Proceedings of the Iowa Academy of Science

Volume 77 | Number

Article 44

1970

The Effect of Diffusion and Concentration of Responsibility on the Risky Shift Phenomenon in a Two-choice Situation

Gene F. Smith
University of Iowa

Thomas L. Radinsky
University of Iowa

The Effect of Diffusion and Concentration of Responsibility on the Risky Shift Phenomenon in a Two-choice Situation

GENE F. SMITH and THOMAS L. RADINSKY[1]

Abstract. The role of diffusion of responsibility in the production of the risky shift phenomenon was examined in a two-choice situation. Expected value of the two choices was held constant by varying payoffs inversely with their probabilities. After 100 trials alone, subjects were put into one of three conditions for the next 100 trials: Control Condition, Group Diffusion of Responsibility Condition or Group Concentration of Responsibility Condition. No significant shifts were found in any of these conditions. The Kogan and Wallach perdiction that diffusion of responsibility would lead to a greater risky shift was not supported. The results were consistent with Zajonc, Wolosin, Wolosin, and Sherman's contention that the utility of being correct produced a conservative shift in the group condition of their experiment. The findings of the present experiment imply that the risky shift phenomenon may not occur under all diffusion of responsibility conditions.

The risky shift phenomenon refers to the increased level of risk taking which has been found to occur as the result of a group discussion. Conversely, one would refer to a shift away from risk as a conservative shift. The instrument for measuring risk taking in most of the studies in which the risky shift phenomenon has been found is the Choice Dilemmas Questionaire. In this questionaire, which was first used by Wallach and Kogan (1959), each item describes a situation in which a hypothetical person must decide between a risky but attractive course of action and a more certain but less attractive alternative. The subject is asked to specify the mimimum probability of success he would demand before advising the hypothetical person to attempt the risky alternative. Each subject completes the Choice Dilemmas Questionaire twice. The first time provides a measure of his initial risk taking level and the second time is typically after a group discussion. In general the decisions following group discussions are riskier than the mean of the individual decisions.

One explanation of the risky shift phenomenon was proposed by Kogan and Wallach (Wallach & Kogan, 1965; Wallach, Kogan & Bem, 1962). According to the diffusion of responsibility hypothesis, members of groups should be inclined to support riskier decisions than individuals because the responsibility for potential failure is spread among the group members. Diffusion of responsibility is thought to weaken group members' concern with the negative aspects of the risky decision, thus enhancing its attractiveness. If

[1] University of Iowa.

308

1

the hypothesis is correct, responsibility should diffuse more readily in larger compared to smaller groups, in cohesive groups and in groups of anxious people, thus yielding greater risky shifts in these groups. Some evidence supporting these predictions has been found (Kogan & Wallach, 1967; Wallach & Kogan, 1965; Wallach, Kogan, & Bem, 1964).

While the diffusion of responsibility hypothesis assumes that the risky shift is a general consequence of making choices in a group, some evidence indicates that the conservative shift can also occur. While most of the Choice Dilemmas Questionnaire items tend to elicit a risky shift, a few of the items do elicit a consistent conservative shift (Myers, 1967). Why this should be is left un-explained by the diffusion off responsibility hypothesis. In addition to the fact that some items of the Choice Dilemmas Questionaire elicit conservative shifts, Zajonc, Wolosin, Wolosin, and Sherman (1968) have reported a conservative shift in a two-choice situa-tion. Unlike the situation with the Choice Dilemmas questionaire, in the Zajonc et al. study individuals made choices which had direct and immediate consequences for themselves. The subject's task was to predict which of two lights would occur on each of a large number of trials. One light, if predicted correctly, yielded a high payoff ($1\frac{1}{2}$ cents), while the other light yielded a low (1 cent) payoff when correctly predicted. The high payoff choice was correct on .6 of the tials, while the low payoff choice was correct on .4 of the trials. Thus on each trial an individual had to choose between a choice with a high payoff but a low probability of suc-cess, and one with a lower payoff but a higher probability of suc-cess. The payoffs and their probabilities of occurrence were ar-ranged so that the expected value of the two choices was equal. After a number of trials during which individuals worked alone, two conditions were formed. In one condition three individuals were brought together and required to reach a consensus decision on each trial. In the other condition individuals continued to work alone for the remaining trials. Groups exhibited a conservative shift while individuals did not change.

