

AD-A161 496

POSITIVE INTERDEPENDENCE ACADEMIC AND
COLLABORATIVE-SKILLS GROUP CONTINEE. (U) MINNESOTA UNIV
MINNEAPOLIS COOPERATIVE LEARNING CENTER H LEM ET AL.

1/1

UNCLASSIFIED

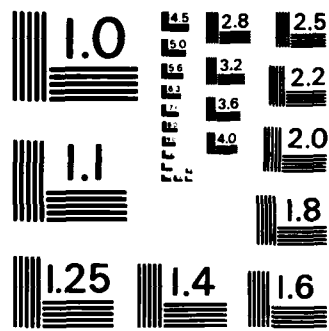
OCT 85 CLC-009 N00014-84-K-0009

F/G 5/11

NL



			END
			FORMED
			DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER (14) CLC 009	2. GOVT ACCESSION NO. AD-A161 496	3. RECIPIENT'S CATALOG NUMBER (17)	
4. TITLE (and Subtitle) Positive Interdependence, Academic and Collaborative-Skills Group Contingencies and Isolated Students		5. TYPE OF REPORT & PERIOD COVERED Technical Report	
7. AUTHOR(s) Marvin Lew, Debra Mesch, David W. Johnson and Roger Johnson		6. PERFORMING ORG. REPORT NUMBER	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Cooperative Learning Center; Dept. of Ed. Psych; University of Minnesota; 202 Pattee Hall; 150 Pillsbury Drive, SE; Minneapolis, MN 55455		8. CONTRACT OR GRANT NUMBER(s) N00014-84-K-0009	
11. CONTROLLING OFFICE NAME AND ADDRESS Organizational Effectiveness Research Programs Office of Naval Research (Code 4420E)		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Same as above Arlington, VA 22217		12. REPORT DATE October, 1985	
		13. NUMBER OF PAGES 22	
		15. SECURITY CLASS. (of this report) Unclassified	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Achievement; cooperation; interpersonal attraction; social isolation			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The effects were investigated of (a) opportunity to interact with classmates, (b) positive goal interdependence, (c) positive goal and positive reward interdependence, and (d) positive goal and reward interdependence with an added contingency for the use of collaborative skills. The dependent measures were achievement, interpersonal attraction, and the voluntary use of collaborative-skills by socially withdrawn and isolated students. Four socially isolated and withdrawn 6th-grade students (2 male and 2 female)			

AD-A161 496

OTIC FILE COPY

NOV 21 1985

20. Abstract (continued)

were studied in a reading class. The results indicated that both positive goal and reward interdependence are needed to maximize student achievement and the interpersonal attraction between socially withdrawn and nonhandicapped students. The specific reinforcement for engaging in collaborative skills was required to maximize the voluntary engagement in the skills by socially withdrawn and isolated students.

Submitted For	
WIS CRA&I	<input checked="" type="checkbox"/>
ERIC TAB	<input type="checkbox"/>
Unpublished	<input type="checkbox"/>

A1



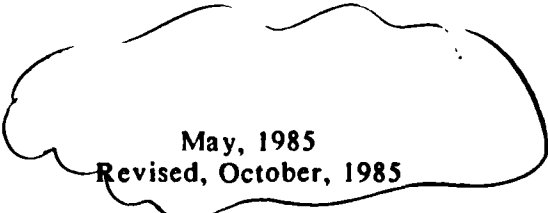
**Positive Interdependence, Academic And Collaborative-Skills
Group Contingencies, And Isolated Students**

Marvin Lew and Debra Mesch, Simmons College
and David W. Johnson and Roger Johnson, University of Minnesota

202 Pattee Hall

University of Minnesota

Minneapolis, Minnesota 55455



May, 1985
Revised, October, 1985

Running Head: Isolates And Cooperative Learning

Abstract

The effects were investigated of (a) opportunity to interact with classmates, (b) positive goal interdependence, (c) positive goal and positive reward interdependence, and (d) positive goal and reward interdependence with an added contingency for the use of collaborative skills. The dependent measures were achievement, interpersonal attraction, and the voluntary use of collaborative skills by socially withdrawn and isolated students. Four socially isolated and withdrawn 6th-grade students (2 male and 2 female) were studied in a reading class. The results indicated that both positive goal and reward interdependence are needed to maximize student achievement and the interpersonal attraction between socially withdrawn and nonhandicapped students. The specific reinforcement for engaging in collaborative skills was required to maximize the voluntary engagement in the skills by socially withdrawn and isolated students.

