated in the present research. If the group polarization hypothesis can survive scrutiny with measures other than those used to derive the hypothesis in the first place, then our confidence in this generalization about the effects of social interaction will be increased. 'Once a proposition has been confirmed by two or more independent measurement processes, the uncertainty of its interpretation is greatly reduced' (Webb, Campbell, Schwartz & Sechrest, 1966).

**EXPERIMENT I: FACULTY EVALUATION**

**METHODOLOGY**

**Overview.** Based on attitude responses to a questionnaire prior to the experiment, six stimulus items were selected, each describing a hypothetical faculty member. Three of these described 'good faculty' (the initial tendency was to rate positively) and three were 'bad faculty' (the initial reaction was predominantly negative). At the beginning of the experimental session, each subject distributed pay raises among the six faculty, thus creating two dependent measures—an attitude scale and the pay raise measure. In the experimental condition, subjects then discussed the pay increase distribution as stimu-

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uted faculty evaluation committees and after two rounds of discussion again individually recommended a distribution of pay raises and rated each faculty member on the attitude scale. Control condition subjects discussed an irrelevant subject for an equal length of time prior to retesting on the two measures.

The group polarization hypothesis implies that discussion in the experimental condition will polarize opinion. Thus the results of the experiment is to see whether the good faculty are rated and paid more favorably than the bad faculty.

**Subjects.** The participants were introductory psychology students of both sexes who participated for extra credit laboratory involvement. Two weeks prior to the experiment, 114 students completed a pretest questionnaire. Of these, 98 persons returned to participate in the experiment.

**Pretest questionnaire.** A pool of 14 potential items was presented in order to identify three negative and three positive stimulus items for the experiment and in order to obtain pretest data on these items. Each was described in about 200 words using a format illustrated by one of the positive stimuli selected for the experiment:

**W. I. Teaching performance:** Mr. 1 is a dynamic, but demanding instructor. His classes are sought out to an average extent by students because some students hesitate to undertake the heavy work load his classes entail but other students are attracted by the 'stimulating' and 'provocative' nature of his classes. Although students indicate that he sometimes talks above their level of comprehension, they also report that he goes to great lengths to assist students by arranging 'help sessions', extending his office hours, and getting to know each of his students' needs and abilities.

**Professional performance.** Because Mr. 1 has been devoting so much of his time to his class preparation and assistance to students, he has not been heavily involved in research during the past two years. He has not published during this period, but he has spent a great deal of time collaborating with students who have sought him out for independent study and research.

**Other considerations.** Mr. 1 is not as yet heavily involved in committee work at the college or in community activities. His warmth toward people does, however, lead him to spend considerable time talking with his student advisees and his presence does contribute to a friendly atmosphere in his department.

Subjects were asked to rate each faculty member on a 0 to 10 lab-Good Scale 'where 0 represents the worst possible professor
and 10 represents the most excellent. To simplify matters, let us imagine that each of these faculty members is a man in the political science department of a fictitious college.

**Experimental treatment.** Two treatment conditions were created—an experimental (relevant discussion) condition and a control (irrelevant discussion) condition. The control condition for Experiment I was the experimental (relevant discussion) condition for Experiment II and the experimental condition of Experiment I was used as the control (irrelevant discussion) condition of Experiment II. This necessitated the administration of dependent measures from both experiments to all subjects, plus a pretest questionnaire for Experiment II, but provided necessary controls since in each experiment the only variable which differentiated the experimental and control subjects was the discussion treatment.

Subjects participated in one of four sessions in a large (2000 square foot) room. Half of the 47 experimental condition subjects came to each of two experimental sessions, and likewise for the 48 control subjects. After appropriate introductory remarks, all subjects were first asked to individually recommend a distribution of pay increases for the six hypothetical faculty.

Let's do as our fictitious college really would have to do and decide how much of a pay raise to give each one. Pretend that you have $3,000 to divide up among the six faculty and that you can give each person between $0 and $1,000. Of course, since you only have $3,000 to divide among the six this means that you must average $500 per faculty member and that when you give one faculty member more than $500 you must give another faculty member correspondingly less.

