

COOPERATIVE LEARNING:  
INTER-ETHNIC RELATIONS AND ACHIEVEMENT

by

Lori McAllister

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Lori McAllister

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Jon Davies

Member of the Faculty

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## ABSTRACT

Placing heterogeneous students together in the same classroom or school does not guarantee that those students will develop positive interethnic relationships. This review seeks to inform the discussion about the degree to which cooperative learning methods affect inter-ethnic relations and academic achievement in diverse secondary classrooms, and how teachers can best implement those methods in their classroom. The research shows that cooperative learning methods, if well-taught by the teacher, well-understood by the students, and carefully orchestrated in the classroom, can contribute positively to both inter-ethnic relations and academic achievement. Even though the studies in this paper show that cooperative learning can promote positive inter-ethnic relations and contribute to academic achievement, traditional, behaviorist, transmission-based teaching methods are still favored in most schools

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## CHAPTER 1: INTRODUCTION

### **Introduction**

Current trends indicate that by 2020, non-Caucasian ethnic groups will comprise almost half of the population of U.S. schools (Allison & Rhem, 2007, as cited by the U.S. Bureau of Census, 2000). As such, current teachers and teachers-in-training must be properly trained in, and willing to implement, teaching methods that encourage positive development of interethnic relations in students from all ethnic, cultural, religious, and socioeconomic backgrounds, as well as the skills and methods to effectively assist and encourage learning in the aforementioned students.

Research has shown that the simple act of putting heterogeneous students together in the same classroom or school does not guarantee that those students will interact in constructive ways or develop positive interethnic relationships (Datta and Singh, 1994). Thus, this paper seeks to inform the discussion on the types of personal contact between students that encourage both positive interethnic relationships as well as academic achievement, and how those types of personal contact should be implemented in a classroom.

Through a critical review of relevant literature, this paper seeks to inform the discussion on the relationship between cooperative learning and both interethnic relationships and academic achievement in diverse K-12 classrooms. It will seek to address whether cooperative learning practices are related to or affect interethnic relations and academic achievement in diverse K-12 classrooms, and if so, how to most effectively implement cooperative learning in the classroom.

## **Rationale**

This paper evaluated 30 peer-reviewed studies, as well as several additional texts, in an attempt to discover whether cooperative learning methods are effective in encouraging positive interethnic relations and academic achievement in diverse K-12 classrooms. Teachers are responsible for helping students learn required and established curricula; as such, it is of utmost importance that teachers understand how students learn best, and that they implement teaching strategies that contribute to the learning of children from all backgrounds. In addition to helping students learn required curricula, dedicated teachers must consider it their responsibility to teach students appropriate social skills, empathy, and the ability to understand and successfully navigate society's social constructs and "culture of power," as described by Lisa Delpit (1995). This paper seeks to address, through the analysis of relevant studies, whether cooperative learning practices are related to or affect interethnic relations and academic achievement in diverse K-12 classrooms.

## **Historical Background**

Historically, teaching and learning have been viewed as primarily mechanistic processes. As early as the late 17<sup>th</sup> century, philosophers such as John Locke and Thomas Hobbes equated the brain with a blank slate—"tabula rasa"—that was empty until filled with knowledge. In this transmission-type pedagogy, the teacher distributes conventional wisdom to the learner through lectures, reading drills, and rote memorization (Ford, 2011). During the 19<sup>th</sup> century, educational philosophers and psychologists such as William James and Edward Thorndike built on earlier theories in developing the stimulus-response, or behavioral, concepts of learning (Spring, 2011).

James posited that “correct habits can be built through exercise and drill,” while Thorndike suggested that all changes in human intellect are direct results of stimulus-response learning (Spring, 2011).

The academic and social effects of cooperative learning methods have been studied since the 1910s. Dewey, one of the first proponents of progressive education, proposed in his *Democracy and Education* (1916) that classrooms should be democratic, cooperative microcosms that mirror larger society as a whole. Dewey called for more experiential learning and less of the traditional teaching styles, including rote transmission of information from older to younger generations (Dewey, 1938). His theories were viewed by many as a radical shift away from traditional teaching and learning norms. In the 1950s and '60s, Thelan further developed Dewey's ideas, and laid the groundwork for current cooperative learning practices.

A major historical reason for the emergence of cooperative learning in the classroom is due to the Supreme Court's 1954 *Brown v. Board of Education* decision, which called for the desegregation of U.S. public schools. Sociologist Gordon Allport argued that schools would not automatically become desegregated simply by placing students of varying ethnic backgrounds in the same classroom, but that specific steps must be taken to implement desegregation. Allport and Shlomo Sharan proposed three conditions to combat racial prejudice: “(1) unmediated interethnic contact, (2) occurring under conditions of equal status between members of the various groups participating in a given setting, (3) where the setting officially sanctions interethnic cooperation” (1984, p. 2, as cited by Arends, p. 115).

Over the past 30 years, several different theorists have proposed that cooperative learning methods in the classroom can improve academic performance as well as foster positive interethnic relationships among students. In the 1980s and '90s, Johnson and Johnson argued that an inherent result of cooperative learning models of teaching is the development of student empathy through helping one another learn and providing encouragement (1986). Slavin (1987, as cited by Abu, 1997), proposed that cooperative learning theories can be divided into two camps: motivational and cognitive. Slavin believed that the “motivational theories of cooperative learning emphasize the students' incentives to do academic work, while the cognitive theories emphasize the effects of working together” (Abu, 1997).

Although cooperative learning methods can improve academic performance and foster positive interethnic contact among students, these same methods can actually hinder all the aforementioned if not properly implemented. Improper implementation most often occurs when teachers are not properly trained in cooperative learning methods. Cooperative learning methods can also be difficult to properly implement in classrooms with diverse behavioral and learning needs.

### **Definitions**

Several key definitions relating to cooperative learning and empathy shall be laid out in this section for the purpose of the paper.

For the purpose of this paper, cooperative learning is defined as “learning that takes place in a stable, formal group of two or more students who work together and share the workload equitably as they progress towards assessed outcomes” (Baker & Clark, p. 258).

For the purpose of this paper, interethnic relations refer to personal relationships in which the two partners are members of different ethnic groups (Gaines, 1997).

For the purpose of this paper, Jigsaw groups are defined as “heterogeneous groups of about six students . . . and characterized by interdependent cooperation between students” (Bratt, p. 404). A Jigsaw lesson is split into separate parts by the teacher, and “students in a Jigsaw group are supposed to learn different parts, and then collaborate by teaching and learning from each other to establish a complete picture. Participants prepare themselves by first joining expert groups” (p. 404).

Expert group is defined here as a group where all participants collaborate on learning one specific part of the lesson (Bratt). “The members of an expert group then move to their respective Jigsaw groups. As a result, a Jigsaw group will consist of as many ‘experts’ as there are participants, with each student being dependent on all the others” (p. 404).

The Merriam-Webster Dictionary defines empathy as “the capacity to or action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another of either the past or present without having the feelings, thoughts and experience fully communicated in an objectively explicit manner.”

Academic achievement (or learning) is defined here as building understandings and constructing links to previous learning and prior knowledge (Gillies, 2003).

For the purpose of this paper, prejudice is defined as a “broadly focused multidimensional attitude that includes dispositions to avoid contact with members of the target group” (Datta and Singh, 1994).

### **Limitations**

The limitations of the research are bounded by these 30 research articles. Some parts of the “Historical Background” section of this paper are drawn from literature other than these 30 research articles, but the findings of this literature review are bounded specifically by the studies done in these 30 articles.

The subjects of these studies are, for the most part, students in grades K-12, although two studies dealt with first-year university students. Although the underlying question asked in this literature review deals with K-12 students, the two studies dealing with first-year college students contained relevant information about ways in which cooperative learning methods affect inter-ethnic relations and academic achievement among students. It is the opinion of the author that it is still useful to include studies of first-year university students, even though the paper’s original question deals with K-12 students.

This review is also limited to peer-reviewed research published in English.

### **Summary**

Current trends indicate that non-Caucasian ethnic groups will comprise almost half of the population of U.S. schools. As such, current teachers and teachers-in-training must be properly trained in, and willing to implement, teaching methods that encourage positive development of interethnic relationships in students from all ethnic, cultural, religious, and socioeconomic backgrounds, as well as the skills and methods to effectively assist and encourage learning in the aforementioned students.

Through a critical review of relevant literature, this paper seeks to inform the discussion on the relationship between cooperative learning and both interethnic

relationships and academic achievement in diverse K-12 classrooms. It will seek to address whether cooperative learning practices are related to or affect prejudice reduction and academic achievement in diverse K-12 classrooms, and if so, how to most effectively implement cooperative learning in the classroom.

## CHAPTER 2: CRITICAL REVIEW OF THE LITERATURE

### **Introduction**

Chapter one examined traditional transmission-based education methods in light of current population trends. Classroom makeup is rapidly changing—it is no longer socially responsible or just for educators to fail to take classroom cultural and learning diversity into account. Chapter one suggested that teachers and teachers-in-training must be properly trained in, and willing to implement, teaching methods that encourage positive development of interethnic relations in students from all ethnic, cultural, and socioeconomic backgrounds, and skills and methods to effectively teach materials to a variety of students. Chapter two reviews the research about cooperative and group learning and its effect on student learning and interethnic relations. The research in this chapter is organized into four sections: cooperative learning's effects on interethnic relations, cooperative learning's effects on academic achievement, the effects of joint reward structures, competition and feedback in cooperative learning groups, and teachers' views of cooperative learning. Together, these sections review a large portion of the research on the connection between cooperative learning and prejudice reduction in a school setting.