Positive Interdependence, Academic and Collaborative-Skills Group Contingencies, and Isolated Students

There is a basic theoretical disagreement among researchers as to whether positive goal interdependence and positive reward interdependence mediate the relationship between cooperation and achievement (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). **Positive goal interdependence** exists when students perceive that they can achieve their goals if and only if the other students with whom they are cooperatively linked achieve their goals. **Positive reward interdependence** exists when each member of a cooperative learning group receives the same reward for successfully completing a joint task.

On one side of the controversy are Deutsch (1962) and Johnson and Johnson (1975) who state that positive goal interdependence results in a promotive interaction pattern among students, which increases their achievement and interpersonal attraction. From this perspective, given the perception of positive interdependence, students will act to facilitate each others' goal accomplishment (when they have the collaborative skills to do so), and increased achievement and interpersonal liking result. On the other side of the controversy are researchers such as Hays (1976) and Slavin (1983) who state that positive reward interdependence largely explains the relationship between cooperation and achievement. From this perspective, students will (a) increase their achievement only if there is a specific academic group contingency reinforcing them for doing so and (b) engage in facilitative behavior only if there is a specific collaborative-skills contingency reinforcing them for doing so.

Contrasting the two theoretical positions is complicated by the fact that while it is possible to implement positive goal interdependence without positive reward

Isolates and Cooperative Learning

taught and actually use interpersonal and small group skills. Within competitive and individualistic learning situations, legitimate opportunity to interact with peers is infrequent and, therefore, the peer interaction that does occur is often in violation of the rules and is perceived to be disruptive. Within cooperative learning situations, however, students are required to interact constructively with one another and to use collaborative social skills.

Cooperative learning situations have been consistently found to promote more frequent and constructive interaction and more positive relationships between handicapped and nonhandicapped students than do competitive, individualistic, or "traditional" learning situations (Johnson, Johnson, & Maruyama, 1983; Madden & Slavin, 1983; Sharan, 1980). Given that cooperative learning situations provide an entry into constructive interaction between socially isolated and withdrawn students and their nonhandicapped peers, it is unclear from these studies whether the relationship between cooperation and positive peer relationships is caused by (a) the opportunity to interact when there is no goal or reward interdependence for doing so, (b) positive goal interdependence, (c) an academic group contingency, or (d) a collaborative-skills group contingency. A second purpose of this study is to determine the relative impact of these variables on the interpersonal attraction between socially isolated/withdrawn students and their classmates and the frequency with which socially isolated/withdrawn students voluntarily and spontaneously use collaborative skills.

Only a few of the studies of interpersonal attraction have provided (a) behavioral (as opposed to self-report paper-and-pencil) evidence of interpersonal attraction, and (b) evidence that the positive relationships formed during the cooperative learning activities generalized to unstructured situations in which students could choose whom they wished to work with (R. Johnson & Johnson,

Isolates and Cooperative Learning

needed for learning cooperatively with their classmates. The study was conducted in a suburban, upper-middle-class school district near Boston.

The students were part of a 6th-grade reading class with a class enrollment of nineteen. The class was the lowest level regular education reading class, with students averaging approximately one year below grade level in reading performance. The class was taught by a regular English teacher and a special needs resource teacher. Both teachers were experienced in using cooperative learning strategies.

Independent Variables

Students met in condition to study vocabulary words for 20 minutes a week. The following procedure was implemented over the 21 weeks of the study. Students were assigned vocabulary words on Monday. They met in condition to review the vocabulary words for 20 minutes on Thursday in preparation for a 15-minute quiz on Friday. On Tuesday they were given the choice of studying together or alone for 20 minutes to complete a nonvocabulary instructional task. The specific contingency used was bonus points toward their test grades. The following conditions were included:

Baseline 1	4 Weeks
Positive Goal Interdependence	3 Weeks
Academic Group Contingency 1	4 Weeks
Academic And Collaborative-Skills Group Contingencies	4 Weeks
Academic Group Contingency 2	3 Weeks
Baseline 2	3 Weeks
Postchecks	6 Weeks

The baseline condition consisted of assigning vocabulary words on Monday, assigning students a nonvocabulary assignment on Tuesday and giving them the

Isolates and Cooperative Learning

the Friday quiz.