After all subjects completed this task on a form provided in the test booklet, subjects turned to a new instruction page, which for the experimental condition subjects was headed 'Convening of the Evaluation Committees'. The instructions indicated that the pretest task served to familiarize subjects with each of the faculty members and that they should not worry about or look back at what you marked while "warming up" with the cases. Next, to stimulate the actual committee discussion process", the experimenter randomly numbered the subjects into five groups with four or five members each.

We would like to give you about 10 minutes to discuss the allocation of pay increases as a group. Perhaps during this time you will arrive at a unanimous group decision as to how to distribute pay increases. If you are unable to arrive at a unanimous decision after discussing the faculty, do not be concerned. We will just average the recommendations that each one of you make and this average will be considered the group's decision.

At the end of the 10 minute discussion period, subjects were asked to indicate their pay raise recommendations if they had not yet done so. Following this, subjects turned to a new instruction page headed 'Convening of New Evaluation Committees'.

You have had an opportunity to discuss the faculty and pay increases with the members of a simulated evaluation committee. Of course, in reality the discussion will be more extended than what we have allowed. To simulate this, we would now like to form new committees, each composed of one person from each of the current committees. This will give you an opportunity to pool and share thoughts that arose in each of your groups. However, you needn't feel bound to representing your group—feel free to pool for yourself.

Recomposition of groups was accomplished by having each group number off within itself and then forming groups of 1's, 2's, etc. The groups were then given 10 more minutes to again discuss the allocation of pay increases. Each stage of the experiment presented a fresh set of the six items and a new response form.

After completing this task, subjects turned to yet another set of the six items and this time individually responded as (they had on the pretest questionnaire) by rating each faculty member on the 0 to 10 attitude scale. The administration of these measures was identical for control and experimental subjects, except that the control subjects spent the 20 minute discussion phase in conversation of irrelevant stimuli. Following this irrelevant discussion they were tested on the pay increase and attitude scale measures.

**RESULTS**

The pre- and postdiscussion attitude responses by each subject to the three positive stimuli and the three negative stimuli were averaged. Table I indicates the extent to which each faculty were rated more favorably than bad faculty on the post questionnaire.

Attitude change data presented in Table I also indicate that discussion significantly polarized the mean judgments of
faculty. Bad faculty were rated even more negatively following discussion ($r = 6.20$), good faculty were rated even more positively ($r = 4.05$) and the gap in attitude ratings between bad and good faculty significantly polarized ($r = 6.78$ for comparison of shift means).

However, Table 1 indicates that control subjects also polarized in their judgments when retested on the attitude scale. The attitude gap between bad and good faculty was larger at the prettest than at the pretest ($r = 2.77$), and the shifts for both bad and good faculty were at least marginally significant ($r = 1.83$ and $2.33$, respectively).

A $2 \times 2$ analysis of variance on the shift scores revealed a significant interaction ($F = 7.13, df = 1/94, p < .01$) between treatment condition and shift for bad vs. good faculty. This indicates that the attitude polarization between bad and good faculty which occurred in both conditions was significantly greater in the experimental than in the control condition.

Turning now to the pay increase measure, we may inquire whether discussion polarized the pay increase differential between bad and good faculty. For each subject the difference between his recommended increase for good and for bad faculty was computed for both the pretest and posttest administrations.

For example, the mean pretest pay differential of $328$ for experimental subjects reported in Table 2 indicates that prior to discussion good faculty received approximately $664$ and bad faculty about $336$.

Consistent with the attitude scale data, inspection of Table 2 reveals that both treatment conditions polarized in their pay increase recommendations upon retesting. Although the $105$ increase in pay differential for experimental subjects ($r = 5.06$) was somewhat greater than the $60$ polarization of control subjects ($r = 2.80$), the increased polarization for experimental subjects was not significantly greater than for control subjects ($r = 1.52$).

Since the experimental condition subjects also indicated pay increases during the middle of their treatment (after the first round of discussion) it is of interest to inquire whether the polarization occurred incrementally during the two discussion phases. Table 2 indicates that substantial polarization was evident after the first round of discussion ($r = 5.69$) and that the second round of discussion was actually followed by slightly increased polarization ($r = 1.97$).
As predicted, discussion in the simulated faculty evaluation committees significantly polarized attitudes toward the hypothetical faculty and to a greater extent than in the irrelevant discussion (control) condition. While polarization also occurred on the pay increase measure, this was not significantly greater for the experimental than for the control condition. Thus group-induced polarization was observed, but complicated by the additional observation of polarization in the control condition.