### **Cooperative Learning and Interethnic Relations**

The 18 studies in this section examined the connection between cooperative learning and interethnic relations among students. Weigel, Wisner and Cook (1975) examined newly desegregated junior and senior high schools and found that cooperative interethnic contact resulted in reduced cross-ethnic hostilities, improved cross-ethnic helping, more harmonious cross-ethnic relations and positive teacher

appraisal. Slavin and Madden (1979) found that teaching practices involving team work and student interaction were the greatest predictors of positive interracial attitudes and behaviors amongst tenth-grade English students in several southern states. Slavin and Oickle (1979) studied inner-city Baltimore junior high students to find whether team techniques are equally effective in increasing the cross-racial attraction of black and white students, or whether they primarily change the friendship-choice patterns of one racial group or the other. The results showed that all students in team techniques had increased cross-racial friendship choices. Hansell & Slavin (1981) examined whether black and white sixth, seventh, and eighth-grade students experienced proportionate increases in cross-racial friendships as a result of cooperative learning methods, or whether one race benefited more than another. They found the differences to be insignificant, although a great number of whites named blacks as their friend in the “team” group versus the “non-team” group. Johnson and Johnson (1982) studied the effects of cooperative, competitive, and individualistic learning experiences on interethnic interaction and attitudes among inner-city elementary school students in a Midwestern metropolitan area school district. Students in cooperative learning groups, when compared to a control group, demonstrated more cross-ethnic interaction, more interethnic giving and receiving, and a higher popularity rating from their classmates. Peterson, Johnson and Johnson (1991) studied sixth-grade students from an urban elementary school to find out how cooperative and individualistic learning experiences affected the status of male and female students. They found that group composition in terms of sex does not pose a significant influence on the outcomes of cooperative efforts. Johnson, Johnson and Taylor (1993) found that cooperative learning activities

had a positive effect on high-ability fifth-grade students' achievement, self-esteem and social acceptance. Shachar and Sharan (1994) studied how the effects of the Group Investigation method of cooperative learning on eighth-grade students in ethnically heterogeneous classrooms in a junior high school in Israel compared with the effects of the traditional Presentation-Recitation method. Researchers found that students from the GI method expressed themselves more frequently, took turns more symmetrically, and addressed more cooperative statements to Middle Eastern students. Datta and Singh (1994) studied an inner-city Bangladeshi school and found that cross-ethnic tutoring encourages inter-ethnic relations, respect for classmates' culture and religion, and a significant degree of interethnic cooperation amongst heterogeneously mixed monolingual and bilingual students. Dudley, Johnson and Johnson (1997) studied 107 freshman student athletes to find what effect participation in a cooperative learning program has on student athletes' task orientation, academic self-esteem, and mutual friendships. Following the program, the researchers found that student participants had high levels of academic self esteem, and considered their group mates' friends after emerging from the cooperative learning groups. Foley and Jones (2003) studied two private, Florida, K-12 schools in to test the effectiveness of educating children to decategorize other groups. They wanted to find whether it is possible to teach children material that decreases the salience or validity of boundaries between groups, thus leading them to perceive similarities rather than differences when viewing self and others. They found that students can be taught to perceive similarities rather than differences between themselves and others—in other words, the students were taught “nonprejudice.” Gillies (2004) studied ninth-grade students in Australia to find the effects

of structured and unstructured cooperative learning experiences on student behavior, interactions and learning to find whether students' perceptions of what happens during cooperative learning differ for students in structured and unstructured groups. Students in the structured groups displayed more cooperative behavior—students were less likely to cut each other off, listen to each other, share their ideas and help each other. Hanze and Berger (2007) studied eight twelfth-grade Jigsaw classes to find whether direct instruction and the jigsaw model of cooperative learning have differing effects on achievement, motivation, autonomy, competence, and social relatedness. Overall, the study failed to show positive effects of the jigsaw puzzle on academic performance, but there were strong effect of cooperative learning on the experience of basic needs, intrinsic motivation, and activation of deeper level processing. Bellmore, Graham, Juvonen, Nichina, & Witkow (2007) surveyed 1116 African-American, Asian, White, and Latina/o sixth graders to identify whether classroom ethnic context impacts students' same-ethnicity friendship preferences. They found that students tended to favor their same-ethnicity peers, and that classroom ethnic context did not affect students' friendship preferences. Oortwijn, Boekaerts, Vedder, and Fortuin (2008) studied multi-ethnic fifth-grade classrooms to find whether cooperative learning activities affect popularity and perceived non-cooperativeness. They found that non-immigrant students were more liked at the end of the cooperative learning curriculum than their immigrant counterparts; and pupils rated their fellow team members as more popular at the end of the study than at the beginning. Van Geel and Wedder (2011) studied national and immigrant secondary students in Norway and found that ethnic diversity in the classroom is positively related to adolescents' supportive attitudes towards

multiculturalism. Case, Cole, Curtin and Rios (2011) studied the impact of required diversity courses on first-year college students' understanding of racial inequality and their social development with regard to racial out-groups, and found that students who took the diversity courses exhibited greater awareness of white privilege and interracial inequality than those who did not take the courses. Bratt (2008) examined the effectiveness of the Jigsaw model of cooperative learning at improving inter-group classroom relations among sixth, eighth, ninth, and tenth-graders in Norway, and found no positive correlation between Jigsaw and empathy/prejudice reduction among students.

The quantitative study conducted by Weigel, Wiser and Cook (1975), which examined the effect of cooperative interethnic contact in newly desegregated junior and senior high schools, will be studied first in this section, followed by several other research summaries.

In a quasi-experimental study, to determine the effects of cooperative interethnic contact on ethnic relations and attitudes in the setting of newly desegregated junior and senior high schools, Weigel, Wiser and Cook (1975) investigated 231 white students, 54 black students, and 39 Mexican American students at a junior and a senior high school in Denver, CO. Both the junior high and senior high school samples were made up of white, black, and Mexican-American students who, because of the school busing program in Denver, were attending integrated classes for the first time. Most of the minority students were being bused to the schools from their inner-city neighborhoods. All students had previously attended predominately segregated schools. Ten English

teachers (five in the junior high school and five in the senior high school) volunteered to participate in a comparison of the two teaching methods.

Small-group classes were taught in such a way as to foster cooperative inter-ethnic activities. Most of the classroom activities were carried out in groups. Group representatives often made reports to the class. Groups within each experimental classroom were encouraged to compete with each other. The teaching method in the control classroom was mostly teacher-driven lecture. The study was done over a 4 1/2 month period in the senior high, and a 7 month period in the junior high. One of the researchers of this project observed both the experimental and control classes once a week, and teachers from each class were interviewed once a week. Post-experimental studies were conducted with each participating teacher one week after the study concluded. 97 percent of the participating students completed a questionnaire from which six scores were derived. There were seven outcome variables: Teachers' overall evaluations, social relationships in the classroom, cross-ethnic respect and liking among classmates, cross-ethnic friendship choices, ethnic attitudes, group identification, and scale characteristics.

The multi-item scales used to measure perceived social atmosphere in the classroom, respect and liking among classmates, friendship choices, the various aspects of ethnic attitudes, and group identification have been examined for adequacy of internal psychometric properties. Alpha coefficients on these measures varied from .70 to .93 with lower alphas associated with scales comprised of fewer items. In terms of Scott's homogeneity ratio, the scales reflect satisfactory levels of inter-item consistency. Furthermore, although the separate ethnic attitude scales are all positively

intercorrelated (averaging .32), suggesting their utility in mapping out this general domain, the amount of shared variance is sufficiently small to indicate the relative independence of the measures.

This study had multiple findings. First, teacher responses indicated a positive appraisal of the small-group teaching method and all said they would continue using the cooperative learning methods. Secondly, while cross-ethnic hostilities accounted for 90 percent of the reported conflicts between students in the classrooms taught by the whole-class method, only 45 percent of the conflict in the small-group classes involved students from different ethnic backgrounds. Third, students in small-group classes helped their fellow students three times as often as did those in the control group, and cross-ethnic helping was five times greater in the small-group classes. Fourth, white students in the small-group classes gave equal rating to their white and Mexican-American classmates, whereas white students in the control group favored other white classmates over everyone else. Finally, ethnic relations in the small-group classes were more harmonious and less conflict was reported.

This study's strengths included satisfactory levels of inter-item consistency, rating scales being positively intercorrelated (averaging .32), alpha coefficient measures varying from .70 to .93 with lower alphas associated with scales comprised of fewer items, and  $p < .001$  for difference between the proportions. In terms of weaknesses, this study had one major threat to the study's internal validity: the study involved a comparison of students who had experienced seven class periods of interethnic contact under the whole-class mode of instruction, along with other students who had

experienced 6.5 such periods plus half a period of cooperatively-oriented small-group instruction.

A quantitative study conducted by Slavin and Madden (1979) found that teaching practices involving team work and student interaction were the greatest predictors of positive interracial attitudes and behaviors amongst tenth-grade English students in several southern states.

The subjects in the study were 10<sup>th</sup>-grade English class students from 48 high schools in ten southern states, plus 23 additional high schools in eight non-southern states. Teacher questionnaires were given to a random selection of 10 teachers, and principals were individually interviewed. For the school-level analysis, any school with fewer than 10 respondents of one race or the other was dropped from the analysis. This left 51 high schools; 35 southern schools and 16 northern schools. The individual-level analyses, however, used all 2,384 respondents who completed their questionnaires.

After gathering the questionnaires and interviews, Slavin and Madden analyzed the data. There were six dependent variables used in all analyses, all taken from the student questionnaires: 1) Behavioral Dependent Variables; 2) Attitudinal Dependent Variables; 3) Attempts to Change Teacher Attitudes; 4) Attempts to Change Student Attitudes; 5) Heterogeneous Grouping; and 6) Attempts to Change Student Behavior. Three independent variables were analyzed at the individual student level, and were designed to analyze the effects of actual experiences students have had on their interracial attitudes. These experiences were divided into two categories: 1) Experiences of Attitude-Change Attempts; and 2) Experiences of Interracial Contact.

Both school-level and individual level analyses were used to assess the impact of the practices. In the school-level analyses, each of the 8 school-level independent variables was regressed on the six dependent variables, controlling for school percent black, mean black SES, mean white SES, and region. In the individual analyses, the three individual-level independent variables were regressed on the six dependent variables, controlling for school percent black, black SES, white SES, region, individual SES, and sex.

The findings of Slavin and Madden's study are as follows: practices that most consistently affect interracial attitudes and behavior are those that directly involve students, instead of teachers, and specifically structure black and white interaction. The findings also show that multicultural texts, intergroup relations workshops for teachers, and biracial advisory committees do not change the way the students interact with each other.

The strengths of Slavin and Madden's (1979) study are as follows: all six dependent variables were positively correlated, with a median  $r$  of .25 at the individual level. The analyses for all variables were conducted by means of separate regression equations for each independent variable on each dependent variable. The total  $R$  squared for each equation was compared to that for the control variables alone, and the resulting incremental  $R$  squared was tested for statistical significance. The results of this investigation exhibited external validity and reliability. No weaknesses were observed in this study.

In another quantitative study, Slavin and Oickle (1979) examined inner-city Baltimore junior high students to find whether team techniques are equally effective in

increasing the cross-racial attraction of black and white students, or whether they primarily change the friendship-choice patterns of one racial group over another.

The subjects in this study were 402 7<sup>th</sup> and 8<sup>th</sup>-grade students in two inner-city Baltimore junior high schools. There were 173 students in the control group, and 229 students in the experimental group. The sample had 245 white students and 157 black students. The students were spread over 12 courses taught by five language arts teachers.

Students were taught a ten-week unit on grammar, punctuation and English usage. Both the experimental class and the control class followed a regular weekly schedule that included a lecture/discussion, period, worksheet work, and quizzes. Students were not aware that race relations were being measured; they were also not told whether they were in the experimental or the control class. The experimental class used Student Teams-Achievement Divisions (STAD)—students were assigned to four- or five-member teams representing a mix of high, average and low-performing students, genders, and races. Teams met twice a week to help each other with quizzes and worksheets. Following the team meetings, individual students were quizzed. Quiz scores were summed to form a team score. Each week, teachers compared team scores and prepared class newsletters to announce the highest scoring team. The control group followed the same schedule and worked on the same quizzes and worksheets, but worked independently rather than in teams, and did not receive newsletters.

The effects of STAD on cross-race friendships were assessed in multiple regressions. For example, the cross-race choices made by the students on the posttest

were regressed on the treatment variable, the individual characteristics of sex, race and achievement, and the control variables of pretest cross-race choices made and the proportion of the class which was a different race from each individual.”