The **academic and collaborative skills group contingencies** condition consisted of (a) giving two bonus points toward the quiz grade of each member if all group members scored 80 percent or more correct on the Friday quiz, and (b) giving two bonus points toward each members' quiz grade if each group member was observed engaging in three out of the four collaborative skills during vocabulary review on Thursdays. The four skills were sharing ideas and information, directing by keeping the group on task and asking task-related questions, praising and encouraging the task-related contributions of other members, and checking to make sure everyone in the group understood what was being taught. These skills were carefully explained and taught to the class.

Two **postcheck** sessions were recorded as a six week followup after Baseline 2.

Dependent Variables

The three dependent variables were achievement, social interaction, and interpersonal attraction. Achievement was measured by vocabulary quizzes. Each week students individually took a vocabulary quiz consisting of 10 to 15 words that were assigned the previous Monday and followed the course curriculum. The difficulty of the words was equalized across conditions. Scores were obtained by summing each student's scores across all tests.

The **peer social interaction** measure was composed of four categories of behavior: task interaction (summarizing, directing, checking, information seeking, tutoring), maintenance interaction (praising, supporting, encouraging, active listening), off-task/negative interaction (off-task or hostile statements), and no interaction. A sequential time-sampling procedure was used to take data each week on the nature of oral interactions during the generalization day in which students had the choice of working together or alone on a nonvocabulary

Results

The results for the entire class (see Table 1) indicate that neither the addition of positive goal interdependence nor the addition of an academic group contingency to the opportunity to interact with classmates significantly increased achievement, but the combination of academic and collaborative-skills group contingencies did, $F(5,90) = 15.86, p < .01$. The higher achievement was maintained when the collaborative-skills group contingency was dropped and when the students were returned to the baseline condition. When the Baseline 1 condition was compared with the average of the positive interdependence and group contingencies conditions, the results indicate that the students achieved higher in the cooperative conditions, $t(18) = 4.15, p < .01$.

For the target students, achievement increased when positive goal interdependence was added and again when the academic group contingency was added, $F(5,15) = 2.19, p < .11$. The higher achievement was maintained after the collaborative-skills group contingency was dropped and when the target students were returned to the baseline condition. When an average of the positive interdependence and group contingency conditions was compared with the Baseline 1 condition, the results indicated that the target students achieved higher in the cooperative conditions, $t(3) = 4.80, p < .05$.

Insert Table 1 About Here

In this study the conditions were implemented in vocabulary study time on Thursday of each week. On Tuesday of each week, however, students were given the choice of studying together or alone for 20 minutes to complete a nonvocabulary instructional task. Observation data were taken during the Tuesday free-choice study period. The observation data indicated the extent to

do a report with" less frequently after the combined academic and collaborative-skills condition than after the initial baseline condition, $t(18) = 1.77, p < .10$. No significant differences were found on the frequency with which the target students were nominated as "most like to do a report with."

Discussion

This study investigated the impact of opportunity to interact with classmates, positive goal interdependence, an academic group contingency, and a collaborative-skills group contingency on:

1. The achievement of all students and four socially withdrawn and isolated students.
2. The interpersonal attraction between socially withdrawn/isolated students and their classmates.
3. The frequency with which socially withdrawn/isolated students voluntarily and spontaneously use collaborative skills.

