COOPERATIVE LEARNING: TEACHER USE AND SOCIAL INTEGRATION

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Abstract

One hundred and thirty-eight teachers and 1,138 students from grades 2 through 11 were studied using instruments based on the work of David W. Johnson and Roger T. Johnson, co-directors of the Cooperative Learning Center at the University of Minnesota. The questions addressed were: (a) To what extent did the amount of training in cooperative learning a teacher received affect the amount of time the teacher structured cooperative learning in the classroom? and (b) What is the relationship between teacher use of cooperative learning strategies and student social integration? Using a two-tailed t-test, the majority of items related to teacher use were statistically significant at the .04 level. Using an analysis of variance, 8 of 10 correlations were insufficient related to social integration.

The alienation and isolation of our society in the 20th century will carry into the next millennium if the crisis of socialization in our schools continues unabated. Disenfranchisement growing from lack of support and caring in the home, school, and community leaves students isolated, disconnected, and aimless. Teachers applying the principles of cooperative learning in their classrooms have the power to create a sense of caring and community. The application of cooperative learning strategies in the classroom can positively affect students and thereby create change in the larger society.

Cooperative learning may well be the most effective instructional strategy to increase student achievement, social integration, and positive classroom climate. According to Johnson, Johnson, and Holubec (1994):

> Since the first research study in 1898, nearly 600 experimental and over 100 correlational studies have been conducted on cooperative, competitive, and individualistic efforts to a learn. The multiple outcomes studied can be classified into three major categories: efforts to achieve, positive relationships, and psychological health.
>
> From the research, we know that cooperation, compared with competitive and individualistic efforts, typically results in:

1. Greater Efforts to Achieve: This includes higher achievement and greater productivity by all students (high, medium, and low-achievers), long-term retention, intrinsic motivation, achievement motivation, time on task, higher-level reasoning, and critical thinking.

2. More Positive Relationships Among Students: This includes increases in esprit de corps, caring and committed relationships, personal and academic support, valuing diversity, and cohesion.

3. Greater Psychological Health: This includes general psychological adjustment, ego strength, social competencies, self-esteem, self-identity, and ability to cope with adversity and stress.

The powerful effects that cooperation has on so many important outcomes separate cooperative learning from other instructional methods and make it one of the most important tools for ensuring student success. (pp. 11-12)

Educational administrators across the nation have recognized the research on cooperative learning and have provided staff development workshops on the topic for teachers. With one of the strongest research bases available to support these claims, the question remains as to the requirements necessary in order to tap into the benefits of using cooperative learning to promote social integration; specifically, what level of teacher training and what degree of implementation in the classroom.

Purpose of the Study

The purpose of the study was to look at the relationship of trained teachers (those with more than 30 documented hours of training in cooperative learning) with social integration of students in high-use and low-use classrooms. High-use classrooms are those where cooperative learning is structured at least 30% of the time. The basis of the study was data from 138 teachers and 1,138 students in grades 2 through 10.

The questions to be answered as a result of the study include:

1. To what extent does the amount of training in cooperative learning a teacher receives affect the amount of time the teacher structures cooperative learning in the classroom?
2. What is the relationship between teacher use of cooperative learning and student social integration?

Definitions

Cooperative Learning: Defined in **Cooperation in the Classroom** (Johnson et al., 1994). A research-based instructional strategy which meets all of the following conditions:

- Small, often heterogeneous groups.
- Other students as a major resource, teacher acts as a consultant.
- Positive interdependence between group members.
- Individual accountability–all members know the material.
- Evaluate by comparison to a preset criterion.

High-Use Teachers: Teachers who indicated on the Educators Assessment instrument that they structured cooperative learning strategies into their classrooms at least 30% of the class time.

Low-Use Teachers: Teachers who indicated on the Educators Assessment instrument that they structured cooperative learning strategies into their classrooms less than 30% of the class time.

Social Integration: The level of acceptance and belonging students felt in their classrooms as indicated on 10 survey questions focusing on alienation, from instruments developed by David Johnson at the Center for Cooperative Learning, University of Minnesota.

