MacLean, P. D. The triune brain, emotion, and scientific bias. In F. O. Schmitt (Ed.), *The neurosciences.* New York: Rockefellar University Press, 1970.

Mann, H. B., & Whitney, D. R. On a test of whether one or two random variables is stochastically larger than the other. Annals of Mathematical Statistics, 1947, 18, 50-60.

Mowrer, O. H. *Learning theory and behavior.* New York: Wiley, 1960.

Thompson, R. Localization of the "visual memory system" in the white rat. Journal of Comparative & Physiological Psychology Monograph, 1969, 69, Part 2, 1-29.

Thompson, R., Chetta, H., & DeDoux, J. E. Brightness discrimination loss after lesions of the corpus striatum in the white rat. Bulletin of the Psychonomic Society, 1974, 3, 293-295.

Thompson, R., & Pucheu, J. H. Disconnecting reticulocortical pathways: Amnestic effects on visual habits in the rat. Bulletin of the Psychonomic Society, 1973, 2, 165-166.

Thompson, R., & Thorne, B. M. Brainstem reticular formation lesions: Amnestic effects on learned habits in the rat. Physiological Psychology, 1973, 1, 61-70.

NOTES

1. Preliminary experiments in our laboratory revealed that the normal adult male albino rat spends from 70%-100% of the time in the dark compartment, that this preference is reduced to less than 50% following enucleation of the eyes, and that this preference is present in infant rats 1 day after weaning, but does not reach adult proportions until about 37 days of age.

2. Three rats with pallidal, two with hypothalamic, one with pretecto-diencephalic, and one with rostral reticular formation lesions failed to enter the dark compartment within 10 min. Their results were discarded from the analysis.

The nature of affective bonds and the degree of personal responsibility as determinants of risk taking for "self and others"*

YOEL YINON and AHARON BIZMAN
Bar Ilan University, Ramat-Gan, Israel

The hypotheses that (1) the nature of affective bonds among group members, and (2) the degree of personal responsibility for decisions made for "self and others" were determinants of the level of risk taken in making these decisions were tested in a field experiment. Ninety boys, aged 16-18, who were residents of a dormitory, made decisions in a card game which affected both themselves and two others. These triads consisted of boys who mutually (1) liked each other, (2) were indifferent to each other, and (3) disliked each other. It was found that Ss in the cohesive triads took fewer risks than members of the indifferent or hostile triads. Ss under a personal responsibility condition tended to take fewer risks than did Ss under a group responsibility condition. Contrary to expectation, no interaction was found between the two variables. The results were explained in terms of the living circumstances of the Ss.

One of the explanations offered in order to account for the risky shift phenomenon is the "affective-bonds" hypothesis, suggested by Wallach and Kogan (1965), as a modification of the earlier diffusion of responsibility hypothesis. They suggest that during group discussion, affective bonds are developed among group members, such that the feeling of personal responsibility for a potential negative outcome of a risky action is reduced.

Therefore, groups are willing to take higher risks than are the individuals who comprise them.

In a recent study, Dion, Miller, and Magnan (1971) manipulated group cohesiveness and hypothesized a larger risky shift under the high- than under the low-cohesiveness condition. The results proved to be counter to the affective bonds hypothesis showing a reduced risky shift under the *high*-cohesiveness condition. Nevertheless, this finding was interpreted by the authors, in a post facto manner, as supporting the diffusion of responsibility hypothesis.

They suggest that strong affective bonds make

<div align="center">

Table 1
Payoff Matrix

</div>

You guessed the card was	Card ≥ your guess You win points	Card < your guess You lose points
2	2	0
3	4	2
4	6	4
5	8	6
6	10	8
7	12	10
8	14	12
9	16	14
10	18	16
11 (Jack)	20	18
12 (Queen)	22	20
13 (King)	24	22
14 (Ace)	26	24

individuals less willing to blame their co-members for negative consequences of an advocated action and therefore reduce risky shift. In addition to this interpretation, one can agrue that in a highly cohesive group, the individual is apprehensive as to the reactions of his group co-members in case of failure, and thus he has much more to lose in terms of his social acceptance in the group than he has to gain, in the same terms, in a case of success. When the group cohesiveness is low, he has much more to gain from a success than to lose as a result of a failure. Therefore, the individual will tend to be more conservative under a high- than under a low-cohesiveness condition.