Why were the attitude judgments of control subjects more extreme upon retesting? The two pay increase measures which intervened between the attitude pretest and posttest surely produced increased familiarity with the items and this may have reduced the ambiguity of the stimulus materials. Also, greater attention may have been given to each of the six cases during the experimental session than to these cases when presented with others in the pretest questionnaire. However, the same cannot be said of the pay increase measure, since both pretest and posttest data for this were gathered in succession at the experimental session with no intervening measures for either condition. Nonetheless, the restudy inherent in the retesting procedure may have yielded greater clarity in the subjects’ evaluative judgments. As one subject said in a postexperimental questionnaire, ‘The discussion...crystallized some of my feelings. Given a longer period of time, I, individually, could probably have arrived at the same conclusion as the final group’.

The informational influence of group discussion may have further enhanced the experimental subjects’ initial leanings by generating persuasive arguments predominantly favoring the preferred choice tendency. As another subject said in the postexperimental questionnaire, ‘By the last discussion most every point of information about them was brought out and reacted to’.

Possibly against this informational influence interpretation of the observed effects, it may be noted that the group-induced response changes appeared to concentrate during the first of the two rounds of discussion. One round of discussion was adequate for the operation of social comparison mechanisms (for the subject to discover that others shared his inclinations more than he had supposed and to adjust his responses accordingly). The information pooling contained in the second round of discus-
further examine the question of whether social interaction following separation with similar others does indeed tend to increase attitude polarization. This is a question of more than mere academic interest since there is ample evidence (Byrne, 1971) that people are in fact attracted to similar others.

**METHOD**

**Overview.** Subjects responded in a pretest session to a scale measuring their attitudes regarding the role of women and were then separated into conservative and liberal populations for a subsequent experimental session. It was predicted that after discussion statements regarding the role of women the attitude gap between the conservative and liberal communities of these statements would polarize, and that irrelevant discussion in a control condition would have little effect.

**Subjects.** As indicated previously, the subject population for this experiment was the same as for Experiment I. The experimental (relevant discussion) condition of one experiment served as the control (irrelevant discussion) condition of the other experiment. Due to limitations on the number of subjects available no attempt was made to separate the 67 females from the 28 males.

**Materials.** In the same pretest session used for Experiment I, subjects also responded to 48 items of Spence & Helmreich's (1972) Attitudes Toward Women Scale (the entire scale except for seven items dealing with sexual behavior which were eliminated to avoid invasion of privacy). Each of the 48 statements regarding the role of women was responded to on a seven-point scale (from -3, strongly disagree to +3, strongly agree).

These responses were used to identify six items which seemed to elicit about equal numbers agreeing and disagreeing, which were correlated with what the other 42 items were measuring, and which seemed suitable for stimulating group discussion. These items, reproduced below, were later used as the stimulus materials for group discussion and these initial responses were used as the pretest data.

1. Women with children should not work outside the home if they don't have to financially.
2. A woman should be as free as a man to propose marriage.
3. It is childish for a woman to assert herself by retaining her maiden name after marriage.

4. Under ordinary circumstances, men should be expected to pay all the expenses while they are out on a date.
5. As head of the household, the husband should have more responsibility for the family's financial plans than his wife.
6. It is insulting to women to have the 'obey' clause remain in the marriage service.

Responses to the remaining 42 items were summed to yield a feminism score for each subject. A median split was then used to define populations of subjects having relatively liberal attitudes regarding women (for convenience hereafter referred to as the 'feminists') and relatively conservative attitudes (the 'chaunists'). It should be noted that the median split of this normal distribution resulted in many 'feminists' who in reality differed only slightly from many 'chaunists'. By composing two groups independently of their initial responses to the six experimental items, it was anticipated that regression artifacts could be minimized.

**Experimental treatment.** Subjects were recruited by phone to participate in one of four testing sessions, each session constituting a cell of a 2 x 2 design (chaunist vs. feminist, experimental vs. control). Since data were being simultaneously gathered for Experiment I, subjects responded to all the six statements regarding women. As indicated previously, the subjects who discussed faculty pay increases were engaging in an irrelevant control treatment for the purposes of the present experiment.