Literature Review

In reviewing the literature related to cooperative learning on teacher use and student social integration, a limited amount dealt with teacher use but much was available documenting social integration of students. A summary of the most pertinent conclusions by researchers follows.

Teacher Use

Teachers may structure lessons so students compete with each other to see who is best. They can assign students to work alone at their own speed or they can have students work together in small groups to help each other learn. These goal structures–competitive, individual, and cooperative–are essential instructional skills for teachers to know when and how to use. An effective teacher will use all three in the planning and delivery of lessons.

In the revised, **Circles of Learning: Cooperation in the Classroom**, (Johnson, Johnson, & Holubec, 1993) five basic elements were identified for small group learning to be cooperative: positive interdependence, face-to-face interaction, individual accountability, interpersonal and small group skills, and processing. Teachers who structure cooperative lessons include each of these elements. Briefly defined:

- Positive interdependence: Students must perceive that they "sink or swim together."
- Face-to-face interaction: Being physically close to each other promotes interaction. They should be seated eye-to-eye and knee-to-knee.
- Individual accountability: Each group member is responsible for mastering the material.
- Interpersonal and small group skills: Students must be taught the social skills needed for collaboration and be motivated to use them.
- Processing: Students analyze how well their learning groups are functioning and the extent to which students are employing their social skills.

Learning to implement the elements of cooperative learning is not a simple process. It can take years to master. Two years may be the average amount of time required to become a skilled user of cooperative learning procedures (Johnson et al., 1993, p. 90). **Circles of Learning** (Johnson et al., 1993) states:

> Learning how to structure learning situations cooperatively is much like peeling an onion. The teacher learns how to structure productive learning activities layer after layer until the heart is reached. Over a period of years of using cooperation the learning experiences become richer and richer. . . . There is nothing simple in such a process. But the results are worth it. (p. 115)

According to Baloche (1998), at its best, learning cooperatively is not simple and it is not straightforward; students and teachers alike need to be both patient and persistent as they explore ways to use the power of cooperation. Persistence does not mean using cooperative

learning once every week or two; neither teachers nor students will gain in expertise with such infrequent use.

Kagan (1994) pointed out that the amount of time devoted to cooperative learning, based on his own research, shows that very impressive academic and social gains can be obtained if cooperative learning is used only briefly. He also indicated that most people who train with him usually end up using cooperative learning the majority of the time in their classrooms.

Social Integration

"Research provides exceptionally strong evidence that [the effectiveness of] cooperation results in greater effort to achieve, more positive interpersonal relationships, and greater psychological health than competitive or individualistic learning efforts" (Johnson et al., 1994, p. 107). To develop a sense of belonging for all students in a classroom is important, but for socially isolated students it is crucial. Withdrawn and socially isolated children are at risk for a variety of adjustment problems in later life (Johnson, Johnson, & Maruyma, 1983). Difficulty with peer relationships during childhood and adolescence has been linked to later development problems in such diverse realms as academic achievement, antisocial behavior, psychological disturbance, and physical health. Two of the causes of poor peer relationships (such as lacking friends and being unpopular) are (a) not being placed in an entry-level situation aimed at constructively introducing socially isolated and withdrawn students to their non-handicapped peers, and (b) lack of social skills. Interventions are needed therefore that place students in entry situations in which constructive interaction and positive relationships can develop and in which students are taught and actually use interpersonal and small group skills (Johnson et al., 1983).

Johnson et al. (1993) pointed out that a crisis in socialization exists in schools and is reflected in the following trends, confirmed by research. A substantial number of children, teenagers, and young adults feel isolated, disconnected from their parents and peers, unattached to school and career, without purpose and direction, and lacking any distinct impression of who and what kind of persons they are. Many are out of touch with the rest of society, unable to build and maintain real connections with others. Not only is this a cruel waste of the young people afflicted, it means they can begin to exploit or abuse others without guilt or remorse–people who have no motivation to contribute to the well being of others or of society.