The traditional design used by most studies reported in the literature compares individual vs group risk taking when the individual or group must decide for another individual. There are only a few studies in which different situations involving risk taking were examined. For example, Wallach, Kogan, and Bem (1964) found that Ss took *fewer* risks when problem-solving outcomes affected the earnings of others than when these risks affected their own earnings.

A similar result was obtained by Zaleska and Kogan (1971), who compared betting decisions made individually, first for oneself and then for another person. On the other hand, Slovic, Weinstein, and Lichtenstein (1967) found no difference between the risk levels of bets wagered for self and for another person.

A slightly different situation was studied by Goldman (1967), who found that nurses who bet for *both* themselves and a mental patient were more conservative than nurses who bet only for the mental patient.

Finally, Zaleska and Kogan (1971) studied a situation in which individual decisions were made, which were in turn subject to a group discussion to consensus. The consequences of the group discussion determined the gains and/or losses of each individual member of the group. The results indicated that groups took higher risks than individuals. The authors' conclusion was that "whether choosing for one's own group or for others, group interaction facilitates a diffusion of responsibility

such that members' fear of personal responsibility for loss is reduced, thereby permitting greater risks to be taken. Where the group makes a decision solely for itself, however, the tendency toward responsibility diffusion is supplemented by the cultural value component [p. 211]."

Thus, it can be argued that an individual, who knows that he is *the only one* who decides for himself *and* others, will be less risky than an individual who knows that his personal decision regarding himself *and* others, will be weighed together with the decisions of the other group members.

Furthermore, it is possible that an additional factor exists in group responsibility, namely, the fact that the individual's role in decision making is masked, thus minimizing his own fear of guilt for a wrong decision.

However, on the basis of the interpretation given to their data by Dion et al (1971), and the additional explanation suggested by the present authors, this prediction should be qualified, taking into consideration the nature of the relationship among the group members. Consequently, one should be able to predict an interaction between the nature of the affective bonds among the group members and the degree of personal responsibility. Specifically, it is hypothesized that, when the individual likes his group members, the difference between the level of risk he takes under personal vs group responsibility will be the largest, and when he dislikes them, this difference will be the smallest. When his feelings toward his group members are neutral, the magnitude of the difference will fall in between.

The purpose of the present study is to test the above hypothesis, utilizing a field experiment, where the nature of the relationship among the participants is real and is not manipulated artificially in a laboratory, as has been done by Dion et al (1971).

METHOD

Subjects

Ninety boys, ages 16-18, who were students at the same 1-year trade school and lived together in a dormitory, served as Ss and were run individually.

Selection of Subjects

Two months before the actual experiment took place, a sociometric questionnaire was administered to all 300 students who were already divided into seven groups. It was explained to them that the counselers of each of the seven groups were planning a reorganization of the living arrangements according to the students' preferences. Therefore, they were asked to state, regarding each of their group members (the average size of a group was around 40 students), (1) whether they would like very much to live in the same room with him, (2) whether they did not care if they lived with him in the same room or not, and (3) whether they did not want to live in the same room with him no matter what the circumstances.

An analysis of these responses made it possible to set up triads of students according to the mutual feelings they expressed toward each other in the questionnaires. Thus, three kinds of triads were selected: cohesive (all members very much like the idea of living together), neutral (all members expressed mutual

indifference about living together), and hostile (all members strongly rejected the idea of living together). Ten triads of each kind were selected randomly for participation in the experiment. For each kind of triad, five were randomly assigned to the personal responsibility condition, and the other five to the group responsibility condition. Thus, an experimental design of 3 by 2 was utilized, with 15 Ss per cell.

The Decision-Making Task

The E presented the S with a randomly arranged deck of 26 cards (there were three random arrangements, alternately used by the E after every fifth S) and with the payoff matrix (see Table 1). The S was asked to guess the value of each of the cards before the E lifted it. He won or lost points according to the payoff matrix. It was clear to the Ss that, as they guessed a higher number, they might win more points, but the possible loss was also larger. The safe way to accumulate points without loss was to guess 2 constantly.

