Risky shift in a naturalistic setting

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The "risky shift" phenomenon has aroused considerable interest among social psychologists in recent years The label "risky shift" refers to the widely replicated finding that groups are willing to make decisions involving greater risks than are the individuals who make up the groups. This phenomenon was first discovered by Stoner (1961), and was systematically explored in a series of replications by Wallach, Kogan and Bem (1962), Wallach and Kogan (1965), and others (Blank, 1968, Pruitt & Teger, 1969) Most studies demonstrating the risky shift phenomenon have used the Choice Dilemmas task developed by Kogan and Wallach (1964) This task consists of twelve hypothetical life situations in which a protagonist has to choose between two alternative courses of action One alternative guarantees a safe outcome, whereas the other alternative, involving risk, may turn out to be very desirable or very undesirable The present experiment examines group and individual decision making in a more realistic context

The Choice Dilemmas task is apparently quite vulnerable to minor manipulations Thus, Clark and Willems (1969) failed to obtain the risky shift after eliminating one word from the original Kogan and Wallach instructions. In these instructions, the subject is asked, if he chooses the risk alternative, to "check the lowest probability that you consider acceptable . . . ." Clark and Willems (1969) claim that the word "lowest" orients the subjects towards maximal riskiness. The elimination of this word in their study did eliminate the risky shift. The authors' explanation is in terms of demand characteristics which exist when using the standard instructions (a) by using the word "lowest" the experimenter introduces directional expectations for the subjects' risk preferences, (b) the group discussion or information exchange arouse social processes that legitimize compliances with those

directional expectations. Clark and Willems (1969) conclude that the findings of all studies using the Kogan and Wallach choice dilemmas are instruction-dependent, and that the risky shift "can be produced or eliminated by demand by varying instructions which have been viewed simply as setting up the response format." This, of course, severely narrows the range of application of the risky shift phenomenon.

Freedman (1969) has cogently argued that asking the subject what he would do under hypothetical circumstances cannot serve as a substitute for real experimentation in which the subject is actually placed in the situation His basic contention is that people are very poor predictors of their own actual behavior. This argument would encompass the hypothetical situation used in most risky shift studies There have been only a few studies that have succeeded in demonstrating the risky shift in tasks different from the hypothetical choice dilemmas Wallach, Kogan and Bem (1964) found the risky shift when the risk involved an alternative of suffering side effects as well as loss of money Recently, Pruitt and Teger (1969) demonstrated that group discussion can produce a shift toward risk in choices among bets

A second methodological limitation of risky shift experiments, besides the use of the hypothetical life situations which the present study circumvents, is the use of repeated measures or an intrasubject experimental design By this design, the subjects take the measure two or three times, and the shift is defined by the change of scores of individuals' pre-discussion scores and the group consensus This research strategy runs the risk of the arousal of strong demand characteristics conveyed to the subjects by the experimental design (Ynon, 1970, Dion, Baron, & Miller, 1970)

There have been a variety of hypotheses offered to account for the risky shift phenomenon. the leadership hypothesis (Wallach, Kogan, & Bem, 1962, Nordoy, 1962, Rim, 1963, 1964), the diffusion of responsibility hypothesis (Wallach & Kogan, 1965), the familiarization hypothesis (Bateson, 1966, Flanders & Thistlethwaite, 1967), the rationality hypothesis (Clausen, 1965), the "Rhetoric of Risk" hypothesis (Brown, 1965) and the conformity hypothesis (Vinokur, 1969). Two of these hypotheses, the ra-

tionality hypothesis (Clausen, 1965), and the comprehension interpretation of the familiarization hypothesis (Flanders & Thistlethwaite, 1967) stress the notion of rationality. The essence of the rationality hypothesis is that the group discussion eliminates errors and increases the average level of information in the group The familiarization hypothesis argues that it is not the group process which creates the risky shift, but the intellectual or cognitive discussion per se. The basic assumption of these hypotheses, that it is the rationality factor which leads to the risky shift, is supported by the findings of Bateson (1966) and Flanders and Thistlethwaite (1967), who were able to elicit a risk shift from individuals asked to restudy the risk situation in preparation for group debate.