The results showed that all students in team techniques had increased cross-racial friendship choices. The results also showed that the cross-race choices were made and received equally by blacks and whites.

Following is the critique of strengths and weaknesses for this study: examination of the pattern of scores in Slavin and Oickle’s (1979) study reveals a normal distribution in all conditions, thus supporting the study’s internal validity. The study was conducted in such a way that it could be replicated and generalized to other settings, even three decades later. There is a possibility that the treatment X race interaction is in part a treatment X pretest interaction, a possible weakness in the study, but even taking this into account, the results of the study are still supported. Other strengths include the reliability of the results of the study; it also appears the study was conducted with objectivity.

Another quantitative study examining the effects of STAD was conducted by Hansell & Slavin (1981). This study examined whether black and white sixth, seventh, and eighth-grade students experienced proportionate increases in cross-racial friendships as a result of cooperative learning methods, or whether one race benefited more than another. The subjects in this study were 230 students in grades 6-8 in a desegregated rural middle school. 78 (33.9 percent) of the students were black; the remaining students were white. The students were in 10 English classes taught by five white teachers.

The study's initial design was a 2X2 factorial design with an external control group. Classes were assigned randomly; students studied the same language mechanics curriculum on the same schedule four periods per week for twelve weeks. There was a "team" and a "non-team" control group in the study. The "team" treatment was a version of Student Teams Achievement Divisions (STAD) involving students working in 4-5 member teams made up of varying but proportional levels of academic achievement, sex and race. In the team treatment, a teacher presented information, students were quizzed, and students' quiz scores were compared to past averages, with the resulting scores summed to form team scores. The "non-team" followed the exact same schedule, but they studied individually rather than in teams. To measure academic achievement, the study used "the standardized Hoyum-Sanders Junior High School English Test, a test of language mechanics...such as punctuation, capitalization, and English usage." The study also measured cross-racial friendship choices by asking students the question, "Who are your friends in this class?" Students were given 22 lines where they could show their friend choices, but only the first six were counted.

Their findings of this study found the differences between the "team" and "non-team" friendships to be insignificant, although a greater number of whites named blacks as their friend in the "team" group versus the "non-team" group.

Control classrooms in the study had a mean percentage of black students at 38.5 with a standard deviation of 19.0. Experimental classrooms had a mean percentage of black students of 40 with a standard deviation of 18.7. P value is  $< .05$  consistently throughout the study, contributing to the study's internal validity. Hansell and Slavin's (1981) conclusions could be generalized to other state populations. One possible flaw in

the study is that it examined only one-on-one friendships without taking into account larger groups of friends and cliques and the effect those groups can have on individuals.

A quantitative study by Johnson and Johnson (1982) examined the effects of cooperative, competitive, and individualistic learning experiences on interethnic interaction and attitudes among inner-city elementary school students in a Midwestern metropolitan area school district.

Subjects were 76 students from three fourth-grade classes at a large inner-city elementary school in a Midwestern metropolitan area school district. The school had been designated as a magnet school by the school district and consequently offered a variety of special classes and programs not offered in other schools in order to attract students from other areas of the city. The sample consisted of 43 males and 33 females, of whom 26 were Black. Students were “randomly” assigned to the three conditions stratifying for ethnic membership, ability and sex. 8 minority students were assigned to the cooperative condition, 9 to the competitive condition, and 9 to the individualistic condition. There was an equal number of high, medium and low ability students in each condition. There were 14 males and 11 females in the cooperative condition, 15 males and 11 females in the competitive condition, and 14 males and 11 females in the individualistic condition.

Students in each condition were together for 55 minutes a day for 15 instructional days. Each condition was assigned a separate classroom comparable in size. Two curriculum units were used, one on the use of coal as an energy source and one on the wolf as a protected species. Each day the teachers would explain the day’s task to the students, distribute the appropriate materials, and review their goal structure. At the end

of the session the completed work and all materials were collected. After the 45-minute instructional session, 10 minutes of free time were given each day, during which the students were free to move around the classroom and engage anyone they wished to in play or work. At the completion of the study, the sociometric and attitude questions were given to all students.

In each condition, 2 teachers were present, one regular classroom teacher and 1 hired and trained specifically for this research study. Six research assistants observed student cross-ethnic interaction on a daily basis in the three conditions. The observers were given over 10 hours of training in the use of the observation instruments.

This findings of this study showed that students in cooperative learning groups, when compared to a control group, demonstrated more cross-ethnic interaction ( $F$ -value 3.47,  $p < .05$ ), higher sociometric helping nominations ( $F$  18.56,  $p < .01$ ), and a higher amount of cooperation ( $F$  25.36,  $p < .01$ ), although delayed sociometric play nominations have a lower correlation ( $F$  2.45,  $p < .10$ ). Johnson and Johnson's (1982) conclusions can be generalized to other state populations, giving the study external validity. The study was conducted with objectivity, and its results are reliable. No weaknesses were detected in this study.

Peterson, Johnson and Johnson (1991) studied sixth-grade students from an urban elementary school to find out how cooperative and individualistic learning experiences affected the status of male and female students.

Subjects in each condition participated in two science units for 14 days, at 55 minutes each day. Teachers followed a daily script telling them what to say and do. To control for possible teacher effects, teachers were rotated across conditions so that

each teacher spent an equal amount of time in each classroom. Conditions were assigned to separate classrooms comparable in size. Five graduate assistants observed the verbal interaction within the groups and conducted inter-rater reliability checks during the observed sessions. Inter-rater reliability on the verbal interaction measure using the Harris-Lahey method for combining and weighting of agreements was 70% for verbal concurrence, 66% for category, and 82% for direction. The observers were randomly assigned to the conditions and rotated daily.

The dependent variables were achievement, verbal interaction, perceived leadership, and perceived change in status. Student achievement was measured using multiple-choice tests and written reports. The verbal interaction of the students was measured by using the Verbal Interaction Measure, which is designed to record a 2-minute continuous sequence of verbalizations by all group members. Perceived leadership was assessed by peers ranking each person in the group on various aspects of leadership. The perceived leadership measure was adapted from studies in status and expectation states research. For the measure of perceived change in status, students completed a peer nomination form. They were instructed to "circle the names of (a) your best friends, (b) the individuals who are most able to get other people to do things, (c) the individuals who are best at games and sports, and (d) the individuals who are best at math, science, and reading." A status score was computed for each subject by averaging the total nominations a person received for each question and standardizing the scores across conditions by dividing the score by the total score possible.

Subjects also completed two self-report attitude scales at the end of the study that measured the extent to which they engaged in cooperative or individualistic behaviors. The range of possible scores on the two scales was 1-5.

The study found that group composition in terms of sex does not have a significant influence on the outcomes of cooperative efforts. It also found that cooperation, compared with individualistic efforts, promoted higher achievement on the retention and higher level reasoning measures, but not on the lower level factual recognition tests.

Strengths of this study include internal validity, illustrated by operational checks which were conducted frequently throughout the study to ensure that the operationalization of the independent variables were effective. The study also exhibited external validity, in that the results of Peterson, Johnson and Johnson's (1991) study can be generalized to other settings. It does appear that the researchers in this study had preconceived ideas about gender before conducting the research, thus weakening the objectivity of this study.

Johnson, Johnson and Taylor's (1993) quantitative study examined high-ability fifth-grade students to find the impact of cooperative and individualistic learning experiences on their academic performance, higher-level thinking, self-esteem and social acceptance.

The subjects of this study were 34 high-ability students from four fifth-grade classes. High-ability students were defined as those who were in the top 25 percent and reading. There were 16 boys and 18 girls in the sample. All were from middle-class backgrounds. The students were randomly assigned to either a cooperative or an

individualistic condition, stratified for gender and class. Two teachers also participated in the study.

All the subjects participated in six 55-minute instructional sessions studying the same unit. Two teachers trained in cooperative and individualistic learning participated in the study. They were given scripts and materials for each session. Teachers were rotated between the cooperative learning group and the individualistic learning group.

The independent variables were cooperative versus individualistic learning. In the cooperative condition, students were instructed to work together as a group, to listen to each other, to share ideas, ask each other for help, and to help and praise each other. Students were randomly assigned to groups of three, stratified for gender and class. In the individualistic condition, the students were instructed to work on their own, avoid interaction with other students, work hard and quietly, ask the teacher for any help, and check their progress with the teacher. Students in this group were also randomly assigned to clusters of three, stratified for gender and class.

The dependent variables were achievement and attitudes. The achievement measure was 70 short-answer and multiple-choice questions. The students were given four attitude scales, on which they responded to 5-point Likert-type scales for each item. The scales measured academic self-esteem, cohesion, cooperation among group members, and individualistic efforts. The researchers used a one-way analysis of variance to analyze the data.

The findings of this study showed that cooperative learning activities had a positive effect of high-ability fifth-grade students' achievement, self-esteem and social acceptance. The high-ability students in the cooperative condition performed better than

the high-ability students in the individualistic condition on the recall questions ( $F=6.05$ ,  $p < .02$ ), the higher level questions ( $F=3.14$ ,  $p < .09$ ) and the total test ( $F=5.97$ ,  $p < .02$ ). The academic self-esteem of the high-ability students in the cooperative condition was higher than that of the high-ability students in the individualistic condition ( $F=1.66$ ,  $p < .05$ ). The high-ability students in the cooperative condition felt a greater sense of cohesion than the students in the individualistic condition did ( $F=2.80$ ,  $p < .01$ ). The correlational results in this study exhibit internal validity, and conclusions of the study can be generalized to other populations, strengthening the study's external validity. The study's results are reliable. There are, however, some unsupported claims in the discussion section of the research that may weaken the objectivity of the study, though not necessarily.

Shachar and Sharan (1994) studied how the effects of the Group Investigation method of cooperative learning on eighth-grade students in ethnically heterogeneous classrooms in a junior high school in Israel compared with the effects of the traditional Presentation-Recitation method.

This quantitative, quasi-experimental study was conducted in a large junior high school in Israel that is located in a middle-class neighborhood with a high concentration of professional people. However, 33 percent of the students are bused to the school from a lower class neighborhood in the city. The school authorities distribute the lower class children equally throughout the 7<sup>th</sup>-grade classrooms that students enter when they arrive from elementary school. 351 Jewish students from Western and Middle Eastern backgrounds, with 197 in five classes taught for 6 months with the Group Investigation method and 154 in 4 classes taught with the whole class method.

The study focused on students' verbal interaction in small multiethnic groups after the students had participated for several months in history and geography classes conducted with the Group Investigation method or in those taught with the traditional Whole-Class method. Students' social interaction with members from their own or another ethnic subgroup (in the Jewish population of Israel) was also evaluated, as was their academic achievement.

The independent variable was classroom observations. Specially trained researchers monitored speech and behavior among the students and teachers. Dependent variables included students' academic achievement in geography and history as assessed by tests made by all of the teachers, their verbal behavior as assessed by teachers, and the nature of their social interaction during the group discussions.