Subjects in the experimental condition of the present experiment were formed into five groups of four or five members each and engaged in discussion of each of the six statements for approximately two minutes each.

If you are unable to agree as a group in your opinion, do not be summed. We are not trying to coerce you into an artificial consensus and we are not asking you to try to coerce others on these sensitive matters. Please do not write on the pages – we are simply inviting you to have an informal discussion of each statement.

The separation of chaunists and feminists meant that both the experimental and control conditions of Experiment I contained separate sessions for chaunists and feminists. This difference was not analyzed in the results of Experiment I because it is irrelevant to the discussion treatment and because any possible effects of the differing composition were counterbalanced. As it turned out, there was in fact no relationship between scores on the Attitudes Toward Women Scale and opinion regarding the faculty (r = -0.07 for 'bad faculty' and 0.18 for 'good faculty').
After this first round of discussion, subjects were reconstituted into new groups as in Experiment I. The second round of discussions of the statements ensued.

Following this, and without as yet having written any response to the stimulus statement, subjects were retested on the faculty attitude measures. Finally, subjects indicated their posttreatment opinion on the six statements, using the same response scale as in the pretesting session. The control and experimental conditions received identical treatments, except for variation of the discussion content.

RESULTS AND DISCUSSION

The six pre- and posttreatment evaluative responses by each subject were converted to a consistent −3 (conservative) to +3 (liberal) continuum and averaged for ease of interpretation. The initial, final, and attitude change means are presented in Table 3.

**TABLE 3**

<table>
<thead>
<tr>
<th>Group Condition</th>
<th>N</th>
<th>Initial</th>
<th>Final</th>
<th>Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chauvinists</td>
<td>22</td>
<td>−1.11</td>
<td>−1.14</td>
<td>−0.02</td>
</tr>
<tr>
<td>Feminists</td>
<td>26</td>
<td>0.78</td>
<td>1.72</td>
<td>0.95**</td>
</tr>
<tr>
<td>Control Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chauvinists</td>
<td>24</td>
<td>−0.96</td>
<td>−0.65</td>
<td>0.30*</td>
</tr>
<tr>
<td>Feminists</td>
<td>23</td>
<td>0.48</td>
<td>0.72</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Note. — Responses to each item could vary from −3 (conservative) to +3 (liberal)

*p < .05
**p < .001

polarization resulted from increased liberalism on the part of the already liberal feminists, while the chauvinists remained stable. The overall tendency toward increased liberalism is consistent with some of our earlier work (e.g. Myers & Bach, 1974) and might be interpreted as a general tendency toward an increase in the social desirability of responses following discussion. In the control condition, the attitude gap between chauvinists and feminists decreased slightly, although no significant changes were evidenced. The significant interaction term in a 2 × 2 unweighted means analysis of variance on the shift scores ($F = 8.10$, $df = 1/91$, $p < .01$) indicates that the polarization within the experimental condition was significantly greater than in the control condition.

As indicated in the introduction, the primary purpose of these two experiments was to seek convergent validation for the group polarization hypothesis. Although theory-testing was not structured into the experiment, a postexperimental questionnaire did solicit subjects’ perceptions of the group dynamics responsible for their attitude changes. Investigators have inquired about group mechanisms through experimental manipulations, but there are no reports of participants having been asked directly to introspect on what they have experienced.

At the end of the experiment, all subjects were asked: 'Do you think your discussion of the statements regarding women [about the hypothetical faculty people] had any effect on your feelings about them? If yes, could you state in a sentence or two what it was about the discussion that affected you?' The first interesting finding is that of those who discussed the role of women and then answered these questions, 46% answered ‘no’, compared with 11% of those who discussed faculty and then replied to the post-experimental questions. Evidently the more novel faculty stimulus materials yielded greater perception of attitude change than the much discussed topic of the role of women. The major objective of the post-experimental questions was to see whether subjects’ introspections of causal group dynamics would be more suggestive of the effect of interpersonal comparison of attitudes or of the sharing of rational arguments. Where possible, subjects’ answers were classified as indicating a social comparison effect (e.g. ‘Yes. The discussion made me have stronger feelings for or against the faculty members when I found that others in the group disagreed with me’) or an informational influence effect (e.g. ‘Several points I overlooked were brought out in the discussion. In several cases
this persuaded me to change my mind.\textsuperscript{)} While it was impossible to classify most answers into one or the other of these categories, subjects' perceptions of informational mechanisms outnumbered perceptions of social comparison effects by about 2:1. This, of course, could be purely the result of a greater tendency by subjects to attribute their behavior to rational, cognitive causes.

