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ABSTRACT

The study evaluates the effectiveness of a set of social studies activities in promoting cooperative interaction among junior high school students. A field experiment was designed to test three hypotheses: (1) groups which have previously worked together structure tasks more cooperatively than a newly formed group: (2) groups which have participated in curricular activities structure a given task more cooperatively than groups which have not participated; and (3) cohesiveness is greater among groups which have worked together on all curricular activities. Two experimental groups and one control group of randomly assigned 7th grade social studies students participated in five cooperative activities, involving puzzles, pantomime, and establishing game strategies. The first phase of the study took place in regular classrooms and was videotaped. During the evaluative phase of the project, one week after completion of the first phase activities, students discussed game rules, participated in a simulation, and rated group performance. Data were collected from the initial class activities and discussion, videotapes of group processes during the simulation, and a questionnaire filled out after the simulation activity ended. Findings indicated that children do organize a cooperative strategy for carrying out activity if they perceive that cooperation provides the greatest potential rewards. However, being trained together does not increase group cohesiveness. It was concluded that cooperation can be initiated by tasks that are intrinsically interesting. (Author/DB)

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Intrinsic Rewards and Learning for Cooperation

(HYP/EVA)

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INTRINSIC REWARDS AND LEARNING FOR COOPERATION*

The problem of cooperation in small groups has been of long-standing interest to both social scientists and educators. The former have documented the positive effects of cooperative tasks on people and have contributed to the development of theory in this area (Deutsch, 1949 and 1962; Raven and Eachus, 1963; Marwell and Schmitt, 1975; Convinser, 1973). Educators have encouraged the utilization of cooperative small groups in the classroom as a viable form of classroom organization. They have, however, been slow to provide guidelines for initiating cooperative interactions in the classroom or to use the theoretical principles of cooperation for the development of curricular activities which foster cooperation (Cohen, 1972; Johnson and Johnson, 1974).

The present study was undertaken to evaluate the effectiveness of a set of curricular activities in producing cooperative interaction among junior high schoolers. The activities were originally designed for use in an integrated junior high school summer program (Cohen, Lockheed, and Lohman, 1974). The materials were developed to provide an atmosphere which could prevent invidious comparisons occurring among the youngsters.

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Eight graduate students at the School of Education, Stanford University, gave their time and energies at various stages of the project; the contributions of Barbara Bednarz, Jennifer Franz, Maria Ros Garcia, Edrick Haggens, Mary Nur, Marcia Laris, Al Robbins, and Gary Sykes are appreciated. Colleagues James L. Deslonde and Elizabeth G. Cohen offered critical comments and support.

Results of the summer school evaluation indicated that the cooperative curriculum may have also acted as a treatment in status equalization. We also wanted to find out whether the rigorous procedures of training the children together was necessary for classroom application.

THEORETICAL FRAMEWORK

Analysis of the structure of classroom tasks and how rewards are distributed provides us with both a method for developing such curricular activities and a way to test the effectiveness of the intervention.

Task Structure

The empirical work of Breer and Locke (1965) presents convincing evidence that skills and attitudes are learned in the context of the tasks that people do. Their work points to the importance of the way classroom activities are structured. There is a large literature concerned with the experimental manipulation of task structure which suggests that several structural elements are critical in the design of cooperative activities.

Interdependence of Goals. Early work by Deutsch (1949) provides insight into one of the elements of this process. He defined a cooperative social situation as one in which all individuals can obtain their goals. The movement of any individual toward a goal increases the possibility of others reaching that goal. He found that subjects in a cooperative endeavor showed less hostility toward their fellow group members, enjoyed the task more, displayed a greater motivation, and completed the task more efficiently than those in a task situation in which goals of one

member were inversely linked to that of another member (a situation which is commonly called competitive with respect to goals). General support for these findings is provided by the work of Grossack (1954), Hammond and Goldman (1961), and Smith, Madden, and Sobel (1957). Other studies, however, agree with only some aspects of Deutsch's findings. Shaw (1958), for example, found that the group and individual competitive conditions created more motivation as well as greater productivity among group members than the purely cooperative conditions.