The data was organized via a Pearson Correlation between focused interactions in students' verbal behavior. Another Pearson Correlation was made between different cognitive strategies in students' verbal behavior. A 2 x 2 (Instructional Method: Group Investigation vs. Whole Class x Ethnic Group: Western vs. Middle Eastern) analysis of variance (ANOVA) was performed on each of the two measures of students' frequency of speech in the discussion groups. Results indicated that there were main effects for Instructional Method and for Ethnic Group on the Number-of-Words measure and an Instructional Method x Ethnic Group interaction effect on the Number-of-Turns measure. Students' cognitive strategies were analyzed via a two-way ANCOVA, and the data revealed significant findings in two areas, namely *takes a stand*, and *organizes ideas*. On the measure of non-cooperative or competitive behavior, there were main effects for

Instructional Method,  $F = 3.42$ ,  $p < .05$ , and for Ethnic Group,  $F = 5.32$ ,  $p < .01$ , for the number of statements addressed to Western, but not to Middle Eastern, students in the discussion groups. Students in the Group Investigation group expressed fewer competitive statements toward their groupmates from Western background than did their peers from the Whole-Class method.

Classroom academic achievement data was analyzed first by using aggregated scores of classrooms as the unit of analysis, and afterwards using the scores of individual students. In the first analysis a split-plot design analysis of covariance (ANCOVA) with unequal Ns was used, with Instructional Method (Group Investigation vs. Whole-Class) as a between-groups variable and Classrooms nested in it; the pretest and posttests cores as a within-group variable; and Father's Education as a covariate. The first analysis was intended to check for differences in achievement between students in classes taught with the Whole- Class method by teachers who had attended the cooperative learning workshops but who were asked to teach with the traditional form of instruction and the achievement of students whose teachers had not attended the workshops. No effects between classes were found.

Researchers found that students from the GI method expressed themselves more frequently, took turns more symmetrically, and addressed more cooperative statements to students of other ethnicities. Also, students' achievement scores were higher in classes taught with the GI method than those taught with the Whole-Class method.

Following is the critique of strengths and weaknesses in Shachar and Sharan's study: The p values as related to the means and standard deviations in this study

contribute to the study's internal validity. However, the study's internal validity and objectivity is somewhat weakened by the unexplained method of teachers "selecting groups of students at random." The study's conclusions could be generalized to other populations, strengthening the study's external validity.

Datta and Singh's qualitative (1994) study examined an inner-city Bangladeshi school to find the effects of cross-ethnic tutoring. Subjects in this study were 26 heterogeneously mixed pupils consisting of monolingual white pupils—there were no monolingual black pupils—and bilingual pupils, mainly from Bangladesh, who were still learning English in the UK. The majority of the bilingual pupils in the school where the study took place came from Bangladesh. The home circumstance of the bilingual pupils had a lot in common with those of the indigenous population. Subjects were selected through a pre-test interview given to 78 pupils. 13 bilingual pupils were paired for the experimental group with 13 monolingual English-speaking pupils. The control group consisted of 13 bilingual pupils who were matched with bilingual pupils.

The subjects were monitored using a series of interviews. The pretest was conducted individually with 78 pupils varying from grades 7-12. Pairings between monolingual and bilingual students were agreed upon by class teachers, the coordinator of the support group and the head of the ESL team. The experimental design matched pupils in the experimental group with those in the control group. Variables included: age, gender, mother tongue, religion, country of origin, length of time learning English, ability and subject on the curriculum.

Researchers induced six weeks of classroom interaction by all pupils. Group work which included cooperation in learning activities was encouraged. The three

interviews were given over the course of 5-6 weeks, during which work continued in the class. The concluding interviews were standardized into categories: benefits from working in pairs; overspill to other pupils, e.g. forming friendships with friends of friends; and developments outside school. The interviews were structured to clarify the attitudes and behavior of all 39 students in the study.

Their findings showed that cross-ethnic tutoring encourages inter-ethnic relations, respect for classmates' culture and religion, and a significant degree of interethnic cooperation amongst heterogeneously mixed monolingual and bilingual students.

The methodology of this study is credible and could be applied to other, similar settings. The findings within this study are consistent with other similar studies, and the process and product of the data collection could be audited by an outside party, contributing to its confirmability.

Dudley, Johnson and Johnson (1997) conducted a quantitative, quasi-experimental study of 107 freshman student athletes to find what effect participation in a cooperative learning program has on student athletes' task orientation, academic self esteem, and mutual friendships.

Subjects in each condition participated in two science units for 14 days, at 55 minutes each day. The unit was on acid rain and the formation of the Boundary Waters Canoe Area (BWCA), a national park that was created within northern Minnesota. Each day the teachers would explain the day's task, distribute the appropriate materials, and review the condition's goal structure. At the end of the instructional session, the completed work and all materials were collected.

Teachers followed a daily script telling them what to say and do. To control for possible teacher effects, teachers were rotated across conditions so that each teacher spent an equal amount of time in each classroom. Conditions were assigned to separate classrooms comparable in size. Five graduate assistants observed the verbal interaction within the groups and conducted inter-rater reliability checks during the observed sessions. Inter-rater reliability on the verbal interaction measure using the Harris-Lahey method for combining and weighting of agreements was 70% for verbal concurrence, 66% for category, and 82% for direction. The observers were randomly assigned to the conditions and rotated daily.

The dependent variables were achievement, verbal interaction, perceived leadership, and perceived change in status. Student achievement was measured using multiple-choice tests and written reports. The verbal interaction of the students was measured by using the Verbal Interaction Measure, which is designed to record a 2-minute continuous sequence of verbalizations by all group members. Perceived leadership was assessed by peers ranking each person in the group on various aspects of leadership. The perceived leadership measure was adapted from studies in status and expectation states research. For the measure of perceived change in status, students completed a peer nomination form. They were instructed to "circle the names of (a) your best friends, (b) the individuals who are most able to get other people to do things, (c) the individuals who are best at games and sports, and (d) the individuals who are best at math, science, and reading." A status score was computed for each subject by averaging the total nominations a person received for each question and

standardizing the scores across conditions by dividing the score by the total score possible.

Subjects also completed two self-report attitude scales at the end of the study that measured the extent to which they engaged in cooperative or individualistic behaviors. The range of possible scores on the two scales was 1-5.

Following the program, the researchers found that student participants had high levels of academic self esteem, and considered their group mate's friends after emerging from the cooperative learning groups. Overall, the study found that cooperation, compared with individualistic efforts, promoted higher achievement on the retention and higher-level reasoning measures, but not on the lower-level factual recognition tests.

The major weakness of this study is that although the researchers provided charts illustrating the means and standard deviations, they neglected to include any p values, thus threatening the internal validity of the study. This study could likely be replicated in another, similar setting, contributing to its external validity. The study's reliability and objectivity are questionable since the researchers do not include all the necessary statistical data in the report.

Foley and Jones' (2003) qualitative study examined two private, Florida, K-12 schools in to test the effectiveness of educating children to decategorize other groups. They wanted to find whether it is possible to teach children material that decreases the salience or validity of boundaries between groups, thus leading them to perceive similarities rather than differences when viewing self and others.

Subjects were 65 students from two private schools in a city in northeast Florida. The sample consisted of 49 White students, 6 Black students, 2 Asian students, and 8 “other” students. The first school was very small, with approximately 300 students from K-12. There were no entrance exams to get in this school, and the majority of the school’s population was White. The other school was larger, with approximately 520 students from preK-6 grade. Students were given entrance exams (Scholastic Achievement Test and Otis Lennon Intelligence Quotient tests) and 83-84 percent of the school was White.

The participants were shown an experimental, colorful PowerPoint slideshow presentation consisting of 25 slides teaching decategorization. The experiment was a 2X2X2 between-subjects factorial design. The independent variable was the lesson taught, and the predictor variables were gender and race. Racial Decategorization scale scores were the dependent variable. The Racial Decategorization scale is a 30-item questionnaire. Responses are presented on a 5-point Likert scale. The total score varies from 30 to 150. A lower score indicates less categorization and fewer negative racial perceptions.

Both schools provided a classroom for the presentations. The first school’s fourth graders were randomly assigned to experimental or control conditions by coin tosses, resulting in 4 children in each condition. The second school had randomly assigned the 4<sup>th</sup> grade students to three classrooms, which were split into conditions, resulting in 34 children in the experimental condition and 23 children in the control condition. The experimenter gave the PowerPoint presentation to each experimental group. The same experimenter read Dr. Seuss’ *Oh, The Places You’ll Go!* to the control groups. Both the

experimental and control presentations were approximately 10 minutes. After the presentations, the children responded to the Racial Decategorization scale.

The results of this study showed that students can be taught to perceive similarities rather than differences between themselves and others—in other words, the students were taught “nonprejudice.”

The methodology of this study is credible and could be applied to other, similar settings. The findings within this study are consistent with other similar studies, and the process and product of the data collection could be audited by an outside party, contributing to its confirmability.

In a quantitative, quasi-experimental videotaped study, Gillies (2004) studied ninth-grade students in Australia to find the effects of structured and unstructured cooperative learning experiences on student behavior, interactions and learning to find whether students’ perceptions of what happens during cooperative learning differ for students in structured and unstructured groups.

Participants—223 ninth-grade students from six high schools in Brisbane, Australia—were split into four-person cooperative learning groups consisting of one high-achieving student, two medium-achieving students, and one low-achieving student. Two observation schedules were developed to code the students’ behavior states and their verbal interactions. A math question was written to determine how the children were constructing understandings and making links between information they had discussed in the group activities. Students were videotaped in their groups as they participated in mathematical problem-solving activities. Videotaping occurred in the last two weeks of the work unit to ensure that the children had covered the curriculum on

which the activities were based. A mathematics questionnaire was administered one to two weeks after the cooperative learning lessons, and a “What Happened in the Group Questionnaire” (WHGQ) was administered to students immediately after they had been videotaped working on the assigned group activity.

The findings of Gillies’ study are as follows: students in the structured groups displayed more cooperative behavior—students were less likely to cut each other off, listen to each other, share their ideas and help each other. Children in the structured groups also attained a higher learning outcome score than did the children in the unstructured groups.

Though the study, overall, establishes external and internal validity, reliability, and objectivity, there are some wording errors that make the findings difficult to analyze. There is little to no information on the qualifications of the teachers in implementing cooperative learning activities; there is also no indication as to how or why the particular schools were selected for study.

In a quantitative, quasi-experimental study, Hanze and Berger (2007) studied eight twelfth-grade Jigsaw classrooms to find whether direct instruction and the Jigsaw model of cooperative learning have differing effects on achievement, motivation, autonomy, competence, and social relatedness.

A total of 137 students were studied during the 2003-03 school year, all of whom participated in either a Jigsaw-style classroom or a non-Jigsaw-style control classroom. There was no other information given on the participants, such as location or make-up of students in the classroom, which could be viewed as a weakness of the study.