The Manipulation of Personal-Group Responsibility

Personal Responsibility. After explaining the guessing game, the E told the S that he was with two more boys in a group (indicating their names) and that the points for the whole group would be calculated on the sole basis of *his* guesses. He was told that the other two group members were not playing the game.

Group Responsibility. The E told the S that the points for the entire group would be calculated as the average of the points of its three members, and that nobody would ever know what the contribution of any of them was to the group result.

The Group Prize. All The Ss were told that the group with the largest number of points would be entitled to a free evening plus movie tickets. It was verified that this prize was very desirable for the boys.

Procedure

The experiment was run simultaneously in three separate rooms in the dormitory by three Es. All the Ss were gathered into a large hall in which they watched TV, and from there, they were sent to the different rooms according to a previously arranged list. This was done in two consecutive evenings. The winning triad indeed received the promised prize several days later.

RESULTS

As the measure of risk taking was the numbers guessed by the Ss to be on the cards, the mean score of 26 guesses was computed for each S in the different experimental conditions. The mean scores of these means appear in Table 2.

A two-way analysis of variance was performed on the mean scores of guesses for all 90 Ss, showing the results below.

The main effect for personal vs group responsibility only approached significance (F = 3.00, df = 1,84, p < .10), showing that there was a tendency among the individuals under the group responsibility condition to be more risky than those under the personal responsibility condition.

The main effect for the nature of the affective bonds among group members was significant (F = 4.77, df = 2,84, p < .025).

A Scheffé test showed that there was a significant difference (p < .01) existing between the cohesive vs the

Table 2
Mean Guess and Standard Deviation for Experimental Conditions

		Cohesive Triads	Indifferent Triads	Hostile Triads
Personal Responsibility	Mean	6.2	7.3	7.3
	SD	1.7	1.1	1.1
Group Responsibility	Mean	7.1	7.6	7.2
	SD	0.9	1.1	0.7

Note—The higher the number, the greater is the risk.

indifferent and hostile triads; however, no significant difference was found between the indifferent and hostile triads.

There was no interaction between the nature of the affective bonds and the degree of personal responsibility (F = 1.6, df = 2,84, p < .20).

DISCUSSION

The results of the present field experiment supported partly only one out of three hypotheses. It was found, in line with Dion et al (1971), that when the Ss liked their group co-members, they took fewer risks as compared to the risks they took when they were indifferent or hostile toward them.

The fact that no difference was found between the level of risk taken by the Ss in the indifferent and the hostile triads can be explained in terms of the specific circumstances under which these Ss were living.

It should be remembered that all of them were living under the same roof, knew who the two other group members were, and had to interact very intensively with each other long after the experiment was terminated. Thus, it might be that Ss in the hostile triads exhibited a relative conservatism because they wanted to avoid future negative reactions of their disliked team members in case they did not get the prize. These reactions could be direct, such as blaming or beating, or indirect, such as a bad reputation among his peers in the entire dormitory. This consideration, if it did exist, might explain why the expected interaction between the nature of the affective bonds among the group members and the degree of personal responsibility was not obtained. An additional experiment, in which Ss can be hostile but will not be forced to interact intensively with each other, might clarify this issue.

REFERENCES

Dion, K. L., Miller, N., & Magnan, M. A. Cohesiveness and social responsibility as determinants for group risk-taking. Journal of Personality & Social Psychology, 1971, 20, 400-406.

Goldman, A. R. Vested interests and their influence upon risk-taking under conditions of social responsibility. Paper presented at the Eastern Psychological Association, Boston, 1967.

Slovic, P., Weinstein, M. S., & Lichtenstein, S. Sex differences in the risks a person selects for himself and the risks he selects for someone else. Research Bulletin No. 10, Vol. 7, Oregon Research Institute, Eugene, Oregon, 1967.

Wallach, M. A., & Kogan, N. The roles of information, discussion and consensus in group risk-taking. Journal of Experimental Social Psychology, 1965, 1, 1-19.

Wallach, M. A., Kogan, N., & Bem, D. J. Diffusion of responsibility and level of risk taking in groups. Journal of Abnormal & Social Psychology, 1964, 68, 263-274.

Zaleska, M., & Kogan, N. Level of risk selected by individuals and groups when deciding for self and for others. Sociometry, 1971, 34, 198-213.