Interdependence of Means. An insightful analysis by Thomas (1957) of the differences in the structure of the experimental tasks reconciled the discrepancies between Deutsch and Shaw in their findings and predictions. He pointed out that, in the discussion tasks utilized in Deutsch's research, the exchange of information and ideas was crucial to efficient task completion. By contrast, in the studies by Shaw, subjects operated on parallel but means-independent tasks. In other words, the "cooperative" task in Deutsch's original study can be thought of as having both interdependent means and goals while the "cooperative" task in the experiments by Shaw had independent means and interdependent goals. All of the studies favoring competition over cooperation did not require interdependence between participants for task completion, while the studies favoring cooperation did. Raven and Eachus (1963) experimentally confirmed the importance of means interdependence in the structure of the task. This distinction has been integrated into Deutsch's (1962) most recent statement of his theoretical position.

Intrinsic Rewards and Motivation. Most of the experimental studies reported in the literature use a system of rewards as the experimental manipulation. In the "cooperative" condition, for example, all children are rewarded equally for completing the task; in the "competitive" condition, only some of the children are rewarded (Kogan and Carlson, 1969; Madsen and Shapira, 1969; Kogan and Madsen, 1972; Richmond and Weiner, 1973; Raven and Shaw, 1970). Thus, with only a few exceptions, the children are working for external rewards (cf. Shaw, 1958). The importance of the reward system is highlighted in the recent work of Deci (1971; 1973). His work indicates that some extrinsic rewards, such as money, will reduce intrinsic motivation to perform a task at some future time. However, if tasks are chosen which are intrinsically interesting, thus motivation for continued performance is higher, reducing the necessity for extrinsic rewards. This suggested the advisability of utilizing tasks which were intrinsically interesting, if the curricular activities designed to foster cooperation were to have any lasting impact in a classroom.

Cooperation As A Response To Situational Cues

Based on many years of research, Mead (1937) has stated that "competitive and cooperative behavior on the part of individual members of a society is fundamentally conditioned by the total social emphasis of that society." In separate cross-cultural studies, Doob (1952) and Bronfenbrenner (1970) have reinforced her findings, concluding that both competition and cooperation are behaviors learned in a societal context. Others have shown that differences in the tendency for children either

to act cooperatively or competitively may be the result of socioeconomic background (McKee and Leader, 1955); urban-rural difference (Madsen, 1967; Madsen and Shapira, 1970; Nelson and Kagan, 1972); ethnicity (Sampson and Kardush, 1965); or grade in school (Richmond and Weiner, 1973). This literature suggests some of the factors that must be controlled in studying cooperation and points to the school as a place of intervention.

The epic work of Robert Dreeben (1968) suggests that the school teaches social norms of cooperation in a number of ways, for example, grades, oral recitation, and group work equated with cheating. If, in most classroom tasks, rewards are maximized for the child acting competitively, then it should not be surprising that children emerge from the schools with a competitive orientation, regardless of the orientation they held upon entering school.

If we start out with the basic assumption that attitudes and skills are learned in the context of tasks, then the classroom opportunities provided children must be examined. The theory of social exchange (Homans, 1951; Meeker, 1971; Conviser, 1973) suggests that an individual's decisions are made after a careful analysis of the costs and benefits of each alternative course of action. The individual will select the course of action which has the greatest potential return. In making this selection, the situation is analyzed, predictions are made about decisions of others involved, others are evaluated in relationship to oneself, and prevailing situational norms are considered.

When activities are means interdependent, the child has an opportunity to evaluate the others and decide whether they have necessary skills

that (s)he does not possess, possess other valued characteristics, can be trusted, and so forth. This is not possible when tasks are means independent. Thus, means interdependence allows opportunities to decide on which course of action will be most profitable for the individual concerned. Increased opportunities to work together in the group appear to have beneficial consequences for the participants (Hall, 1971).

Task goals are another source of information for the child. When goals are competitive, it is not in the child's interest to cooperate. Alternatively, if goals are interdependent, it is in his best interest to cooperate.

Finally, a clear message about which course of action is most profitable results from an examination of how rewards are distributed. Thus, situational information exists in an analysis of the classroom task and in the opportunities of working with other participants that forms the basis of the child's decision-making.

Research Questions

Based on our objectives and the research noted above three questions were posed for evaluating curricular activities:

(1) Given a task which was structured neither cooperatively nor competitively, groups which had previously worked together on all curricular activities would structure the task more cooperatively than groups which did not work together.