A number of studies, however, have cast doubt upon the significance of the rationality factor. In three studies (Wallach et al., 1964, Bem et al, 1965, Zajonc et al., 1968) the rationality factor was eliminated by equating the expected value (i.e, probability value multiplied by reward value) of the different risky alternatives Nevertheless, a risky shift was obtained in these experiments while in the Zajonc, et al (1968), the shift was toward conservatism when the probabilities of two events were 6 and .4, and a shift toward risk when the probabilities were .8 and .2. According to the rationality and familiarization hypotheses there should not have been a shift toward either direction Furthermore, Teger, Pruitt, St. Jean and Haaland (1970), and Bell and Jamieson (1970) failed to replicate the findings of Bateson (1966) and Flanders and Thistlethwaite (1967), placing in question the status of the familiarization hypothesis and of the rationality hypothesis as well.

Both the rationality and familiarization hypotheses imply that the group will make a more rational and more "considered" choice than the individual. One of the limitations of the standard hypothetical life-situation measure is that one cannot determine which is the more rational decision. The experiments cited which kept the expected value constant and did obtain the risky shift certainly weaken the argument of the rationality of groups, but in attempting to generalize this finding it must be kept in mind that in the "real" world, situations which present an alternative

of risk do not generally have a constant expected value. In addition, making it clear to the subjects that the expected value is constant may have had some impact on the results. The question is whether the risky shift is so potent a phenomenon that it can be demonstrated in a realistic choice situation in which the expected value is not constant, and the choosing of the risky alternative is contrary to the rational decision

The purposes of the experiment presented in this paper are (1) to reproduce the risky shift in an *inter*subject design, (2) to use a task which is analogous to commonplace choice situations, (3) to use a natural setting as free as possible of the danger of instruction dependence and laboratory cues and (4) to demonstrate that the risky shift is so potent a phenomenon that it will be obtained even though the choosing of the risky alternative is contrary to the rational decision.

Method

The experiment was conducted in one of the rooms in the student dormitories at U C L A, this location having been selected because it was considered to be an appropriate natural setting for the task involved. This task was the placing of long distance phone calls and offered a safe as well as risky alternative. Forty male volunteer subjects, undergraduate residents of the dormitory, participated in the experiment. There were two conditions—the Individual Condition and the Group Condition in which three subjects participated. There were in all 10 subjects in the Individual Condition and ten groups of 3 subjects in the Group Condition

The subjects were first told, "This is one in a series of studies designed to test the validity of common sayings We are dealing with the saying 'too many cooks spoil the broth,' and are thus comparing the performance of group versus the performance of individuals in various everyday tasks" The experimenter then gave each one of the subjects ten dollars. They were told that they had to reach a given individual, called Joe, eight times and would be permitted to make as many calls as they wished until they reached the criterion of eight successful calls The subjects were informed that "Joe" was alternating randomly between two rooms Actually, he was standing at two pay phones and was given previous instructions as to when to answer the phone, in this manner keeping the feedback constant for particular

trials for all subjects It was arranged that "Joe" would be reached eight times after fourteen calls had been made

The subjects were told that after they succeeded in reaching Joe eight times, regardless of how many calls they had to make, the money that remained from the original ten dollars was theirs They were given the choice of making a person-to-person call, which cost $1 20 only if they succeeded in reaching Joe but cost nothing if they failed to reach him On the other hand, they could make a station-to-station call, which cost 75¢ whether they succeeded in reaching Joe or not The experimenter acted as operator in collecting the money and in placing the calls

In the Individual Condition, the subjects were then given a record sheet and told to make and record their decisions before each phone call The instructions for the group continued as follows "Here is your record sheet Before each phone call, each of you should decide whether you wish to place a Person to Person or Station to Station call and in which room—room A or room B (The choice of the rooms was insignificant.) This decision is to be marked down in the 'Individual Decision' column on your sheets Then, after you have made and recorded your personal decision, the three of you will discuss together the various individual suggestions until you reach a consensus as to which call to place and in which room All of you should record this group decision in the 'Group Decision' column on your sheets In other words the process is individual opinion before discussion, discussion, and then the final decision. It is the group which will determine which call I will place and for which you must each pay"

In the choice given the subjects, the safe alternative is to choose to place all the calls person-to-person, for which 40¢ is guaranteed, and the expected value is also 40¢ The probabilities of winning various sums of money and the expected values for choosing to place all calls station-to-station are given in Table 1.