CONCLUSIONS

Experiments I and II together yield further support for the generalization that talking in small groups tends to enhance the mean initial attitude tendency. While this basic research on group-induced attitude polarization may provide some significant leads for our understanding of attitude polarization in society, it is important to call attention to some provable parameters of the phenomenon.

First, polarization of the group average does not necessarily imply extremization of individual responses (cf. Myers & Bishop, 1971), since individual group members may be converging inward even while the sample mean is polarizing. Second, research with choice dilemma items indicates that while the mean of initial responses to an item predicts the mean amount of shift on that item quite well, a particular group's initial mean on an item does not predict to any great extent how that group is going to shift on that item (cf. Myers & Areson, 1972). Thus while the initial tendency of the subject population tends to be polarized by the group interaction, this holds true only very weakly at the level of specific group decisions. Of course, when correlating the initial and shift scores of individual groups, one confronts not only greater variability than when correlating data averaged over group but also the increased likelihood of regression and ceiling effects. A particular group with an initial mean near the extreme simply cannot shift much further forward toward the extreme. Third, the major contending explanations of group-induced polarization, social comparison and informational influence theories, suggest that greater group influence may be expected on relatively novel and complex stimuli than on familiar, simple stimuli. In the latter case, subjects may be more accurately aware of others' positions and there will likely be less cognitive learning as a result of persuasive new arguments. Finally, informational influence conceptualizations suggest that while the mean initial tendency generally predicts the direction of shift (by giving an index to the direction of available arguments), it is possible to conceive of situations in which a known alternative A is initially favored over an unknown alternative B, but shift will occur towards B because of less prior awareness of arguments supporting B. In this case the potency of information generated in support of B might be greater than the potency of arguments of A.

These probable limitations notwithstanding, small group research on group-induced polarization might nonetheless potentially be related to practical application in ways hinted at by Janis & Hoffman's (1970) observations of the facilitating effect of daily communication between persons who share a desire to stop smoking and by Janis's (1972) suggestions of how to prevent 'groupthink'. If this research literature moves from laboratory to field it might also lead us to a better understanding of how one's social identity is strengthened by interaction with others who share his basic values, and sensitize us to the peril in this as well as the promise of small groups and subcultures polarizing following separation on the basis of shared values.

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**BIOGRAPHICAL NOTE**

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**Interpersonal Style and the Communication Dilemma: II. Utility of the Johari
Awareness Model for Genotypic Diagnoses**

**ABSTRACT**

The Johari Awareness model of interpersonal processes was
again employed as the theoretical framework for exploring the
ture of communicative processes in human systems. From
Hall's (1974) earlier series of studies of managerial use of the
Exposure-Feedback processes in organizations and personalistic
influences on communication effectiveness, the presence of
several underlying sources of variance was suggested. The
possible existence of genotypic factors -- as opposed to the
more commonly cited phenotypic effects which are manifested
-- was thought to have system-wide implications for commu-
icative practices, particularly at the level of systems diagnosis.
The present study was conducted to test for the presence of
three underlying unmanifested genotypic influences on com-
munication in organizations: (1) a security genotype, (2) a
neurotic genotype, and (3) a form-function genotype. Em-
ploying the *Personnel Relations Survey* and the *Management
Relations Survey* as assessments of personal and collective use
of the Johari processes of Exposure and Feedback, data were
collected from 1,114 managers regarding the security genotype
hypothesis, 200 subordinates of managers identified as relying
on significantly different interpersonal styles as a test of the
neurotic genotype, and from 1,530 managers representing 13
different organizational types as an assessment of the form-
function genotype. Results from the several multivariate
analyses conducted yielded strong support for both the exis-