The roots of students' alienation lie in the stress and lack of caring and support in their families and their educational and community experiences. Family disorganization, particularly, has been shown to be an antecedent to behavior disorders, lack of school achievement, and pathology in children and adolescents. According to Johnson et al. (1993), at a time when being able to interact effectively with other people is so vital in marriages, in families, on jobs, and in committees, schools insist that students do not talk to each other, do not work together, do not pay attention to or care about the work of other students–students are not encouraged to care about other students' learning in the classroom.

Procedures and Methods

The purpose of this study was to determine the relationship of cooperative learning based on teacher use and student social integration. Teacher use was determined by teacher response on the Educators Assessment Instrument (Appendix A). This instrument was designed from the Teacher Use Questionnaire developed by David W. Johnson and Roger T. Johnson, co-directors of the Cooperative Learning Center at the University of Minnesota, Minneapolis with modifications by the researcher and the Assessment and Evaluation De-

partment of the school district in which the study was conducted. Social integration of the student groups identified was based the student perceptions gathered by use of the student questionnaire also developed by David Johnson and Roger Johnson.

Two hundred and forty-three teachers were identified as having participated in cooperative learning training over two academic years. This represented 10% of the teacher population within the district. All 243 were sent the Educator Assessment (Appendix A). Teachers were asked to complete the assessment plus identify five high achieving, five middle, and five low students. A coding system was designed so teachers and their students could be tracked. Students completed Student Questionnaires (Appendix B). There were 138 teachers who responded with complete sets of surveys and 1,138 students identified who completed the Student Questionnaires.

Two groups of teachers were identified based on their responses to the Educators Assessment (Appendix A). One group was those who indicated they used cooperative learning strategies 30% or more of the time in their classrooms. These 43 were designated high-use teachers. The second group was made up of teachers who indicated they used cooperative learning strategies less than 30% of the time. These 95 were designated the low-use group.

Based on their teachers' designation of high-use or low-use of cooperative learning strategies, 1,138 students were grouped. Both groups contained cross-sections of grades 2 through 10 and all ability levels.

The strength of the research design was both in its internal and external validity. The study controlled for all eight listed sources of internal invalidity. The factor of external validity that was of concern to the researcher was that of the differential selection of subjects. Were the teachers selected for the study typical or were they unusual in some way? A review of the teachers involved revealed a cross-section of grade levels from across the district. High-income areas and low-income areas of the district were proportionally represented. Teachers involved in the study were told that the research was part of the district's overall evaluation of cooperative learning. Because all classrooms in the district had some involvement in instructional improvement programs and evaluation, this procedure was not unusual. In summary, the differential selection of subjects appeared to have been controlled in this study.

Limitations of the study were the 56.7% survey return rate and the possible prior experience of students with cooperative learning. All of the data of the study were analyzed by the school district Assessment and Evaluation Department by means of the Statistical Package for the Social Sciences (SPSS-X).

Findings

The first question of the study sought to determine the relationship of the training level of teachers and the amount of time they structured cooperative learning activities into their classrooms. Table 1 presents the statistics relevant to this question. High-use and low-use teacher responses on the first seven items of the teacher survey dealing with experience in cooperative learning were analyzed using a two-tailed probability t-test. It can be seen that four of the seven items were statistically significant at the .04 level. The question pertaining to teacher use and training was answered affirmatively.

The three items that were not statistically significant were general statements dealing with having talked to other teachers about cooperative learning, read articles, or participated in an inservice on cooperative learning. All teachers surveyed had been documented as having participated in at least three hours of training, so it is assumed they would have talked to each other and read articles as part of the training.

Additional support for the first question dealing with the relationship of use of cooperative learning and training in the area of cooperative learning is shown in Table 2. An analysis of variance was conducted based on the high-use and low-use groups and documented

participation in cooperative learning credit courses. It can be seen that the relationship was statistically significant at the .02 level. High-use teachers were likely to have participated in more training. This provided additional support for answering the first question of the study affirmatively.