(2) Given a task which was structured neither cooperatively nor competitively, groups which experienced the curricular activities would structure the task more cooperatively than groups which did not.

(3) When groups have worked together on all curricular activities, cohesiveness is greater than when groups have not worked together.

RESEARCH DESIGN

A field experiment was designed to test the three hypotheses. The basic design principles were (1) the division of the experience into an intervention phase (Phase One) and an evaluation phase (Phase Two) and (2) the use of a control group and two experimental groups.

During Phase One, the two experimental groups participated in the curricular activities. The activities were conducted by their classroom teachers, replacing the social studies curriculum for six 45-minute classes during a two week period. Students assigned to the Control condition received their regular social studies course work during Phase One. Two precautions were taken to reduce the probability that children would associate the intervention with the subsequent evaluation: (1) students did not come into contact with members of the research staff during Phase One and (2) Phase Two did not take place until at least one week after the last activity was completed.

The two experimental groups differed in the amount of experience the members had working together. Children assigned to the Established Groups had more experience working together. Once assigned to a group, the children remained with that group during both phases of the experiment. In the Ad Hoc Groups condition, membership of groups changed during both phases, thus, members had less experience working together.

The Sample

Composition of Sample. The relatively homogeneous urban composition of the school district in which the study took place allowed for natural

controls on the variables of ethnicity, age, socioeconomic status, and urban-rural residence (Sampson and Kardush, 1965; Madsen, Nelson and Shapira, 1967; McKee and Leader, 1955; Richmond and Weiner, 1965). The children were between eleven and thirteen years of age. Both boys and girls were included in the study so that variability in cooperativeness by gender could be explored.

Selection of Classrooms. Eight seventh-grade social studies teachers from the three junior high schools in the district agreed to participate. Included in this group were all of the teachers from one junior high who taught seventh-grade social studies, two teachers from a second school, and one teacher from a third. Although it was considered desirable for a teacher to have three classrooms so that classrooms could be randomly distributed among conditions, teachers with two classrooms also participated. The distribution of classrooms for each condition and for each teacher is shown in Table 1.

TABLE 1 ABOUT HERE

Classrooms were randomly assigned to conditions. More classrooms were assigned to each of the experimental conditions than to the Control condition, and more classrooms were assigned to the Established Groups condition than to the Ad Hoc Groups.

Assignment of Students to Groups. Individuals were randomly assigned to four-person groups within each classroom. Three criteria were used in the assignment: (1) groups were composed of members of the same sex, (2) friends were not assigned to the same group, and (3) only Anglo-

American individuals were assigned to groups for the evaluation phase. Thus, three bases of status differentiation were controlled for sex, ethnicity, and friendship. So far as possible, rotation of individuals assigned to Ad Hoc Groups eliminated the same persons from participating in more than one activities together.

Loss of Subjects and Groups. There were two major causes of loss of treated groups for the second phase of the study. The first cause was a flu epidemic which accounted for the loss of four groups, or a 4% loss. Human error which occurred prior to the second phase of the experiment accounted for the loss of three more groups, or a 3% loss. Anticipated loss of Established Groups did not occur. Instead, most of the losses occurred in the Control and Ad Hoc conditions. Mechanical error in the video recording equipment resulted in the loss of data rather than of groups. The final sample consists of 100 groups. The distribution of these groups by sex and condition is shown in Table 2.

TABLE 2 ABOUT HERE

The Tasks

The Intervention Tasks. The curriculum consisted of a series of activities which required cooperation for their completion. The first two activities, "Lost on the Moon" and "Broken Squares" (Hall, 1971), have been widely used in adult groups as well as with children. Two of the activities (Puzzle and Pantomime) had been developed earlier (Bloom and Stulac, 1972), and the final activity, "Survival", was developed for

the study. The contribution of the activities toward understanding and experiencing cooperation is discussed below.

(1) Group efforts produce higher quality results than do individual efforts. Students were asked to do a task individually and then collectively. The efficiency and quality of the two outcomes are compared and discussed. The NASA "Lost on the Moon" game, used by seventh graders, demonstrates this principle (Hall, 1971).

(2) The contribution of each member assists the other members in moving toward their common goal. Two of the activities effectively conveyed the importance of each member's contribution for task completion. The most famous and commonly used activity to demonstrate this principle is "Broken Squares", which was originally developed by Bavelas (1968). The students also had to put a puzzle together in order to find out the instructions for completing the "Broken Squares" activity.

