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ABSTRACT

This report presents an evaluation of a student team teaching technique, Student Teams-Achievement Divisions (STAD) in two seventh grade English classes in the Baltimore City Public Schools. This technique is composed of two principal elements: biracial, ability heterogeneous student teams, and achievement divisions, a statistical technique for insuring each student a substantial chance of contributing a maximum number of points to his or her team score, regardless of the student's past performance. Positive effects on achievement have been reported for the technique. This paper examines the effects of the technique on student race relations. Sociometric analysis indicated a significant STAD effect on the number of cross-race friendship choices and the percentage of cross-race helping choices, and a marginal treatment effect on the number of cross-race helping choices and the percentage of cross-race friendship choices. The paper reports findings of increased cross-racial helping and friendship choices and academic achievement (at least for blacks) in a class using this technique as compared to a control class. These findings increase the degree to which student teaching techniques can be relied upon to integrate desegregated classrooms. They also validate a new and practical technique for accomplishing this goal. (Author/AM)

USING STUDENT LEARNING TEAMS TO DESEGREGATE THE CLASSROOM

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Policy Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes.

This report, prepared by the School Organization Program, examines the effects of a classroom team structure, Student Teams-Achievement Divisions, on racial integration in the classroom.

Abstract

This report presents an evaluation of a student team learning technique (Student Teams-Achievement Divisions) in two seventh grade English classes in the Baltimore City Public Schools. Positive effects on achievement were reported previously; this paper examines the effects of the technique (STAD) on student race relations. The results indicate a significant STAD effect on the number of cross-race friendship choices and the percentage of cross-race helping choices, and a marginal treatment effect on the number of cross-race helping choices and the percentage of cross-race friendship choices.

Abstract

This report presents an evaluation of a student team learning technique (Student Teams-Achievement Divisions) in two seventh grade English classes in the Baltimore City Public Schools. Positive effects on achievement were reported previously; this paper examines the effects of the technique (STAD) on student race relations. The results indicate a significant STAD effect on the number of cross-race friendship choices and the percentage of cross-race helping choices, and a marginal treatment effect on the number of cross-race helping choices and the percentage of cross-race friendship choices.

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When racial integration of schools in the United States began in the 1950's and 60's, it was confidently predicted by many that desegregation would lead to greatly improved relations between the races. These predictions have not been borne out by experience. In many schools, the consequences of desegregation have been fear, mistrust, and lack of understanding across racial lines (Dorr, 1972). Even where racial tensions do not exist, cross-racial friendships are usually rare. I had occasion recently to observe a testing session in a junior high school that has been integrated for many years and has never been known for problems between Black and White students. As the students (all from fully integrated classes) came into the cafeteria for the testing, it was apparent that they were staking out Black and White tables. In a group that was close to 50-50 Black and White, only a handful of students sat at tables where there were students of the opposite race. A few White students who came in late were asked to sit at an all-Black table. They refused. When told they had to sit there they did so, but changed tables as soon as they could.

Is this to be the fate of a great social experiment that promised to lead to a truly integrated society? If so, we are in deep trouble as a nation.

Several social scientists have proposed a means of ameliorating this problem. Their proposals have all contained the same basic idea; if Black and White students can be put into a situation in which they must cooperate on a basis of roughly equal status, then they will

learn to like and help one another. Allport (1954) and Katz (1970) were among the first to suggest such a solution.

The theory behind the use of biracial cooperative groups to improve race relations is quite simple and powerful. Many researchers have found in one way or another that when individuals must work together to achieve a common goal, they learn to like and help one another (see Johnson and Johnson, 1975, for a review). This is probably true because we know that people like those who help them obtain rewards (Berkowitz and Daniels, 1963). If this principle works in general, it should work to increase liking across barriers to liking, such as sex and race.

The evidence is growing that is the case - if we place Black and White students on biracial teams, they will come to like one another. Aronson, Blaney, and Stephan (1975) used a procedure in which Anglo, Black, and Mexican-American children were assigned to teams. The children individually studied portions of academic materials, such as one part of a biography, and then each taught the portion to his or her teammates. Finally, the team members were tested on the whole biography and received a team grade. The results showed greater liking across race lines in the group classes than in control classes.