The second question to be addressed in the study sought to determine if student social integration perceptions were different in high-use and low-use classrooms. Table 3 presents a summary of statistics relevant to the question showing the positive correlation between student responses about social integration based on whether they were in high-use or low-use classrooms. The 10 items dealing with the feelings of alienation were used to determine perception of social integration. From Table 3 it can be seen that only 2 of the 10 items were statistically significant at the .04 level. Each correlation in this table was tested for significance by means of an analysis of variance. Eight of the 10 correlations were insufficient.

Table 1
Analysis of Teacher Use of Cooperative Learning and Responses About Training Based on Two-Tailed Probability t-Test

Question	Variable	Mean	Standard Deviation	Standard Error	t-Value	Degree of Freedom	Two-Tailed Probability
1	High Use	0.9535	0.213	0.032	1.69	120.67	0.940
	Low Use	0.8737	0.334	0.034			
2	High Use	0.8605	0.351	0.053	1.76	100.99	0.081
	Low Use	0.7368	0.443	0.045			
3	High Use	0.9302	0.258	0.039	4.12	131.13	0.000
	Low Use	0.6737	0.471	0.048			
4	High Use	0.4186	0.499	0.076	2.13	70.56	0.036
	Low Use	0.2316	0.424	0.044			
5	High Use	0.4651	0.505	0.077	1.17	77.89	0.245
	Low Use	0.3579	0.482	0.049			
6	High Use	0.6977	0.465	0.071	2.92	86.77	0.004
	Low Use	0.4421	0.499	0.051			
7	High Use	0.9302	0.258	0.039	5.01	132.91	0.000
	Low Use	0.6105	0.490	0.050			

Table 2
Analysis of Variance for High-Use, Low-Use Teacher Groups and Documented Participation in Credit Courses

Source	Sum of Squares	DF	Mean Square	F	Significance
Between Groups	2.1935	1	2.1935	6.1987	.0140

Table 3
Means, F Scores, and Significance Levels of the Analysis of Variance of Social Integration by Students Based on High-Use and Low-Use Cooperative Learning Teachers

Source	Sum of	Mean

Question	Variation	Squares	DF	Square	F	Significance
16	Between Groups	1.3163	1	1.3163	1.3582	.2441
17	Between Groups	0.3378	1	0.3378	0.1980	.6564
18	Between Groups	3.5047	1	3.5047	2.4287	.1194
19	Between Groups	10.6122	1	10.6122	6.3982	.0116
20	Between Groups	4.2782	1	4.2782	2.3388	.1265
21	Between Groups	0.5843	1	0.5843	0.4012	.5266
22	Between Groups	9.0193	1	9.0193	5.9183	.0151
23	Between Groups	0.0814	1	0.0814	0.0515	.8205
24	Between Groups	2.4919	1	2.4919	2.6196	.1058
25	Between Groups	0.8671	1	0.8671	.5644	.4527

Issues to Consider for Further Study

Based on the findings of this study, it is recommended that the following be considered:

1. Utilize the same methodology with the addition of a control group.
2. Determine teacher use of research-based instructional strategies and self-selected levels of training.
4. Determine the level of implementation by teachers based on self-selection to participate or mandatory participation (i.e., sex equity versus cooperative learning).

Summary and Discussion

The results of the study affirmatively supported the first question dealing with highly trained and high-use teachers but did not support the second question pertaining to social integration:

1. *To what extent does the amount of training in cooperative learning a teacher receives affect the amount of time the teacher structures cooperative learning in the classroom?*

There is a high correlation between highly trained teachers and high-use teachers. The more training the teacher had been involved in the more likely they were to implement cooperative learning at least a third of the time in their classrooms.

Individuals interested in implementing cooperative learning need to seek out training opportunities and recognize that it takes time to become comfortable with these strategies. Teachers surveyed had been learning to use cooperative learning strategies and implementing them for as much as 20 months experience prior to the study. This supports the review of the literature that it takes at least two years of using cooperative learning strategies to master the strategy. In order for teachers to be designated as high-use teachers, they had to have completed at least 30 hours of training in cooperative learning.