(3) Each member utilizes different and unique skills while cooperatively contributing to task completion. The use of group mime to convey a message demonstrates this principle well (Bloom and Stulac, 1972).

(4) One must perceive a task as requiring cooperative efforts for efficient task completion. The "Survival" simulation is played by individuals or groups and demonstrates the differential advantages of cooperative and competitive interaction.

The new activity, "Survival", was pretested during its development: first, to develop the activity, and second, to pretest the teacher instructions. In addition, the entire procedure, including the skills training minicourse, was field-tested prior to the actual study.

The Evaluation Task. "Ice Floe" is a simulation activity, adapted for research purposes from an existing one. It is a board activity that simulates a seal hunt among Eskimos. The board, a simulated ice floe, looks somewhat like one used in Chinese Checkers. In some of the holes "seal meat" is placed. A cover over the board prevents the players from seeing where these seal meat stickers have been placed. The players take turns poking holes in the board to try and catch seals. Each player has twenty turns "hunting". Unsuccessful hunters "starve" if

they cannot get food and can also "die" and be out of the activity. There are strategies that hunters can use if they band together. The children planned their strategies by combining options from three types of rules: (1) rules for allocating seal meat stickers (sharing), (2) rules for deciding where they would hunt (territorial rules), and (3) rules for determining who would participate in decisions regarding hunting strategies (planning).*

Procedures

The Intervention Task. A week prior to the commencement of the intervention phase, the teachers participated in a training session. They were shown how to use the curricular activities. They discussed and tried out alternative methods of handling potential problems. They were also given a manual of lesson plans. The teachers were reimbursed for the time spent in the training and preparation necessitated by the study.

While the research staff often consulted with the teachers during the intervention phase, they did not go into the classrooms. The teachers conscientiously separated the activities of Phase One from those of Phase Two so that the children would not connect them.

The Evaluation Phase. The second phase of the experiment took place one week after the completion of the first phase activities.

*In pretesting, we discovered that developing rules for the activity was an extremely difficult procedure for children of this age. Therefore, we made up three types of rules and four to five options from which to choose.

Pre-selected groups of children were excused from class to participate. To prevent bias, two precautions were taken: (1) random seating patterns during the experiment and (2) tape-recorded instructions by an individual of the same gender as the participants.

The evaluation phase can be divided into three parts. During the first part, a five-minute group discussion took place to select task rules. After the task rules were selected, the students participated in the simulation activity. Finally, the participants were given a questionnaire in which they were asked to rate the performance of the group members on a number of dimensions. At the end of the experiment, the students were asked to keep the experiment confidential. Discussions with other students and with the teachers indicate that they did. The second phase took approximately thirty minutes.

The Experimental Environment. The study took place within the facilities of three junior high schools in the same district. The first phase occurred in regular classrooms. For the second phase, the school provided either empty classrooms or multi-purpose rooms.

Through the use of room arranging and remote microphones, it was possible to run two groups at once. Although the instuctions were on tapes and the procedures were videotaped, it was necessary to have a member of the research staff run each group. This person was of the same gender as the group members (Kruse, 1972).

Although the groups were videotaped, there are several reasons why we do not believe that use of the equipment created bias. The equipment was in place when the subjects arrived and, since it could be turned on from a distance, little attention was paid to it by the research staff.

Second, all of the students had previous exposure to the equipment at the school. Third, there was a time lapse between turning the equipment on and collecting the data. Finally, observations of the research staff indicated that few students were aware that the equipment was being used.

Data Collection

Data were collected from three sources: (1) the initial group discussion, (2) videotapes of the group process during completion of the simulation activity, and (3) a questionnaire filled out after the simulation activity ended. Potential experimenter effects were controlled by (1) the scorers of the groups were unaware of the hypothesis being tested and (2) one member of the team did the scheduling, using a single-blind system which precluded either the coordinators of the groups or the scorers of the videotapes from knowing to which condition a particular group belonged.

Task Rules. During the initial group discussion, rules to guide the completion of the simulation activity were selected. These rules indicate whether the group was cooperatively structured. Each group selected one option for each of three rules: (1) a sharing rule which determined how food would be allocated during the hunt; (2) a territory rule which concerned the possession of hunting rights; and (3) a strategy rule which determined the amount of interdependence among the hunters in planning hunting strategies. Only one of the multiple options for each task rule was an indicator of cooperation; the others, while indicating increasing degrees of collaboration, were inconsistent with our definition

of cooperation.