A longer series of studies carried out at Johns Hopkins University further demonstrated the effects of cooperative learning teams on race relations (DeVries and Slavin, 1975). These studies involved Teams-Games-Tournament, or TGT, a technique in which students study academic material in 4-5 member biracial teams, and then play simple academic games to demonstrate their knowledge. In four studies conducted in

diverse settings and with diverse populations, TGT increased cross-racial liking and helping. These increases in liking included responses to such questions as "who are your best friends?" and "who are your friends outside of school?," questions that provide an extreme test of the effects of the techniques.

In fact, the logic behind the use of cooperative learning teams to integrate the desegregated classroom is so compelling, and the results are so supportive, that it is now time to consider practicality. What is needed is a technique that is effective and is simple enough to be widely applicable. The ideal technique should also have positive effects on academic achievement, as many schools would be reluctant to adopt a program solely on its merits in increasing cross-racial friendships. This paper reports an evaluation of a technique that is a major simplification of TGT, but employs its basic principles. This technique is called STAD, for Student Teams-Achievement Divisions. The technique is composed of two principal elements; biracial, ability heterogeneous student teams, and achievement divisions, a statistical technique for insuring each student a substantial chance of contributing a maximum number of points to his or her team score, regardless of the student's past performance. These features are described in detail below:

Student Teams. Students are assigned to 4-5 member, biracial learning teams. The teams are composed of a high achiever; a low achiever, and 2-3 average achievers, and roughly reflect the race and sex composition of the class as a whole. After the teacher makes an initial presentation explaining the material to be studied, the teams are given worksheets on the material. Team

members are given the opportunity to work together to learn the academic material. Then, they are individually quizzed on the material they studied. The entire cycle (teaching-teamwork-quiz) takes 2½ 45-minute periods; classes go through two of these cycles per week, typically for a 9-10 week period. Team scores are formed from individual scores as adjusted by the achievement division procedure described below. At the end of the week, successful teams are rewarded by recognition in a class newsletter prepared by the teacher.

Achievement Divisions. In addition to being assigned to teams, students are assigned to ability-homogeneous achievement divisions of about six members each. Students do not interact with others in their divisions; the division serves only as a reference group for student scores. Students bring eight points to their team if their quiz scores place them first in their divisions; six if second; four if third; and two if they rank below third. This system assures each student a roughly equal and substantial chance of contributing the maximum number of points to his or her team if he or she works hard, regardless of the student's past performance. A "bumping" procedure changes division assignments from week to week to keep the competition for points within each division as equal as possible.

The system outlined above is thus designed as a cooperative reward and task structure, in which students must help each other if they are to do well as a group, but one in which the contribution of each student to the team score may be highly valued by the team.

Thus, this technique is likely to have positive effects on race relations, as it embodies the equal status, cooperative contact between students of different races hypothesized (and found) to improve race relations. At the same time, the STAD technique involves frequent feedback, clear performance expectations, and a peer tutoring format which are likely to increase cognitive learning.

Method

Subjects. Two intact seventh grade English classes in the Baltimore City Public Schools (N=62; White = 25, Black = 37) served as the experimental population. One Black female teacher taught both classes.

Treatments. One class was assigned to the STAD treatment as described above, while the second served as a control. Both classes studied a nine-week language mechanics unit on the same schedule. Both heard essentially the same lectures, studied the same worksheets, and took the same quizzes. The classes activities differed only during the worksheet periods. At these times (approximately two periods per week) the STAD students studied together in teams, while the control students studied alone. In addition, the STAD students received a weekly newsletter announcing their team scores, while the control students received only a percentage score on their quizzes.

Measures. Both classes were given a sociometric instrument as a pre- and posttest, and took a standardized language arts test (The Hoyum-Sanders Junior High School English Test) and a treatment-specific language arts test also as pre- and posttests. The sociometric instrument was composed of two questions, "who are your best friends in this class?"

and "who have helped you with your classwork?" . Students were provided with 24 blanks for each question, and were instructed to name as many students as they wished.

Results

The sociometric results were analyzed by means of two sets of Chi square contingency tables. The first set investigated treatment effects on the number of cross-race choices. This set employed a 2 X 2 (pre-post X treatment) Chi square table to determine differential changes from pre- to posttest in the different treatments.