After all students were given a general introduction to the topic in a direct instruction setting, the classes were divided randomly for the two conditions of method instruction. In the jigsaw classroom, the study topic was divided into four, self-contained and comprehensible segments. Temporary groups of experts were formed. The groups were made up of 3-5 students that were assigned the same segment of the material. They learned about their segments using prepared lesson materials and by conducting some experiments. They were asked to learn the material and to prepare it for presentation to their jigsaw group. The students were allowed to form the jigsaw groups themselves. For the direct instruction condition, the teachers were asked to prepare a conventional lesson based on the material used in the jigsaw classroom.

At the end of the lesson, a “learning experience questionnaire” was administered after the work in the expert groups and again when students had finished with the jigsaw group. In the traditional classroom condition, the learning experience questionnaire was given once at the end of the lesson. The posttest on academic performance was given in an extra lesson some days after the learning unit.

Overall, Hanze’s and Berger’s study failed to show positive effects of the Jigsaw puzzle on academic performance, but there were strong effects of cooperative learning on the experience of basic needs, intrinsic motivation, and activation of deeper level processing. Students in the Jigsaw classroom reported that they felt more competent, more autonomous, and more socially related to their classmates. Jigsaw participants also showed higher achievement test scores in the areas that had been assigned to them as “experts” as compared to students that had been taught by the teacher in the traditional lecture form.

The statistics in Hanze and Berger's study strengthened the study's internal validity. The results of this study could be generalized to other settings, giving it external validity. The study also exhibited reliability and objectivity. No weaknesses were detected.

Bellmore, Graham, Juvonen, Nichina, & Witkow's (2007) quantitative study surveyed 1116 African-American, Asian, White, and Latina/o sixth graders to identify whether classroom ethnic context impacts students' same-ethnicity friendship preferences.

Students completed questionnaires and peer-nomination items to assess the constructs of interest. To assess sociometric acceptance, students were asked to name the peers they 'like to hang out with.' Peer-perceived coolness was based on students' nominations of 'the coolest kids.' Students were presented a roster with the names of all the other students in the class, arranged alphabetically by first name and separated by gender. Students were asked to nominate up to four classmates for each of the following three items: proportion of total nominations given to same-ethnicity peers; social standing among same- and other-ethnicity peers; and classroom characteristics: Percentage of same-ethnicity peers.

Researchers used "hierarchical linear modeling" to test whether adolescents demonstrate same-ethnicity preferences in their peer nominations and the effect of classroom ethnic composition on individual students' same-ethnicity preferences. To do so, a "two-level model was run separately for each ethnic group." At the student level (Level 1), the researchers included students' sex as a control variable. At the classroom

level (Level 2), the percentage of same-ethnicity peers in the classrooms was included as a predictor of the proportion of nominations given to same-ethnicity peers.

This study found that students tended to favor their same-ethnicity peers, and that classroom ethnic context did not affect students' friendship preferences. African Americans consistently gave more than 50 percent of their nominations to same-ethnicity peers. Students' acceptance among both their same- and other-ethnicity peers was predicted by their same-ethnicity biases for acceptance.

The major strength in the study done by Bellmore et al. (2007) is the meticulous attention the researchers paid to the wording of the survey questions, designed to clarify the type of same-ethnicity bias students demonstrate. This greatly strengthens the reliability and objectivity of the results. The study could also be replicated at a school with a similar student body population, giving the study fair external validity. However, using limited peer nominations to measure students' preferences may portray a biased view of early adolescents' inter-ethnic relationships, somewhat weakening the reliability and internal validity of the results.

A quantitative study conducted by Oortwijn, Boekaerts, Vedder, and Fortuin (2008) examined multi-ethnic fifth-grade classrooms to find whether cooperative learning activities affect popularity and perceived non-cooperativeness. The subjects were from 94 pupils from five elementary schools. Each class examined had a multiethnic composition (that is, at least 25 percent of the pupils were immigrants). The pupils were placed in teams of 3 or 4. In total, there were 26 teams. The teachers put the teams together such that pupils had comparable math and linguistic skills and were roughly the same age. In terms of ethnicity, 18 teams were heterogeneous, and 8 teams

were homogeneous. Teachers and pupils had no reported experience with cooperative learning.

A Structured Cooperative Learning (SCL) curriculum of 11 lessons was delivered to the subjects. A popularity scale was filled in twice by all pupils at the beginning and end of the study. Pupils rated their team members as perceived by the whole class on the behavioral characteristic “is well liked by everyone.” Scores were averaged per pupil. From the fourth lesson onwards, pupils filled in a checklist at the end of every lesson about how well they had implemented the basic SCL rules and rules on giving and receiving help. All pupils completed 8 checklists. Pupils were required to nominate team members who did not implement the SCL rules by writing down the name(s) of those team members. The researchers recorded the number of times in every lesson that a pupil was nominated as non-cooperative by his or her team peers. All five teachers were videotaped twice during the SCL classes. Lessons were randomly selected for videotaping—two scorers rated the videotapes with a coding scheme that consisted of 14 items.

The findings from this study showed that non-immigrant students were more liked at the end of the cooperative learning curriculum than their immigrant counterparts; also, pupils rated their fellow team members as more popular at the end of the study than at the beginning.

Oortwijn et al.’s study demonstrated strong internal validity. All teachers involved in the study were videotaped twice during the research. Lessons were randomly selected for videotaping, and the teachers were not told in advance which lessons the researchers would videotape. Two scorers rated the videotapes with a coding

scheme—one of the scorers was double blind to the experimental manipulation. Inter-coder reliability was satisfactory. The study could be conducted in other settings, giving it external validity. One threat to the study's internal validity was that the researchers focused only on the classroom and did not take into account students' social skills outside the classroom. Researchers also did not take into account background variables such as home situation or behavior on the playground. A second possible threat to the study's internal validity is that the researchers did not assess students' prior social skills, which earlier studies have found to be related to social skills development in groups (e.g., Gillies & Ashman, 1996).

In a quantitative study conducted by Van Geel and Vedder (2011) the attitudes of national and immigrant secondary students in Netherlands were examined to find whether ethnic diversity in the classroom is related to adolescents' multicultural attitudes.

The participants completed a survey consisting of questions about demographics, socioeconomic status and how many Dutch and immigrant friends the respondent had. The Multiculturalism Ideology Scale (MIS) was used to measure multicultural attitudes. The scale consisted of 10 items and was adapted to increase understanding among young adolescents in junior vocational education. The students rated each item from 1 (completely disagree) to 5 (completely agree). The Cronbach's alpha of this scale was .87.

Socioeconomic status (SES) was measured using the Family Affluence Scale (Currie, Elton, Todd & Platt, 1997). A sample item of this scale is, 'How many computers does your family own?'

To get an indication of how many Dutch and immigrant friends the respondents have, they were asked to write down how many friends they had in each of the following ethnic categories: Dutch friends, Moroccan friends, Turkish friends, Surinamese friends, Antillean friends and friends with other ethnic backgrounds.

An index devised by Simpson (1949) was used to measure the ethnic diversity of the classroom. This index is based on the number of different ethnic groups as well as the relative representation of each group in a classroom, ranging from 0 for a population with no ethnic diversity to 1 as the highest possible degree of ethnic diversity.

The statistical program MLWIN 2.02 (Goldstein, et al., 1998) was used to analyze the multilevel models. For all analyses, the study used the Iterative Generalized Least Squares Procedure (IGLS) for model estimation.

Findings of the study showed that ethnic diversity in the classroom is related to more supportive attitudes towards multiculturalism in adolescents. Adolescents with higher socioeconomic status tended to have lower multicultural attitudes.

The strongest threat to this study's internal validity is that the researchers only found seven schools willing to participate in the study. An analysis of the researcher's results indicated that although the differences between schools were not large with regards to their students' multicultural attitudes, they were still substantial. The results of the study could be generalized to other settings as long as schools were willing to participate, giving the study external validity.

Case, Cole, Curtin and Rios (2011) studied the impact of required diversity courses on first-year college students' understanding of racial inequality and their social development with regard to racial outgroups,

First-year students enrolled in introduction to psychology and all courses meeting the Race and Ethnicity requirement at the University of Michigan completed surveys. A 6-item scale measured “denial of blatant racial issues” (Neville et al., 2000) with higher scores indicating more denial. A sample item is: “Racism may have been a problem in the past; it is not an important problem today.”

A 6-item scale assessed “White privilege awareness,” students’ awareness of privileges and advantages extended to White people (Case, 2007), with higher scores indicating more awareness. A sample item is: “Whites must be willing to confront their privileged status before racism can end.”

A measure of “intersectional consciousness” was developed based on Greenwood’s (2008) 9-item measure. The 21-item adapted measure included some of Greenwood’s items about race and gender along with new items addressing socioeconomic class and sexuality. Participants rated items on a 5-point scale with higher scores indicating more understanding of the connections among various social identities and forms of discrimination.

The 4-item “Protestant work ethic scale” (Levin, Sidanius, Rabinowitz, & Federico, 1998) assessed the extent to which people believe that individuals get what they deserve. A sample item is: “If people work hard they almost always get what they want.”

The “outgroup comfort” scale’s 15 items assessed comfort levels in settings with people of other races. It is a modification of a measure developed to assess Black peoples’ comfort with White people (Cole & Arriola, 2007). A sample item is: “I feel uncomfortable around people of other races because they’re so different from me.”

Attitudes toward actions that promote diversity were assessed using the 22-item “ability to act as an ally” 4-point scale. Participants were given a list of ally behaviors and asked to rate how important it was for them to engage in this behavior, and how confident they felt in their ability to do so.

The 7-item perspective taking subscale of the “interpersonal reactivity index” (IRI; Davis, 1983) measured the tendency to adopt the perspective of others. Participants responded to each item using a 5-point Likert scale.

To test the effects of race and ethnicity courses across the semester, a repeated measures (Time X Course) analysis of variance compared pre- and post-test survey data for each dependent variable.

This study found that students who took the diversity courses exhibited greater awareness of white privilege and interracial inequality than those who did not take the courses. Students who took the course also reported less endorsement of Protestant work ethic ideology than they had at the start of the course.

The major strength of the study conducted by Case et al. (2011) is the replication of their findings from the first survey to the second, giving the study results great reliability and internal validity. However, that the findings of the study are limited to one university with a well-known history of activist engagement on racial issues by both students and administration is a threat to the study’s internal validity and reliability. The sample size of this study is relatively small, weakening the internal and external validity. Overall, however, the study’s notable strengths and findings support the researchers’ hypothesis that students from diverse backgrounds who take diversity themed courses demonstrate reduced prejudice and increased awareness of racial inequalities.

Finally, a quantitative quasi-experimental study done by Bratt (2008) was the only study that did not find a positive correlation between the cooperative learning method and improved race relations. This study examined the effectiveness of the Jigsaw model of cooperative learning at improving inter-group classroom relations among sixth, eighth, ninth, and tenth-graders in Norway. This study focused on students from the ethnic majority group as majority students “provided relatively large sample sizes.” Jigsaw groups included five to six students, of which two to four were members of non-Western minority groups.