The Measurement of Behavioral Cohesiveness. Behavioral cohesiveness is an indicator of the trust developed in the group. It was measured while the groups participated in the simulation activity. The observers coded the socioemotional participation in the group, using the Roter (1970) modifications of Interaction Process Analysis (Bales, 1951), from videotapes of the group while it completed the simulation activity. While there are a number of ways to define social cohesion using combinations of the categories, each implies ad hoc philosophical assumptions. The measure closest to Bales' theoretical definition is group solidarity. The scorers coded all acts, defined as uninterrupted speeches, classified as Group Solidarity.

Interobserver reliability was determined by independent scorings of the same group. One-third of the groups were double-scored, using a Chi Square of $p < .90$ as the cut-off for reliability. Data from this measure were used to test the last hypothesis.

The Measurement of Perceived Cohesiveness. Group members' perceptions of cohesiveness of the group is a second indicator of the development of trust within the group. This measure is a Guttman scale used by Heinicke and Bales (1951). The three items from their scale included in the questionnaire are:

1. The atmosphere in this group is pleasant and congenial.
2. The morale of this group at this point is high.
3. This is one of the best groups I have worked in.

This scale is also used to test Hypothesis 3. Its reproducibility was 0.94 and its scalability was 0.63.

RESULTS

The group is the unit of analysis and is treated as an independent sample; that is, the fact that groups have different teachers is not taken into account. In the analysis of the data to test the first two propositions, namely the relationship between the treatment and the selection of task rules, data are collected for groups only. The analysis of the data relevant to the last proposition is based on both group and aggregated individual data.

Prior to combining the samples of groups of boys and girls, the analysis of the effect of gender is carried out. When differences exist, results are reported separately.

Effect of Type of Training

(1) Given a task which was structured neither cooperatively nor competitively, groups which worked together on all curricular activities would structure the task more cooperatively than groups which did not work together.

The theoretical framework suggests the importance of trust in an individual's decision to select a cooperative course of action. When members of groups have had previous experience in working together, they will be better able to predict the actions of others and are therefore able to determine whether it is to their advantage to cooperate or not. Children who had been in the same group during both phases of the study (Established Groups) had more opportunity to observe the other members in their group than did the children who had been in different training groups during both phases of the experiment (Ad Hoc Groups).

The first step of the analysis is to examine whether differences in

the responses of the male groups and the female groups for each rule can be attributed to chance. A very simple way of doing this is by comparing the responses of the male groups with the female groups. The data were dichotomized because the responses in many of the options were small and the sample size is small. Responses were dichotomized into the "most cooperative" response versus "all others". The Chi Square statistic was used to determine the significance of the relationship between the variables of sex and choice of cooperative rules. None of the Chi Squares for the three kinds of groups and the three types of rules approach significance.

Table 3 shows the results of the analysis of differences between treatments.

TABLE 3 ABOUT HERE

For both the territorial rule and the strategy rule, a greater proportion of the Ad Hoc Groups selected the cooperative rules than did the Established Groups. The difference is thus not in the predicted direction. None of the relationships were found to be statistically significant using Chi Square. The data do not confirm the prediction.

Effects of Training on Task Structure

(2) Given a task which was structured neither cooperatively nor competitively, groups which experienced the curricular activities should structure the task more cooperatively than groups which did not.

Since there are no significant differences between the two types of training, the data were combined for the present analysis. Again, the

measures of rules are collapsed to "most cooperative" ruled and "all others". The results of this analysis are found in Table 2. Twenty percent more of the treated groups chose the most cooperative of the sharing rules than did the nontreated groups. Using the Chi Square statistic as a measure of the strength of the relationship indicates that the probability of this strong a relationship would occur by chance 5 to 10 percent of the time. A similar trend is found for the choice of territorial rules:

TABLE 4 ABOUT HERE

treated groups selected the free territory in 21 percent more of the groups. As indicated in Table 4, the results are statistically significant. A much weaker relationship is found in the data for the strategy rule. The treated groups were more likely to select the highly interdependent strategy rule than were nontreated groups. Although this relationship is not statistically significant, it is in the predicted direction. For all three of the rules, the relationship is in the predicted direction, but the relationships are not significant in two of the three.