Combinations of person-to-person and station-to-station strategies would yield expected values between those listed above and the maximum expected value of 40 cents The safe decision is clearly the most rational decision. The "cover story" given in the introduction to the experiment, which emphasized the "performance of groups versus the performance of individuals," should also help direct the subjects toward the rational decision. In addition, the statement that what is being investigated is the common saying, "too many cooks spoil the broth," should cause the subjects to be wary of group influence

Table 1 Risk and possible gain on station-to-station calls

Number of trials	Amount	Probability	Expected value
8	$4 00	4%	1 6¢
9	3 25	2	6 5
10	2 50	4	10
11	1 75	8	14
12	1 00	12	12
13	25	16	4

Results

The results indicate a strong shift towards risk-taking in the groups' decisions as compared to those of the individuals' Out of the fourteen trials the groups placed an average of 10 7 station-to-station calls, whereas the individuals placed an average of 5.8 station-to-station calls ($t = 3\ 08$, $p < .01$, $df = 18$)

A trial by trial comparison between the proportion of subjects choosing the risky alternative between the Group Condition and the Individual Condition, using a test for the significance of the difference between two proportions (Spiegel, 1961), showed significant differences at the .01 level in nine trials, .04 level in one trial, and in four trials the difference only approached statistical significance ($p < .13$, see Figure 1) A similar analysis comparing the group decision to that of the individual recommendation made prior to group discussion showed no significant differences at all (see Figure 1) Further, there was a significant difference in ten trials at the .01 level, in three trials at the .04 level, and in one trial the difference only approached statistical significance ($p < .08$) in a comparison between the individual decision made in the Individual Condition and the recommendations of the individuals in the Group Condition (see Figure 1).

An interesting trial in this experiment is the initial one. In this trial, the decisions of the individuals in the Group Condition as well as in the Individual Condition are made prior to any group discussion. Three out of ten subjects in the Individual Condition chose the risky alternative, whereas sixteen out of thirty subjects chose the risky alternative on the first trial in the Group

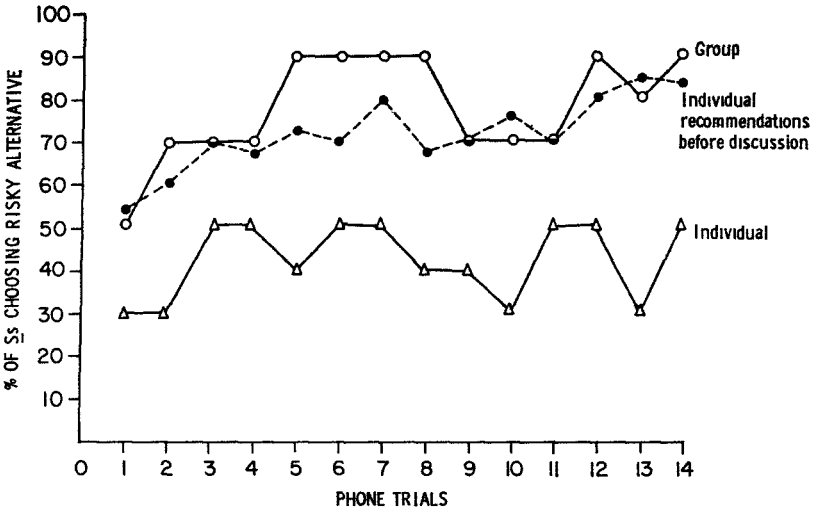

Figure 1 Trial by trial analysis of percent of subjects choosing risky alternative.

Condition. A test for the significance of the difference between these two proportions yielded a z score of 2.18, which is significant at the .03 level.

Discussion and Conclusions

The results provide clear evidence of the risky shift where the risky alternative was the less rational choice. It may be argued that since by choosing the completely safe alternatives subjects could win only 40¢, this amount was considered insignificant and thus the risk choices were entertained. First, it should be noted that this factor would be true for both the individuals and the groups, and thus could not account for the risky shift. Nevertheless, to circumvent this objection the feedback was controlled so that Joe would be reached three times out of the first four calls. Also, by controlling the feedback in this manner subjects would not be forced to place station-to-station calls after the first few calls because of lack of money. Seven of the ten groups could have decided after the four trials to continue placing just person-to-person calls, and they would have won between \$.75 to \$1.75. None of the groups decided to follow this strategy, although in

four cases this possibility was verbally expressed Three of the individuals were in the same situation, and two indeed decided to follow this strategy and continue with the safe alternative.

In attempting to explain why in certain situations a risky shift has not been obtained, Kelly and Thibaut (1968) argue that ". . . as the value of the prize is progressively exceeded by that of the stake, acceptable odds are further restricted to the conservative end of the risk continuum. Hence, little room would exist for shifts in either direction." It is clear from the data given above that in this experiment the stake in the risk alternative does not exceed the prize, and nevertheless a risky shift has been obtained

Similar findings to those obtained in this experiment have been reported by Ymon, Jaffe, and Feshbach (1969) In their experiment, subjects were faced with a situation that involved a choice between a safe alternative and a risky one which was also associated with the infliction of pain. An intersubject design was also used in their experiment and a risky shift was also obtained The experimenters found no significant difference between the individual and group decisions within the group condition, and a significant difference between the individual decision within the individual condition and group condition including the first trial, prior to any group discussion.