Teachers in this study were given a two-day training course in Jigsaw, and then the Jigsaw model was implemented in the classroom for 7 weeks. Questionnaires were submitted as pre-test and post-test in experimental as well as control classes. Students completed the questionnaires during class, supervised by a teacher. The first part of the questionnaire assessed “attitudes towards boys and girls of different racial origin” by confronting the participants with four hypothetical situations. Pictures of six unknown children were shown for each question: Nordic looking boys, Nordic looking girls, African looking boys, African looking girls, Asian looking boys and Asian looking girls. Responses were given by circling one of five facial expressions. A mean score was computed across the four different situations for each of the six ethnicity and gender combinations.

Assessment of empathy was done with by asking for participants’ responses to other children’s behavior towards hypothetical children, using a 5-point scale with facial expressions. Intergroup friendship was assessed by asking for the number of friends in

immigrant groups. Investigation of attitudes towards school used the whole data set, irrespectively of participants' ethnicity.

The researchers used ANOVA tests to analyze the data they gathered from the questionnaires. Extended analysis with ANOVA considered interaction effects between Jigsaw participation and school affiliation, and also used a repeated measures design (2X2X2 ANOVA).

The major strength of the study conducted by Bratt (2008) is the replication of his findings from the first experiment to the second, contributing to the study's reliability. However, the first study had a relatively low sample size compared to the second study, which weakened statistical power and the ability to detect effects. Overall, though, the evidence supports the findings of this study showing no positive correlation between Jigsaw and prejudice reduction among students.

### **Academic Achievement**

The seven studies in this section examined the connection between cooperative learning and academic achievement. The majority of the studies indicated that cooperative learning contributes to positive academic achievement as long as it is used properly, although one study (Hanze and Berger, 2007) was unable to find positive effects of the Jigsaw method on academic achievement. The first two studies discussed in this section were also examined in the previous section on the effects of cooperative learning on prejudice reduction, but they also are relevant to this section on academic achievement and will thus be briefly summarized again. Johnson, Johnson and Taylor (1993) found that cooperative learning activities had a positive effect of high-ability fifth-grade students' achievement, self-esteem and social acceptance. Hanze and Berger

(2007) studied eight twelfth-grade Jigsaw classrooms to find whether direct instruction and the Jigsaw model of cooperative learning have differing effects on achievement, motivation, autonomy, competence, and social relatedness. Overall, the study failed to show positive effects of the Jigsaw method on academic performance, but there were strong effects of cooperative learning on the experience of basic needs, intrinsic motivation, and activation of deeper level processing. Stevens (2003) observed students in a large, urban school district in the Eastern U.S. to study the effects of implementing a student team reading and writing program and found that the experimental team demonstrated significantly higher achievement scores than did the control group. Ryan and Wheeler (1997) studied fifth and sixth-grade students from a suburban area to find if students previously involved in a cooperative situation played a simulation game differently from students who have experienced a competitive situation. They found that those students with cooperative experience scored much higher than those with competitive experience. Johnson, Johnson, Johnson and Anderson (1976) studied the effects of cooperative versus individualized instruction on student pro-social behavior, attitudes toward learning, and achievement and found that cooperative groups made fewer errors on daily assignments, used more words in subject and predicate phrases, and made fewer errors on the second group post-test. Durukan (2011) studied seventh grade students to find how the effects of the cooperative integrated reading and composition (CIRC) techniques and the traditional reading and writing pedagogical method varied. They found that the CIRC technique contributed to significantly higher student achievement in reading and writing. Gocer (2010) asked if the use of the Jigsaw technique and cooperative learning methods are significantly more effective than

conventional teaching methods in teaching literary genres to 11<sup>th</sup> grade students, and found that while both teachers and students reportedly enjoyed the CL and Jigsaw techniques, no significant academic achievement was reported.

Stevens' (2003) quantitative study observed students in a large, urban school district in the Eastern U.S. to study the effects of implementing a student team reading and writing program

The two experimental schools were matched with three comparison schools on their initial achievement in reading and language arts on the California Achievement Test that had been administered by the school district. There was also an attempt to match the schools on ethnicity and socioeconomic background of the students.

Students took the reading and language grammar sections of the pretest only. The pretests were given to match the initial achievement and as a covariate to increase the power in the analyses of the outcome data. The posttest administered is a parallel form of the pretest.

Research in this study found that the experimental team demonstrated significantly higher achievement scores than did the control group. One threat to the study's internal validity and reliability is that the two experimental schools volunteered to participate in the study. This suggests that the study's outcomes may be a result of teacher and administration motivation more so than other factors. This issue can only be resolved through additional studies in other schools selected randomly rather than self-selected.

Ryan and Wheeler's (1997) quantitative, quasi-experimental study examined fifth and sixth-grade students from a suburban area to find if students previously involved in

a cooperative situation played a simulation game differently from students who had experienced a competitive situation.

The authors hypothesized that subjects who had recently participated in cooperative group learning experiences more frequently than subjects who had recently participated in competitive learning experiences would: (1) seek help from one another, (2) positively respond to help sought, (3) volunteer help for others, and (4) establish group strategies

Prior to playing a simulation game, all subjects were involved in a series of 18 lessons focused on the Iban of Borneo and the Eskimo of northern Alaska. After every five lessons, groups and individuals submitted a workbook for evaluation. In the comp group, the six individuals with the “best” workbook were rewarded with a poster, and in the coop group, the team with the best workbooks was rewarded the same. After the 18 lessons, students played a board game called Seal Hunt in which they were tasked with trying to find seals under the ice. Pre-existing groups of six remained intact, while members of the comp group were assigned to new groups of six. In the game there are two ways to win: be a winner of the hunting group or be the individual hunter with the most seal meat leftover. Therefore there is a group and individual goal structure.

They found that those students with cooperative experience scored much higher than those with competitive experience.

This study had an inter-rater reliability of .98, strengthening its internal validity. The results of this study could be generalized to another setting, supporting its external validity as well. Some of its weaknesses and threats to validity include small sample size, lack of specific definitions, and non-replication of testing.

Johnson, Johnson, Johnson and Anderson (1976) studied the effects of cooperative versus individualized instruction on student pro-social behavior, attitudes toward learning, and achievement in this quantitative study.

In this study, students were put in heterogeneous groups. The daily section of the class textbook was read orally by the students in the whole class of 30. This was followed by discussion. When the teacher thought they had a firm enough grasp, assignment sheets were passed out. Students in the cooperative groups met and students in the individual setting studied alone. Members of groups received the same score, meaning no competition in the group. Four measures of achievement were taken: 1) number of errors; 2) written assignment on subjects and predicates; 3) post-test on material covered by individuals in both conditions; and 4) post-test was given to individuals and to groups of four.

This study found that cooperative groups made fewer errors on daily assignments, used more words in subject and predicate phrases, and made fewer errors on the second group post-test.

The results of this study should be accepted tentatively, as only one teacher and students from one classroom participated in the study, the study focused only on language arts curriculum, and the results of the study have not been replicated. However, the results of this study do corroborate previous research, indicating that higher daily achievement results from cooperative learning.

Durukan's (2011) quantitative research studied 45 Turkish seventh grade students to find how the effects of the cooperative integrated reading and composition (CIRC) techniques and the traditional reading and writing pedagogical method varied.

A pre-test and post-test control group model was used. Experimental and control groups were randomly assigned: 24 students were grouped into experimental group and 21 students into control group. Written Expression Achievement Test (WEAT) and Reading Comprehension Achievement Test (RCAT), both developed by the researcher, were used to collect data related to the study groups' writing skills and reading comprehension skills. Results were analyzed via 2-way ANOVA test in the SPSS program. WEAT and RCAT were applied as pre-, post- and retention-test to the control and experimental groups.

The study found that the CIRC technique contributed to significantly higher student achievement in reading and writing. Strengths of this study include an internal reliability rating of .79 via the KR-20 formula. The study's five-week maturation period is a short enough time frame to strengthen internal validity. Another strength is that tests were repeatedly checked for reliability. Weaknesses, however, include the lack of a likert or Cronbach Alpha reliability scale.

Gocer (2010) asked if the use of the Jigsaw technique and cooperative learning methods are significantly more effective than conventional teaching methods in teaching literary genres to 11<sup>th</sup>-grade Turkish students.

Qualitative research was carried out through interview method. Quantitative research was carried out through quantitative approach and experimental design with control groups, in which pre-test and post-test were applied. The work group was made up of 60 students, N=30 were from A Branch (control) and N=30 were from B Branch (experiment), and their designation as such was determined randomly.

A TSL (genre questions list) pre-test was administered to all 60 students to determine prior knowledge of literary genres. Afterward the B Branch (experimental) (n=30) applied cooperative learning method and jigsaw technique, and the A Branch (control) (n=30) applied conventional straight narration method to teach literary genres. Afterward the same TSL (genre questions list) was reapplied to the groups as a post-test. Both groups were lectured by the same teacher for of three weeks, with test application periods included.

The experiment groups were divided into 6 primary groups of 5 students each. After discussing what they already knew about the topic they each sent a representative to meet with other representatives from the other groups. After these expert groups met they sent the representatives back and jigsaw groups were formed. These groups were then assigned to produce a final version of their studies. After finalizing what they knew about the topic they retook the TSL (genre questions list) to see if there were any gains in knowledge between the pre- and post-test.

Quantitative results were obtained via TSL (genre questions list), and findings were performed with the Statistical Package for the Social Sciences version 11.0 (SPSS Inc., Chicago, IL, USA)., and qualitative results were obtained via interview method.

Gocer's study found that while both teachers and students reportedly enjoyed the CL and Jigsaw techniques, no significant academic achievement was reported. The study's internal validity is strengthened by a short maturation period of three weeks. In addition, no events occurred or were mentioned to have occurred during the time of the study, adding to its internal validity. The study's results could be generalized to other settings, demonstrating the study's external validity. However, the study did not mention

any use of a likert or Cronbach's Alpha scale, and the instrumentation is questionable in that it is unclear whether or not the researcher was present during the interview process.

### **Joint Reward Structures, Competition, and Feedback**

The three studies in this section examined the effects of individualized versus joint reward structures, cooperation versus competition, and individualized versus group feedback in relation to student perceptions of, and participation in, cooperative learning situations and their subsequent effect on race relations. Archer-Kath, Johnson and Johnson (1994) studied eighth-grade students in a suburban middle school in the Midwest to find how individual feedback versus group feedback impacts achievement, attitudes, and behavior in cooperative learning groups. They found that students who were given individual feedback were more encouraging of their classmates, more on-task, more accepting of low-status members and more satisfied with their learning experience. Vanman, Paul, Ito and Miller (1997) studied the bias of facial-muscle activity and self-reports of several white university students to discover what effect cooperative situations with joint reward structures have on interpersonal and intergroup relations, particularly when the partner is deficient in the abilities required for the task. They found that subjects' self-reports of interracial relations did not match up with facial-muscle activity, and that participants reported more positive affect for black partners than white partners, but their facial muscles reported otherwise. Ryan and Wheeler (1997) studied fifth and sixth-grade students from a suburban area to find if students previously involved in a cooperative situation played a simulation game differently from students who have experienced a competitive situation. They found that those students

with cooperative experience scored much higher than those with competitive experience.