The second set investigated treatment effects on the percentage of cross-race choices over all choices made. The first question is probably the most important, as it provides a quasi-behavioral measure of the amount of cross-racial friendship or helping existing in the class. The second question is important because it indicates the degree to which race has ceased to be a barrier to friendship or helping. For instance, if in a class that has equal numbers of Black and White students only 10% of friendship choices are across race lines, what is the substantive meaning of an increase in both same-race and cross-race choices that leaves the cross-race percentage at 10%? There are more Black-White friendships, but race is still a major barrier to friendship. Treatment effects on percentage of cross-race choices over all choices were assessed by means of a 2 X 2 X 2 (pre-post X treatment X same race-cross race) Chi square table. In both the number and percentage analyses, data were included only from students who completed both pre- and posttests.

Insert Table 1 Here

The results of the sociometric analyses are summarized in Table 1. They indicate a positive treatment effect on the number of cross-race friendship choices (χ^2 (1) = 7.44, $p < .01$), and a marginal treatment effect on the number of cross-race helping choices (χ^2 (1) = 3.09, $p < .10$).

Positive treatment effects were also found for the percentage analyses. The effect on the percentage of cross-race friendship choices is marginally significant (χ^2 (1) = 2.89, $p < .10$), but the effect on percentage of cross-race helper choices is strongly significant (χ^2 (1) = 6.67, $p < .01$).

Effects on academic achievement are described in detail elsewhere (Slavin, 1977). However, they can be quickly summarized. Positive treatment effects were found for three academic achievement dimensions; the standardized language arts test ($F(1,63) = 30.76$, $p < .001$), the treatment specific test ($F(1,63) = 7.71$, $p < .01$), and the last three weeks' quiz scores ($F(1,63) = 13.94$, $p < .01$). All of these analyses use students' pretest scores on the treatment specific test as a covariate to control for initial differences.

However, further analysis showed that the treatment effect was largely due to a race X treatment interaction--Black students did much better in STAD than in control, but White students learned only slightly better in STAD than in control. Race X treatment effects (controlling for treatment-specific pretest) were as follows: standardized test, $F(1,61) = 31.64$, $p < .001$; treatment-specific test, $F(1,61) = 6.89$, $p < .05$; quiz scores, $F(1,61) = 4.00$, $p < .05$.

Discussion

The results of this study indicate that STAD is an effective team learning technique, both for increasing cross-racial friendship and for increasing academic achievement, at least among Blacks. This research increases to three the number of techniques that can be used in classrooms to accomplish these objectives-TGT, the Jigsaw method, and STAD. The fact that three diverse ways of structuring learning teams can have such similar effects on cross-racial friendship and helping is an indication of the power and generalizability of the team concept in desegregated classrooms. In fact, a major implication of this study is that team techniques stripped to bare essentials can have effects on cross racial friendship and academic performance as strong as those found for more elaborate procedures.

Examination of the numbers and percentages of cross-race choices on the two sociometric questions reveals a disturbing trend, one which further suggests the urgency of a change in the reward structures now used in desegregated classrooms. It appears that the treatment effects obtained in this study were due as much to erosion of cross-race choices in the control group as to increases in cross-race choices in the experimental group. A similar trend was observed on some variables in the Teams-Games-Tournament studies (DeVries and Slavin, 1975); control groups either did not gain at all in cross-race choices or they actually declined. The present study and three of the four TGT studies took place in seventh grade classes. It may be that in this crucial first year of secondary education, students enter school with a certain propensity

to forming cross-racial friendships. This propensity appears not to increase in the traditional classes in the ten-weeks over which we have implemented our treatments, and in several cases actually decreases. The data in this study are far too limited to provide conclusive evidence on these changes in sociometric patterns, but they indicate a need for further study of friendship patterns in desegregated schools.

In summary, this paper reports findings of increased cross-racial helping and friendship choices and academic achievement (at least for blacks) in a class using Student Teams-Achievement Divisions as compared to a control class. These findings increase the degree to which student team techniques can be relied upon to integrate desegregated classrooms, and they validate a new and practical technique for accomplishing this goal.

Table 1: Cross-Race Friendship and Helping Choices

	STAD		CONTROL		χ^2(d.f.=1) p<	
	Pre	Post	Pre	Post		
Friends						
#	116	147	97	70	7.44	.01
%	36.3	41.5	39.8	34.8	2.89	.10
Helpers						
#	25	34	17	8	3.09	.10
%	22.1	29.3	45.9	22.2	6.67	.01

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