Another procedure for examining the way the groups structured the task is by looking at the combination of rules that each group chose. There are approximately 80 possible combinations of rules that the groups could have selected. In fact, the groups did select 38 different combinations. These combinations were collapsed into five categories, using a category system independently developed by two members of the research staff. (There was surprisingly little disagreement on the classifications and those existing were jointly settled.) The values of

the resulting scale range from one to five, with the most cooperative set of rules given a value of five. The mean value of the rule sets for the Established Groups is 3.14, for the Ad Hoc Groups 3.17, and for the Control Groups 2.4. This suggests that treated groups were more likely than nontreated groups to structure the task more cooperatively. No significance testing was carried out for this analysis.

Group Cohesion and Type of Training

(3) When groups have worked together on all curricular activities, cohesiveness is greater than when groups have not worked together.

If feelings of trust have developed among the members of the group that received their training together, these feelings will be reflected in the way the members interact with one another and in their perceptions of cohesiveness. Two indicators of the groups' cohesiveness were measured: A behavioral measure and a perceptual measure. Each indicator will be considered separately. The relationship between the measures is also presented.

Behavioral Measure of Group Cohesion. Measures of behavioral cohesiveness are determined by counting the number of socioemotional acts in each category. The contribution of each activity category is calculated into a percentage of the total acts for each group. Each activity category is summed across a condition and divided by the number of four-person groups in that condition. This procedure is followed in order to weight all groups equally. The resulting mean percentages for group cohesiveness are found in the first column of Table 5. A small difference is found

TABLE 5 ABOUT HERE

between the nontreated groups and the two treatment conditions. Contrary to prediction is the fact that the Ad Hoc condition exhibits more group cohesion than does the Established Group. These data do not confirm the third prediction.

Another way of looking at the data is to consider whether cohesive behavior is related to the ways in which the group structured the task. For each sharing rule, a mean percentage of cohesive acts is calculated by condition. The results of this analysis are found in Table 6. In general, the greater the amount of interdependence in the structuring of the rules, the higher the mean percentage of group cohesion. The only

TABLE 6 ABOUT HERE

reversal is found for the "limited sharing" rule in the Ad Hoc condition, which is slightly higher in cohesiveness than is the "unlimited sharing" rule. These findings suggest an interaction between behavioral cohesion and choice of rules. In other words, while training affects choice of rules, it may only partially explain differences in cohesiveness between groups.

Perceptual Measure of Group Cohesion. Individuals' perception of their group's cohesiveness are measured by a three-question Guttman scale which the participants answered after completing the simulation activity. Prior to the hypothesis testing, data were analyzed to determine whether the perceptions of the group were valid measures of the feeling tone of the group. The Hartley test was applied, with the results indicating that the samples were homogeneous (Walker and Lev, 1953).

One-way analysis of variance was applied to each condition. The F tests for all three analyses are significant with a $p < .01$, indicating that there is a high degree of congruence between the members' perceptions in each group.

If training together increases the cohesiveness of a group, a higher level of perceived cohesiveness should be found in the Established Groups as compared to the Ad Hoc Groups. A summary of these means is found in column 2 of Table 5. The mean level of perceptual cohesiveness is slightly higher (2.55) in Established Groups condition than in the Ad Hoc Groups condition (2.375). In addition, the variance of 0.4 for the Established Groups is lower than the variance of .63 in the Ad Hoc Groups, indicating that the perceptions of group members in the former condition were more homogeneous. While predictions were not made for the Control condition, it is interesting that the mean cohesiveness is slightly higher than that of the Established condition (2.58); the variance of this measure is intermediate. Because of this unexpected finding, we cannot conclude that training produces cohesiveness.

It is interesting that the indicators of cohesiveness are unrelated. The product-moment correlation coefficient between behavioral and perceptual cohesion is .06. However, separate correlations were calculated for each condition, with somewhat surprising results. As seen in column 3 of Table 5, a weak relationship is found between these measures in the Control condition ($r = 0.12$); however, a much stronger relationship is found in the other two conditions ($r = 0.40$ in the Established Groups condition and $r = 0.49$ in the Ad Hoc Groups condition). This suggests that the perceptions of the groups in the control condition did not

reflect the group process as well as did those of the groups in the two experimental conditions.