The present findings are inconsistent with the rationality and familiarization hypotheses which predict that the group will be more rational than the individual. The fact that no significant difference was found between the individual and group decisions within the group suggests that it is not the group dynamics which led to the risky shift Since the individual decision within the Group Condition is significantly higher than the individual decision in the Individual Condition beginning with the first test, the group discussion could not have led to the risky shift but rather it is the group situation which appears to be the major factor This is especially true since the group decision was riskier than the individual decision from the first trial, before any discussion had taken place.

The finding that individual decisions are riskier from the first trial within the Group Condition as compared to the Individual

Condition is contrary to what would be predicted from what may be considered the leading hypothesis of the risky shift, the "Risk as a Value" hypothesis (Nordhoy/Marquis, 1962, Brown, 1965). Stoner (1968) summarizes this hypothesis in the following way " . a) Individuals make their decisions in manners that are consistent with widely held values, b) Individuals consider their own decisions to be more consistent with widely held values than the decisions of other people similar to themselves (a self-chosen reference group), and c) group discussion and decision making will lead to individual and group decisions that are *still more* consistent with widely held values." This hypothesis argues that "a self-image maintainance" plays an important role in producing the shift towards risk It is reasoned that because individuals consider themselves to be greater risk takers than their peers, they shift toward higher risk upon arriving at the group discussion and discovering that there are people who are more risky than themselves. Since the individuals in the groups in the experiment presented in this paper were riskier even prior to the group discussion and to any information exchange, it was not merely the discussion which lead to the risky shift.

The findings of this experiment also have serious implications for some of the other hypotheses of the risky shift phenomenon. In a trial by trial analysis of the data, it was found that in 84 cases, or 60 percent of the total number of trials, the groups reached their decision by unanimous agreement, whereas in 40 cases, or in 28 6 percent of the total number of trials, this decision was reached on the basis of majority rule In only 9 cases, or 6.4 percent of the trials, was there a "surrender to risk," and in 7 cases or 5 percent of the trials, there was a "surrender to caution." This finding is clearly inconsistent with the leadership hypothesis, which argues that the risky members of the group are more influential and persuasive and "carry the group away."

Evidence of a risky shift from the very first trial is also inconsistent with the "Rhetoric of Risk" (Brown, 1965), and conformity (Vinokur, 1969) hypotheses. The former hypothesis shows that arguments favoring risk taking are more powerful than those favoring cautiousness. The latter hypothesis reasons that the risky shift might be a result of a process of conformity to the

majority opinion. Both of these hypotheses necessitate an exchange of information, a condition which is absent in the first trial of this experiment.

An alternative hypothesis to those previously cited may explain the risky shift obtained in this and in many previous experiments. The decision made by the subjects in the Individual Condition is a final one. In the Group Condition, on the other hand, the subjects are aware of the fact that their suggestions are first to be discussed, and some uncertainty exists as to whether their suggestions will be adopted This lack of finality and uncertainty of their decisions may encourage the subjects in the group situation to suggest the risky alternatives, especially since risk taking is a positive, widely held value (Madaras & Bem, 1968) Once the initial more risky suggestions have been made, seriously entertained and discussed within the group, it is more likely that the final group decision will also be riskier.

This hypothesis, which may be called the "Lack of Finality" hypothesis, argues that it is the uncertainty and lack of finality of the individual decision within the group coupled with the value of a risk that produces the risky shift The hypothesized relationship between uncertainty and risky choices has implications for a number of important social behaviors. Thus, Feshbach (1971) has suggested that uncertainty as to the outcome of aggressive events facilitates the adoption of risky alternatives which may result in extreme aggressive consequences, e.g., the element of uncertainty has been known to be employed in firing squads, where supposedly some of the rifles contain slugs, and in the electric chair, where not all of the switches may be operable. Similarly it has been hypothesized (Feshbach, 1971) that subjects would administer higher electric shocks to others when there is some uncertainty as to whether the victim is receiving every shock.

The relationship between uncertainty and risky choice requires empirical investigation and the systematic variation of uncertainty in group and individual contexts may help clarify the processes mediating the risky-shift phenomenon.

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