There is disagreement as to whether the superior achievement found within cooperative (compared with competitive, individualistic, and "traditional") learning situations (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981) is due to the (a) opportunity to interact with peers, (b) positive goal interdependence, (c) positive reward interdependence or (d) a combination of positive goal and reward interdependence plus a collaborative-skills group contingency. This issue was addressed by comparing the impact of these four components on the achievement of an entire 6th-grade reading class and on the achievement of four low-performing socially isolated/withdrawn students. The results of this study indicated that for the class as a whole, it was the combination of positive interdependence and academic and collaborative-skills group contingencies that significantly increased achievement, while for the four low-achieving and socially

Isolates and Cooperative Learning

(c) teach the socially isolated/withdrawn students the collaborative skills they need to work effectively with their peers, and (d) give the socially isolated/withdrawn students the confidence to engage in the collaborative skills spontaneously and voluntarily in unstructured situations. The findings of this study indicated that all four of these criteria were met when a combination of positive goal interdependence and academic and collaborative-skills group-contingencies were implemented.

In this study, positive relationships that generalized to free-choice study time were built between the socially withdrawn/isolated students and their classmates. There are three criteria for constructive peer relationships: increased acceptance, decreased rejection, and longevity. During free-choice situations in which students could choose whom they wished to study with the socially withdrawn and isolated students worked collaboratively with their classmates. These results demonstrated increased acceptance. Even nine weeks after the students were returned to the individualistic baseline condition, the voluntary association between the socially withdrawn/isolated students and their classmates continued. These results demonstrated longevity. The behavioral nature of these measures adds to their validity. The sociometric results indicated that the socially withdrawn and isolated students were nominated less frequently for undesired work partners, i.e., they were rejected less frequently. These findings provided strong evidence that the combination of being assigned to heterogeneous learning groups, positive goal interdependence, positive reward interdependence, and a group contingency for the performance of collaborative skills resulted in entry into instruction situations in which positive relationships between the socially withdrawn/isolated students and their classmates could develop and mature.

Isolates and Cooperative Learning

learning on achievement and interpersonal attraction (Johnson, Johnson, & Maruyama, 1983; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981).

- Hays, L. (1976). The use of group contingencies for behavioral control: A review. Psychological Bulletin, 83, 628-648.
- Johnson, D. W. (1980). Group processes: Influences on student-student interaction on school outcomes. In J. McMillan (Ed.), Social psychology of school learning. New York: Academic Press.
- Johnson, D. W., & Johnson, R. (1975). Learning together and alone: Cooperation, competition, and individualization. Englewood Cliffs, NJ: Prentice-Hall.
- Johnson, D. W., & Johnson, R. (1982). Healthy peer relationships: A necessity not a luxury. In P. Roy (Ed.), Structuring cooperative learning experiences in the classroom: The 1982 handbook. New Brighton, MN: Interaction Book Company.
- Johnson, D. W., & Johnson, R. (1983). Peers: The key to healthy development and socialization. Character, 2(11), 1-8.
- Johnson, D. W., Johnson, R., & Maruyama, G. (1983). Interdependence and interpersonal attraction among heterogeneous and homogeneous individuals: A theoretical formulation and a meta-analysis of the research. Review of Educational Research, 53, 5-54.
- Johnson, D. W., Maruyama, G., Johnson, R., Nelson, D., & Skon, L. (1981). The effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. Psychological Bulletin, 89, 47-62.
- Johnson, R. T., & Johnson, D. W. (1981). Building friendships between handicapped and nonhandicapped students: Effects of cooperative and individualistic instruction. American Educational Research Journal, 18, 415-423.

Footnotes

1. This study was supported by the National Science Foundation Grant BNS-8211171 and by the United States Department of the Navy, Office of Naval Research, Grant No. N00014-84-K-0009.
2. We wish to thank the following teachers from Bedford School District for their help and assistance in implementing the study: Hannelore Munson and Eloise Stidworthy. We would also like to thank Scott Richards for assisting in analyzing the data.

Distribution List

Defense Technical Information Center
ATTN: DTIC DDA-2
Selection and Preliminary Cataloging Section
Cameron Station
Alexandria, VA 22314

Library of Congress
Science and Technology Division
Washington, D.C. 20540

Office of Naval Research
Code 442GP
800 N. Quincy Street
Arlington, VA 22217

Naval Research Laboratory
Code 2627
Washington, D.C. 20375

Office of Naval Research
Director, Technology Programs
Code 200
800 N. Quincy Street
Arlington, VA 22217

Psychologist
Office of Naval Research
Detachment, Pasadena
1030 East Green Street
Pasadena, CA 91106

END

FILMED

1-86

DTIC