This section will begin with an in-depth look at one quantitative study—that of Archer-Kath, Johnson and Johnson (1994), who studied eighth-grade students in a suburban middle school in the Midwest to find how individual feedback versus group feedback impacts achievement, attitudes, and behavior in cooperative learning groups.

This quasi-experimental study was conducted to determine the impact of individual feedback compared with the impact of group feedback on achievement, attitudes, and behavior in cooperative learning groups. The subjects of this study were 56 8<sup>th</sup>-graders from a suburban middle school in the mid-western U.S., who were enrolled in two classes of beginning German. Within each class, they were randomly assigned to cooperative learning groups with four members. The cooperative groups were randomly assigned to either an individual-feedback or a group-feedback condition. In the first class there were six groups, with three groups randomly assigned to each condition. In the second class, there were five groups, with three groups randomly assigned to individual feedback and two groups randomly assigned to group feedback. Thus, 25 students received individual feedback, and 31 students received group feedback.

At least one student was considered academically gifted, and at least one student in each group was receiving special education services for academic handicaps. There were 19 male and 37 female students. The students were 14-15 years old.

To confirm that the random assignment resulted in heterogeneous groups, the researchers administered the California Achievement Test and a pretest on a German language unit. The results indicated no significant differences between the students in the two conditions, and therefore the two conditions were considered to be equivalent before the treatment was administered.

The two classes of students met for the same number of sessions during the study. Each class session lasted 50 minutes. The study was conducted over 40 class sessions, 26 of which were lectures, films, and whole-class discussions, and 14 of which were cooperative learning group meetings.

The independent variable was feedback concerning the frequency of engagement in targeted social skills within task-related efforts. The targeted social skills included asking for and giving each other information, asking for and giving each other help, and supporting and praising each other's efforts to learn. Whether students were on- or off-task was also recorded. For each cooperative learning session, one group member was designated as the monitor, whose role was to sit just outside the group and record the frequency with which targeted behaviors occurred within the group as a whole or were used by each individual member. At the end of the class session, monitors handed in the completed observation sheet. The teacher received the observation results, tabulated them, and converted them into graphs for each group.

The dependent variables were frequency of engaging in targeted social skills, achievement motivation, achievement, interpersonal attraction, and attitudes toward the cooperative experience. The achievement measure was a test given at the end of the

unit. It covered the vocabulary, German text, and descriptions of German culture. The first analysis was of the difference in test achievement between conditions. The second focused on uniformity of performance within each cooperative learning group.

The researchers made numerous conclusions based on their findings. Students in the individual-feedback condition engaged in more encouraging, and more were on task more of the time than those in the group-feedback condition. Students in the individual-feedback condition were also more uniform in their use of encouraging and checking. Those students in the individual-feedback condition scored higher on the homework assignments than did the students in the group-feedback condition. Students in the individual-feedback condition perceived greater positive interdependence in their cooperative groups than did the students in the group feedback condition. Students in the individual-feedback condition tended to be more satisfied with their learning experience than students in the group-feedback condition. Groups receiving individual feedback were more accepting of low-status students than groups receiving group-feedback.

In contrast to Archer-Kath, Johnson and Johnson (1994), Vanman, Paul, Ito and Miller (1997) used scenario methodology in their quantitative study to examine the bias of facial-muscle activity and self-reports of several white university students to discover what effect cooperative situations with joint reward structures have on interpersonal and intergroup relations, particularly when the partner is deficient in the abilities required for the task.

Subjects of the first study were 27 White, non-Hispanic students (14 men and 13 women) enrolled in an introductory psychology course at the University of Southern

California. Subjects of the second study were 37 White, non-Hispanic university students (18 women and 19 men) enrolled in two psychology courses at USC. Subjects of the third study were 25 White, non-Hispanic university students (15 women and 10 men) enrolled in an introductory psychology course at USC.

Three experiments were conducted. Each participant first attended a group introductory session where they were shown a slide presentation about the procedures to be used during the experiment. They were not told that facial muscle movements were to be recorded, but were told instead that the electrodes on the head measured involuntary neural impulses that emanate from the head. Surface EMG activity was recorded using electrodes placed in pairs over the brow, cheek, and lower lip on the right side of the face. Stimuli consisted of written scenarios presented on a computer monitor and color slides that appeared on a screen mounted on the wall. Seven general scenarios described a distinct cooperative task with one partner. The partner was always described as being deficient in the abilities required for the task. Each scenario was presented 4 times, with two presentations depicting rewards based on individual performance and two depicting a joint reward structure. The slides were photographs of students (7 White women, 7 White men, 7 Black men, and 7 Black women) from USC taken 2 years before.

Participants imagined being in the cooperative situation with the target for 5 seconds. Following this period, the slide was turned off, and the computer screen cleared. The participant then made ratings on four 9-point scales that measured liking for one's partner, happiness in the situation, likelihood of success, and the difficulty of imagining oneself in the situation. The 28 trials were presented in 7 blocks of 4 trials,

with each trial in the block representing one of the four conditions. EMG signals were relayed through a shielded cable to a Grass 7P3 wideband preamplifier/integrator using a pass band of 10 Hz to 5 kHz.

Repeated MANOVAs were performed for all dependent measures. An alpha level of .05 was used for all statistical tests. A doubly multivariate analysis was performed in which the type of composite measure was treated as a variable.

The study found that subjects' self-reports of interracial relations did not match up with facial-muscle activity, and that participants reported more positive affect for black partners than white partners, but their facial muscles reported otherwise. Further results indicated that joint reward structures can lead to aversive consequences when team members have disparate abilities relevant to the task.

The major strength of the study done by Vanman et al. (1997) is the replication of their findings from the first experiment to the second and third experiments. This gives the study results a great deal of reliability. In addition, the researchers were meticulous in their description of the scenario methodology they used, giving the study great external validity. The results of this study could potentially be generalized to other settings.

The final study in this category was previously mentioned in the academic achievement category, but it also has relevance here in the Joint Reward Structures, Competition, and Feedback category. Ryan and Wheeler (1997) studied fifth and sixth-grade students from a suburban area to find if students previously involved in a cooperative situation played a simulation game differently from students who had

experienced a competitive situation. They found that those students with cooperative experience scored much higher than those with competitive experience.

### **Teachers' Views on Cooperative Learning and Inter-ethnic Relations**

The five studies reviewed in this section examined teachers' views on cooperative learning methods, including those that are generally favored by long-time teachers.

Allison & Rehm's (2007) qualitative study surveyed middle school teachers in ethnically diverse FL middle schools and found that use of visuals, peer tutoring, cooperative learning and alternate assessment forms were rated the four most effective teaching strategies. Baker and Clark (2010) interviewed cooperative learning specialists and college-age CL students in New Zealand to find struggles or troubles that accompany various aspects of cooperative learning in ethnically and linguistically diverse classrooms, and found that language difficulties and lack of teacher training can hinder student attitude and interethnic relations in cooperative learning groups.

Radstake and Leeman (2010) interviewed secondary teachers in Amsterdam to identify the most effective ways for teachers to guide discussions about ethnic diversity in ethnically heterogeneous classroom. They found that establishing order, developing trusting relationships with one's students, being well-informed and culturally sensitive, and addressing patterns of domination were all necessary steps for teachers to take before and during classroom discussions about diversity. Robinson and Clardy (2011), professors at a Midwest university, studied how linguistic and cultural diversity is regarded in teacher education programs, and what teacher candidates' and current K-12 teachers' dispositions are towards students who do not share their cultural

background or language. They found that “linguistic bullying” and “silenced dialogue” often occur in these programs, and concurred that bilingual education courses should be required for current teachers and teacher candidates. Gillies and Boyle (2011) interviewed teachers in Australia who had been actively involved in implementing cooperative learning in their classroom for two years to investigate their responses and to gauge their perceptions of how students with learning and behavioral needs responded to it. Their results showed that teachers valued cooperative learning as a teaching method but noted that it could often be difficult to achieve in classrooms with diverse behavioral and learning needs.

Allison & Rehm’s (2007) qualitative study surveyed middle school teachers in ethnically diverse Florida middle schools to find which instructional strategies can be employed to promote valuable and effective learning. The subjects in this study were 16 Family and Consumer Sciences middle school teachers from seven different districts across the state of Florida. Participating teachers had an average of 15 years in the classroom and extensive experience in teaching multicultural and multilingual students. The 16 teachers represented districts with culturally diverse populations, including small rural and larger urban communities in Central and South Florida and the Gulf Coast regions.

The teachers completed a survey which included a six-point rating scale to assess the effectiveness of a variety of teaching strategies. The scale included a total of 10 classroom practices and instructional strategies identified and endorsed by educators in scholarly literature as being potentially valuable and effective with diverse learners in culturally diverse classrooms. The practices and strategies listed were: case

studies reflecting real-life experiences of diverse students, cooperative learning, dual language printed materials, field trips, guest speakers representing the culture of the students, inviting parents to visit and participate in classroom activities, peer tutoring, role playing or skits to solve real-life problems or see others' perspectives, using alternative assessments to evaluate students, and the use of visuals.

The study found that four of the ten practices and strategies were rated as being most effective in diverse classrooms: use of visuals, peer tutoring, cooperative learning and alternate assessment forms.

The biggest threat to this study's credibility is its methodology. The researchers do not explain how teachers were chosen to participate in the study and give no background information on the participants except that they were long-term middle school teachers from diverse parts of Florida. The confirmability of the study is also questionable in that the process and product of the data collection and analysis are not easily auditable by an outside party. However, given these aforementioned threats, the study could be conducted in other settings, strengthening its transferability. It is unknown whether the study demonstrates dependability because the author of this review was unable to find any other articles surveying teachers for teaching method preference.

Baker and Clark's qualitative (2010) study interviewed cooperative learning specialists and college-age CL students in New Zealand to find struggles or troubles that accompany various aspects of cooperative learning in ethnically and linguistically diverse classrooms.

Subjects of this study were divided into three phases. The subjects in the first phase were tertiary lecturers in Auckland, Wellington and Christchurch, New Zealand. The subjects in the second phase were lecturers and students at two New Zealand educational institutes. 20 lecturer surveys and 148 student surveys were returned. Of the student respondents, 35% were New Zealand European, 32% Chinese, 10% Maori, 10% Pacific Island, 5% Indian and 8% other ethnicities. The subjects in the third phase were 21 international and local students from two Wellington tertiary institutes, as well as 15 lecturers from two Wellington tertiary institutes.

Both qualitative and quantitative research methods were used for this study. The researchers conducted the first phase of the project in 2005 at lecture-based workshops in Auckland, Wellington, and Christchurch, New Zealand. The lecturers discussed the main issues of cooperative learning (CL) relating to the influx of international students into New Zealand, and the resulting cultural and language issues, and “the difficulty in developing a fair assessment system for groups composed of students with mixed levels of motivation and ability” (p. 259).