DISCUSSION

Usually tasks are structured in such a way that the advantages of either a cooperative or a noncooperative strategy are explicit to the participants. He/she will select the course of action which has the greatest potential return. If classroom tasks are structured so that the greatest potential return comes to the individual by competing, he will gradually learn to compete even if the situational cues suggest that cooperation will provide the greatest return. Using this rationale, a set of curricular activities were developed to teach junior high students the potential benefits of using a cooperative strategy. The evaluation of the effectiveness of these activities was determined by the manner in which the children organized a simulation activity which was structured neither cooperatively nor competitively. While the results were somewhat weaker than we had hoped, they were in the predicted direction. Contrary to predictions, the training did not increase the group members' cohesiveness. This finding indicates that it is not necessary for the children to participate together in all of the curricular training activities.

This study, in general, supports earlier research in cooperation, but with some important insights for education. First, it indicates that training is a prerequisite for cooperative interaction but that it

may not be necessary to rely on permanent groups for training. Curricular activities are useable for such training, facilitating classroom application. The correlations between the measures of perceived and behavioral cohesion also suggest that children who undergo this training become much more attuned to their experiences in cooperation and, thus, capable of evaluating them. The rules they choose will also affect their cohesiveness; the more cooperative these rules, the more cohesive the members will be. Finally, unlike previous research in cooperation (Madsen, 1967; Shapira and Madsen, 1969) this study did not rely on extrinsic rewards for task completion but worked from the assumption and demonstrated that cooperation can be initiated by tasks that are intrinsically interesting.

TABLE 1

Distribution of Classrooms by Condition and By Teacher

Number of Teachers (N=8)	Condition		
	Control	Ad Hoc	Established
3	3		3
1	1	1	
1	1	1	2
1	1	2	1
1		2	
1		1	2
Total (N=21)	6	7	8

TABLE 2

Distribution of Groups for Each Condition and Sex

Sex of Students	Condition			Total
	Control	Ad Hoc Groups	Established Groups	
Male Groups	14	17	22	53
Female Groups	15	16	16	47
Totals	29	33	38	100

TABLE 3

Number of Groups Selecting Most Cooperative Rule and Other Rules
By Type of Rule and Type of Training

Type of Training	Type of Rule					
	Sharing		Territory		Strategy	
	Cooperative	All Others	Cooperative	All Others	Cooperative	All Others
Ad Hoc (N=33)	12	21	25	8	9	24
Established (N=37)	13	24	23	14	5	32

TABLE 4

Frequency and Percentage of Groups Selecting Most Cooperative Option of Sharing, Territory, and Strategy Rules for Trained and Untrained Groups

Rule (df=1)	Condition	Rule Options: Most Cooperative	Rule Options: All Others
Sharing $X^2=3.60$**	Trained	26 (37.0)	45 (63.0)
	Untrained	5 (17.0)	24 (83.0)
Territory $X^2=3.80$*	Trained	49 (69.0)	22 (31.0)
	Untrained	14 (48.0)	15 (52.0)
Strategy $X^2=2.60$	Trained	14 (20.0)	57 (80.0)
	Untrained	2 (7.0)	27 (93.0)

* $p < .05$

** $p < .10$

TABLE 5

Two Measures of Cohesiveness: Mean Percent of Behavioral Cohesiveness, Mean of Perceived Cohesiveness, and Correlation Between Measures for Each Condition

Condition	Mean Percent Behavioral Cohesiveness	Mean Perceived Cohesiveness	Correlation Coefficient r
Control	22.5	2.58	0.12
Ad Hoc	24.1	2.375	0.40*
Established	23.8	2.55	0.49*

* $p < .01$

TABLE 6

Mean Percent of Behavioral Cohesive Acts
Under Sharing Rule, by Condition

Sharing Rule	Condition		
	Control	Ad Hoc Groups	Established Groups
Equal Sharing	31.4 (N=3)	33.7 (N=10)	32.5 (N=12)
Unlimited Sharing	23.3 (N=9)	16.8 (N=7)	25.5 (N=12)
Limited Sharing	23.0 (N=3)	17.1 (N=2)	20.3 (N=3)
Lending	17.9 (N=10)	16.6 (N=5)	15.6 (N=8)
Personal Food Rule	--	7.2 (N=2)	--

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