2. *What is the relationship of teacher use of cooperative learning to student perceptions of social integration?*

The element of social integration does not show significant differences in responses of students in high-use and low-use classrooms. Since all teachers surveyed had participated in a minimum of three hours of cooperative learning training, this could indicate that even the low use of these strategies creates a classroom environment where students feel accepted and not isolated by their peers. Without a control group of teachers not trained in cooperative learning and their students, responses for comparison, it is not possible to know from this study. Kagan (1994) stated that the amount of time devoted to cooperative learning, based on his own research, shows that very impressive academic and social gains can be obtained if cooperative learning is used only briefly. If this is true, then this study could not determine a difference between high use and low-use teacher groups because even low use of cooperative learning strategies impact students perceptions of social integration.

Educators need to recognize that as little as three hours of training in cooperative learning for teachers interested in implementing this strategy can impact the social integration of students within the classroom. The alienation and isolation of our society in the 20th century will carry into the next millennium if the crisis of socialization in our schools continues unabated. Disenfranchisement growing from lack of support and caring in the home, school, and community leaves students isolated, disconnected, and aimless. Teachers applying the principles of cooperative learning in their classrooms have the power to create a sense of caring and community .The application of cooperative learning strategies in the classroom can positively affect students and thereby create change in the larger society.

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Appendix A
Educator Assessment Instrument

EDUCATORS' ASSESSMENT: COOPERATIVE LEARNING

Directions:
Please answer each of the following questions. They will help us understand your experience with cooperative learning.

I. Experience With Cooperative Learning (Please check all that apply.)

____ I have ta1ked to other teachers about cooperative learning.

____ I have read articles about cooperative learning.

____ I have discussed cooperative learning with other teachers and tried some of their ideas in my classroom.

____ I have participated in an after-school inservice on cooperative learning.

____ I have participated in an inservice on cooperative 1earning as part of a district in-service day.

____ I have participated in a workshop on cooperative 1earning.

____ I have participated in a full length university credit course on cooperative learning.

____ Other: _____

AREAS OF COOPERATIVE LEARNING USE

II. (Please check all that apply.)

To what extent have you used cooperative learning groups in any of the following subject areas?

	Number of Times Used				
	None	1-2	3-5	6-10	11+
A. Reading	____	____	____	____	____
B. Mathematics	____	____	____	____	____
C. Science	____	____	____	____	____
D. Social Studies	____	____	____	____	____
E. Health/P.E.	____	____	____	____	____
F. Music/Art	____	____	____	____	____
G. Specia1 Education	____	____	____	____	____
H. Industrial Arts\ Vocational Education	____	____	____	____	____
I. Foreign/Language	____	____	____	____	____

III. Overall, how much class time in an average week is devoted to cooperative learning activities?

____None _____% of the time

During the past week, how many cooperative learning lessons have you taught?

____0 ____1-2 _____3-5 ____6-8 ____more than 8

What group size do you usually use in your classroom?

____2-3 ____4-6 ____6+ ____depends on task

IV. When students work together in groups in your class, how often do you use the following to organize and encourage cooperative learning activity?

	Never	Rarely	Occasionally	Usually
Provide the groups with limited materials to force students to share materials.	____	____	____	____
Provide individual group members with special materials to force sharing if there is to be a successful completion of the group task.	____	____	____	____
Assign special roles to certain group members to ensure that all must work together to produce a final product.	____	____	____	____
Provide grades or rewards to individual group members based on the performance of the entire group.	____	____	____	____
Monitor and intervene in group activities to encourage balanced participation and to stimulate cooperation.	____	____	____	____
Usually provide groups with feedback on my observations of group behavior and the use of cooperative skills.	____	____	____	____
One group member is designated to observe group action and to report on group activities.	____	____	____	____
Provide groups time to summarize activities and to hold debriefing sessions after group projects are completed.	____	____	____	____

Are there other cooperative learning strategies which you commonly use?