The present experiment was designed to provide a comparison of a diffusion of responsibility group condition with a concentra-tion of responsibility group condition in a two-choice situation. The Wallach and Kogan diffusion of responsibility hypothesis leads to the prediction of a greater risky shift in the diffusion of respons-ibility condition than in the concentration of responsibility condi-tion. The diffusion of responsibility condition in the present exper-iment is procedurally very similar to that of the Zajonc et al group condition. Consequently, a conservative shift would be expected on the basis of the results of the Zajonc et al study.

Zajonc et al suggested that an important contributor to their

findings may have been that in the group situation individuals placed value on making a correct prediction in addition to the value placed on the monetary payoffs. Since the conservative choice was correct more often than the risky choice, the conservative choice became preferred in the group situation. In order to focus on risk taking behavior as such, the rightness-wrongness factor was reduced in importance in the present experiment by using a situation where a payoff was given on every trial.

METHOD

Subjects

The subjects were 144 undergraduates (72 male and 72 female) from introductory psychology who participated to fulfill a course requirement. The subjects participated in the experiment in groups of three same-sexed individuals. Within each of the three conditions, 8 male and 8 female groups participated. Subjects were requested not to sign up for the same session as a friend.

Procedure

The three subjects were seated in separate rooms which had oneway mirrors from which the E could observe the Ss. In each subject's room was a control box on which two push-buttons were located. A vertical panel rose behind the push-buttons, at the top of which was a green pilot light labelled "choose." When the "choose" light came on the subject was to select and press one of the two buttons. Below the "choose" light was a digital display capable of indicating any one or two digit number. After the subjects had responded the display was illuminated for three seconds. During this time, the subjects recorded their payoffs on a sheet provided for this purpose. After three seconds the equipment reset, causing the display lights to go off and the "choose" lights to come on again.

The subjects' payoffs depended on which button they pressed. One button (the risky choice) gave a payoff of either 15 points with a probability of .30 or of 4 points with a probability of .70. The other button (the conservative choice) gave either a payoff of 8 points with a probability of .65 or of 6 points with a probability of .35. For half the subjects in each condition, the right-handed button was the risky choice and the left-handed button the conservative choice, while the reverse was true for the remaining subjects. The probabilities of occurrence of the payoffs were controlled by a tape reader. Three different tapes were prepared and one was randomly selected for each experimental session, subject to the constraint that each be used equally often in each condition.

The sequence of occurrence of the payoffs was random, except for the constraint that the probabilities be observed within each block of 20 trials. The stimulus events and subjects' responses were recorded on an 8-channel paper tape punch.

Experimental Conditions

All subjects were given 200 trials. For the first 100 trials, all subjects worked alone in their individual rooms. For the second 100 trials, subjects served in one of the following three conditions:

Responsibility concentration condition. After the first 100 trials subjects were told that the first part of the experiment was over. Two subjects were led to the room of the third subject, where the remainder of the experiment was conducted for all three subjects. Instructions were read in which it was stated that in the second part of the experiment one of the subjects was to make the decisions for the entire group. The decision maker was randomly chosen by drawing cards. To insure that the decisions were made only by the person selected, the other two people were told that they were not to communicate with the decision-maker in any way. A microphone was plugged in and the subjects were told that the session would be terminated if any communication occurred and that the *E* could monitor any violations of this restriction through the one-way mirror. In addition, the two non-decision making subjects were asked to position their chairs so that they could observe the payoffs.

Responsibility diffusion condition. After the first 100 trials subjects were told that the first part of the experiment was over. The experimenter then led the subjects from two of the rooms to the third subject's room, where the remainder of the experiment was conducted for all three subjects. Instructions were read to the subjects by which they were informed that in the second part of the experiment the group was to arrive at a consensus choice for each decision. All group members were urged to participate in the making of the decisions. One person in each group was randomly selected to press the button chosen by the group for each decision. To make this condition comparable to the concentration condition, a microphone was plugged in and the subjects were told that the experimenter could observe them through a one-way mirror in order to observe the decision making process.

Individual condition. After the first 100 trials subjects were told that the first part of the experiment was over. After a short pause, the *S*s were given additional brief instructions and a new score sheet on which to record their payoffs. Subjects in this condition then continued to work alone in their individual rooms for the second 100 trials. This condition served as a control for changes

which might occur over time without changes in the experimental conditions.

RESULTS

An 8 x 2 x 3 analysis of variance, with within factors of blocks of 25 trials and sessions and a between factor of conditions, was performed on the number of risky choices. None of the main effects nor any of the interactions were significant at the .05 level. The mean number of risky responses in the three conditions for the first 100 and for the second 100 trials are shown in Table 1.

An additional analysis employing t-tests was performed on the percentage shift scores. This analysis was performed to assess the possibility that a floor effect may have operated for some groups, thereby making a larger absolute conservative shift impossible. The results were the same as that of the above analysis of variance. Consequently, it appears that a floor effect did not play a significant role in the present experiment.

In addition, there were no apparent differences in the behavior of males and females.

TABLE 1.   MEAN PERCENTAGE OF RISKY RESPONSES IN THE FIRST AND SECOND SESSIONS IN EACH CONDITION.

	First session	Second session
Diffusion of responsibility	41.58	41.00
Concentration of responsibility	36.56	35.00
Control	35.43	33.93
Mean	37.86	36.65

DISCUSSION

The results of the present experiment do not support Kogan and Wallach's diffusion of responsibility hypothesis. No risky shift was found in a group condition with either a diffusion of responsibility or a concentration of responsibility. In this respect, the present results are in agreement with Zajonc *et al,* who also failed to obtain a risky shift in a two-choice situation. Thus a diffusion of responsibility hypothesis apparently cannot account for the behavior of groups in a two-choice situation with repeated trials.

On the other hand, the results of the present experiment did not replicate the finding of a conservative shift in the Zajonc *et al* study. One factor is that in the Zajonc *et al* study there was an initial risky bias which did not occur in the present study. The initial risky bias probably facilitated the subsequent finding of a

conservative shift. The initial risky bias in the Zajonc *et al* exper-
iment was most likely elicited because subjects were informed that
one choice, if correctly predicted, yielded 1½ cents and that the
other choice, if correctly predicted, yielded 1 cent. It seems plaus-
ible that people should prefer the 1½-cent choice to the 1-cent
choice, at least until they learn that payoffs are less likely with the
1½-cent choice. In the present experiment, no information was
given about the potential payoffs available in the situation until
the individual had sampled the choices. Thus no risky bias was
present in the initial trials of the present experiment.

The results of the present experiment are consistent with the
Zajonc *et al* proposition that, in their experiment, the utility of
making a correct prediction may have been more important in the
group than in the individual condition. For the prediction task used
by Zajonc *et al* one or the other choice was correct on every trial.
By giving a payoff for each response, the rightness-wrongness
dichotomy was lessened and without it no conservative shift oc-
curred.

However, the procedural differences between the present study
and the Zajonc *et al* study should not be over-emphasized. This is
because in a recent paper by Zajonc and his students (Wolosin,
Wolosin, and Zajonc, 1968) the conservative shift was not rep-
licated under conditions very similar to those of the earlier Zajonc
et al (1968) experiment. Clearly, it is now necessary to try to
specify the boundary conditions of the risky shift. One boundary
condition may be that the phenomenon is found only with verbal
materials like the Choice Dilemmas Questionaire.

Finally it should be noted that in all of the two-choice exper-
iments discussed here individuals were not responding only to the
expected value of the two choices. A clear preference for the con-
servative choice is uniformly present in all conditions of all exper-
iments. It may be that although people value riskiness and admire
others who take risks, when faced with actually making choices for
themselves, people prefer a conservative to a risky choice.

References

KOGAN, N., & WALLACH, M. A., 1967. Risk taking as a function of the
    situation, the person, and the group. In G. Mandler et al., *New direc-
    tions in psychology: III*. New York: Holt, Rinehart and Winston.
MYERS, D. G., 1967. Enhancement of initial risk taking: tendencies in
    social situations. Unpublished doctoral dissertation, University of Iowa.
WALLACH, M. A., & KOGAN, N., 1959. *J. Personal*. 27, 555-564.
————————————, & BEM, D. J., 1962. *J. Abnorm.
    Soc. Psych*. 65, 75-86.
———————— & ————————, 1965. *J. Exper. Soc. Psych*. 1,
    1-19.

————————————, ————————————, & ———— ————————, 1964. *J. Ab-*
norm. Soc. Psych. **68**, 263-274.
WOLOSIN, R. J., WOLOSIN, M. A., & ZAJONG, R. B., 1968. Social facilita-
tion effects in group risk taking. Paper presented at the Midwestern
Psychological Association convention, May, 1968.
ZAJONG, R. B., WOLOSIN, R. J., WOLOSIN, M. A., & SHERMAN, S. J., 1968.
J. Exper. Soc. Psych. **4**, 89-106.