____yes ____no

_____

_____

_____

_____

V. Please indicate your agreement with each of the following statements.

	Strongly Agree	Agree	Neutral	Dis-agree	Strongly Dis-agree
1. I believe that cooperative learning is an effective instructional technique in most content areas.	____	____	____	____	____
2. I believe that cooperative learning increases student participa-					

tion in learning activities.	____	____	____	____	____

	Strongly Agree	Agree	Neutral	Dis-agree	Strongly Dis-agree
3. I believe that cooperative learning improves student communication and decision-making skills.	____	____	____	____	____
4. I believe that cooperative learning encourages and improves the performance of high ability students.	____	____	____	____	____
5. I believe that cooperative learning encourages and improves the performance of average-ability students.	____	____	____	____	____
6. I believe that cooperative learning encourages and improves the performance of low-ability students.	____	____	____	____	____
7. I believe that using cooperative learning is an efficient teaching technique.	____	____	____	____	____
8. I plan to increase my use of cooperative learning in the classroom.	____	____	____	____	____
9. Rewarding individual performance based on group success is an equitable method of grading.	____	____	____	____	____
10. I plan to make use of future opportunities for additional training in cooperative learning.	____	____	____	____	____

NUMBER _____

☐ Please send me a copy of the reportwhen it is completed.

Appendix B
Student Questionnaire

STUDENT QUESTIONNAIRE: COOPERATIVELEARNING

You can help your teacher and otherteachers understand what you think of working on class projects in groups byanswering some questions. Please answer all the questions.

1. In which of the following subjects have you worked on groupprojects?
   (Check all that apply.)

____English/Language Arts

____Science

____Social Studies

____Music/Art

____Mathematics

____Foreign Language

____Health/Physical Education

____Industrial Arts/Vocational Ed.

____Special Education

____Reading

2. How often do you work with other students in a group?

   Number of time each day ____ Number of times a week ____

3. Do you feel that working with a group of students helps you dobetter school work?

   ____Yes, I do better work.

   ____No, my work is about the same.

   ____No, my work is not as good.

4. When you work together in small groups each member of the groupreceives:

   a. a group grade

____yes

____sometimes

____no

   b. an individual grade

____yes

____sometimes

____no

   c. both a group grade and an individual grade

____yes

____sometimes

____no

5. Do you like working with other students in class on schoolprojects? Do you think it is a good idea? Why?

_____

_____

_____

Number: _____

Put an<u>X</u>inthe box which tells how true each of these statements is of you.

Completely True
True Much of The Time
Sometimes True And Sometime False

False Much of The Time

Complete True

1. When we work together in small groups, wetry to make sure that everyone in our group learns all of the assigned material.

2. When we work together in small groups, wecannot complete an assignment unless everyone contributes.

3. When we work together in small groups,our job is not done until everyone in our group has finished the assignment.

4. When we work together in small groups,the teacher divides up the material so that everyone has a part and everyonehas to share.

5. When we work together in small groups, weall receive the same grade.

6. When we work together in small groups,everyone's ideas are needed if we are going to be successful.

7. When we work together in small groups ourgrade depends on how much all members learn.

8. When we work together in small groups, Ihave to find out what everyone else knows if I am going to be able to do theassignment.

9. In this class I like to share my ideasand materials with other students.

10. In this class, I can learn important thingsfrom the other students.

Completely True
True Much of The Time
Sometimes True And Sometime False

False Much of The Time

Complete True

11. In this class I liketo help other students.

12. In this class I tryto share my ideas and materials with other students when I think it will helpthem.

13. In this class it is agood idea for students to help each other learn.

14. In this class I liketo cooperate with other students.

15. In this classstudents learn lots of important things from each other.

16. School work is fairlyeasy for me.

17. Sometimes I think thescoring system in this class is not fair.

18. I find it hard tospeak my thoughts clearly in class.

19. I should get alongwith other students better than I do.

20. Whenever I take atest I am afraid I will fail.

21. I often getdiscouraged in school.

22. I have lots ofquestions I never get a chance to ask in class.

23. I am often lonely inthis class.

24. I am a good student.

25. I often feel upset inschool.

26. I usually like towork better in groups than I like to work alone.