In 2006, the second phase was conducted involving research surveys designed to identify lecturer and student perceptions of CL. The survey consisted of 40 statements about CL with a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A response of 1 or 2 was taken as disagreement, 3 as neutrality, and 4 or 5 as agreement. The surveys also contained five open-ended questions on CL issues. The surveys were distributed to a “convenience sample” at two educational institutes: 20 lecturer surveys (representing 70 percent) and 148 student surveys (representing 60 percent) were returned. Of the student respondents, 35% were New

Zealand European, 32% Chinese, 10% Maori, 10% Pacific Island, 5% Indian and 8% other ethnicities. Closed questions were analyzed using SPSS. Open-ended questions were collated and analyzed for major themes and for consistency. The results were collated and compared with the issues that had been identified the previous year in the workshops.

In 2007, the third phase of research was conducted using semi-structured focus groups and interviews. Focus groups were conducted in English and Mandarin with 21 international and local students from two Wellington institutes. Participants were asked to elaborate on issues identified in the 2006 surveys.

The final phase of the research involved “producing a model for an effective CL program which lecturers can use as a resource in their classrooms” (p. 259).

The research showed that cooperative learning is most effective when both teachers and students are trained in team skills. Lecturers indicated that they received higher-quality work from students working in groups than those working individually. The study also found that language difficulties and lack of teacher training can hinder student attitude and interethnic relations in cooperative learning groups.

The findings of the research done by Baker and Clark (2010) is consistent with other literature on the subject, giving the study great dependability. The credibility and confirmability of this study are somewhat challenged by the lack of a control group with which to compare the study's results.

Robinson and Clardy (2011), professors at a Midwest university, studied how linguistic and cultural diversity is regarded in teacher education programs, and what teacher candidates' and current K-12 teachers' dispositions are towards students who

do not share their cultural background or language in this qualitative study. They used their own personal experiences as undergraduate and graduate-level professors to drive the study. Both are teacher educators who are of African American descent teaching in predominantly white universities in the Midwest in an effort to lessen the cultural knowledge gap among white teacher educators, teacher candidates, and current K-12 teachers and the culturally and linguistically diverse students whom they will teach in the future.

Robinson and Clardy selected autoethnography as their methodology, which is defined as “an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural” (Ellis & Bochner, 2000). The researchers considered autoethnography a fitting methodology because it connected their personal lived experiences to the cultural contexts of schools as societal institutions. The researchers present data through a narrative vignette and personal journal excerpts written when the researchers were undergraduate and graduate-level teachers in the Midwest.

They found that “linguistic bullying” and “silenced dialogue” often occur in these programs, and concurred that bilingual education courses should be required for current teachers and teacher candidates. They also suggested that current teachers and teacher candidates should encourage the inclusion of students’ cultures and languages to stimulate their existing schema and serve as a resource for them to make connections to content and academics.

Although this study’s findings are consistent with other, similar studies, giving the study some degree of dependability, the study’s methodology is severely flawed,

weakening its credibility. The only data sources the researchers draw from are “recollections of past events (as we remember them), artifacts and documents” (p. 102). While the researchers do have a large amount of experience with students to draw from, those experiences are subjective and thus neither credible nor confirmable in a scientific study.

In a quasi-experimental videotaped study, Gillies and Boyle (2011) interviewed teachers in Australia who had been actively involved in implementing cooperative learning in their classroom for two years to investigate their responses and to gauge their perceptions of how students with learning and behavioral needs responded to it. The two male and five female teachers were from four different schools in Brisbane. Each teacher taught classes that included three to five children with high support needs. All of these children were receiving at least three hours of additional support each week from either a special needs teacher or teacher aid for their learning difficulties and/or behavioral and emotional difficulties.

The researchers conducted semi-structured interviews regarding the difficulty and complexity of effectively implementing cooperative learning strategies. Each interview was fully transcribed and checked for accuracy by both authors. A very experienced research assistant coded and re-coded the data, allowing the authors to identify recurring regularities used to identify meaningful categories. The data was grouped into three main categories: Structuring groups, including communicating in groups, organizing groups, including managing students with learning and behavioral needs, and teachers’ perceptions of CL.

The participating teachers were interviewed by the second author following the completion of the final unit of work in the second year of the study. The interviews were semi-structured to enable each teacher to expand on the questions posed. The questions were informed by previous studies that indicated that teachers do experience difficulties implementing CL in their classrooms, especially given the complexity of the strategy and the effect different dimensions of the classroom have on its success.

Results showed that teachers valued cooperative learning as a teaching method, but they noted that it could often be difficult to achieve in classrooms with diverse behavioral and learning needs. Teachers also commented that group activities need to be well-planned, students need to be prepared to work in groups, and teachers' expectations for the task had to be explicitly stated if cooperative learning benefits are to be realized.

Gillies and Boyles' (2011) study exhibited strong confirmability—the researchers followed Guba's guidelines. Additionally, the study's findings are consistent with other, similar studies, strengthening the study's dependability and overall validity.

### **Summary**

Chapter two presented a critical review of the literature on the connection between cooperative learning and race relations. The findings of the studies were summarized and analyzed based on the conclusions provided, and critical analysis of the articles was also presented. The research was reviewed to examine if, and if so, to what degree, cooperative learning in diverse classrooms affects students' race relations and academic achievement.

Fifteen of the 18 studies examining the relationship between cooperative learning and interethnic relations found a positive correlation between the two, while three studies posited that while cooperative learning does, indeed, contribute to positive interethnic relations, mere classroom proximity does not have an effect on the interethnic relations of students.

Six of the seven studies that examined the relationship between cooperative learning and academic achievement found a positive correlation between the two, while one study found no connection between the Jigsaw cooperative learning method and academic achievement.

The three studies in the section examining the effects of individualized versus joint reward structures, cooperation versus competition, and individualized versus group feedback in relation to student perceptions of, and participation in, cooperative learning situations and their subsequent effect on race relations had mixed results. One study found that individual feedback had a more positive effect on inter-group attitude and achievement than did group feedback. Another study similarly showed that group reward structures negatively impacted inter-group relations and attitudes. The third study found that students with cooperative experience scored much higher than students with competitive experience in a simulation game.

Finally, the five studies examining long-time teachers' views of cooperative learning found varied results. Research in this section indicated that while cooperative learning methods are generally favored by teachers, these methods could be difficult to achieve in classrooms with diverse behavioral, linguistic and learning needs, and that teacher training in cooperative learning methods is absolutely necessary to effectively

implement those methods in the classroom. In addition to cooperative learning, one study listed use of visuals, peer tutoring, and alternate forms of assessment forms as effective teaching strategies in diverse classrooms, although the study did not define whether “effective teaching strategies” related to academic achievement, interethnic relations, or neither. Another study found that language difficulties and lack of teacher training can actually hinder interethnic relations in cooperative learning situations. The final study showed that while teachers valued cooperative learning as a teaching method, they noted that it could be difficult to achieve in classrooms with diverse behavioral and learning needs.

Chapter three will review the historical background and rationale for this review of literature which was originally introduced in chapter one. Chapter three will also summarize the research discussed in chapter two. Finally, chapter three will discuss the implications for teaching suggested by this research, and will suggest recommendations for further research.

## CHAPTER THREE: CONCLUSION

### **Introduction**

Chapter one examined traditional transmission-based education methods in light of current population trends. Classroom makeup is rapidly changing—it is no longer socially responsible or just for educators to fail to take into account classroom cultural and learning diversity. Chapter one suggested that teachers and teachers-in-training must be properly trained in, and willing to implement, teaching methods that encourage positive development of race relations, a reduction in prejudice in students from all ethnic, cultural, and socioeconomic backgrounds, and skills and methods to effectively teach materials to a variety of students. Chapter one also introduced the guiding question of this paper—to what degree do cooperative learning practices relate to or affect interethnic relations and academic achievement in diverse K-12 classrooms, and how can teachers most effectively implement cooperative learning in the classroom? Chapter two reviewed the research about cooperative and group learning. The research was organized into four sections: cooperative learning's effects on inter-ethnic relations, cooperative learning's effects on academic achievement, the effects of joint reward structures, competition, and feedback in cooperative learning groups, and teachers' views of cooperative learning. Each of the 30 studies examined were summarized and analyzed for strengths and weaknesses. The research was reviewed to examine whether cooperative learning methods were effective in encouraging inter-ethnic relations and academic achievement in diverse secondary classrooms. Chapter three is the concluding chapter of this paper. This chapter revisits the guiding question—to what degree do cooperative learning methods affect inter-ethnic relations and academic

achievement in diverse secondary classrooms, and how can teachers best implement those methods in their classroom—and provides a summary of the findings from chapter two to answer the question of the study, discuss classroom implications, and present suggestions for future research in this area.

### **Summary of Findings**

This section of chapter three summarizes the strengths, weaknesses, and trends of the literature reviewed in each section of chapter two.

The first section in chapter two examined the relationship between cooperative learning and inter-ethnic relations among students. Findings indicated almost exclusively positive relationships between the two. The results of this section are especially strengthened by the commonality of findings across all 18 articles reviewed in this section. Twelve of the 18 studies showed a positive relationship between cooperative learning and positive inter-ethnic relations (Weigel et al., 1975; Slavin & Madden, 1979; Slavin & Oickle, 1979; Johnson & Johnson, 1982; Johnson et al., 1993; Shachar & Sharan, 1994; Datta & Singh, 1994; Dudley et al., 1997; Foley & Jones, 2003; Gillies, 2004; Oortwijn et al., 2008; Case et al., 2011). One study (Hansell & Slavin, 1981) found insignificant connections between cooperative learning methods and cross-racial friendships. Another study (Peterson et al., 1991), found that group composition in terms of sex does not pose a significant influence on the outcomes of cooperative learning, while an additional study (Bellmore, et al., 2007) found no connection between classroom ethnic context and cross-racial friendships. Two studies (Hanze & Berger, 2007; Bratt, 2008) found no positive correlation between the Jigsaw method of cooperative learning and inter-ethnic relations.

Another strength of this section of chapter two is the diversity of populations represented in the studies. Populations of various studies included tenth grade students from public schools in several southern states (Slavin & Madden, 1979), freshman student athletes at a public state university (Johnson & Johnson, 1982), and ninth grade students in Australia (Gillies, 2004). The studies in this section covered grades K-12, as well as first-year university students. Studies were conducted in low SES schools in Baltimore (Slavin & Oickle, 1979) and private K-12 schools in Florida (Foley & Jones, 2003). Taken as a whole, this section's findings can be applied to a wide range of populations, strengthening the findings' validity.

Although this section exhibited many strengths, some overall weaknesses were also detected in the studies. Several of the studies (Hansell & Slavin, 1981; Bellmore et al., 2007) focused only on inter-ethnic relations between individuals, and neglected to focus on larger-group and clique dynamics. Another weakness exhibited in several of the studies from this section (Shachar & Sharan, 1994; Gillies, 2004) was the lack of explanation of "randomization" in the selection process. Populations were selected "at random" in these studies, but no explanation was given for the randomization process, weakening the studies' validity. Another potential weakness in many of these studies (Oortwijn et al., 2008; Bratt, 2008) is that researchers focused only on students' social interactions and inter-ethnic relations within the classroom, and neglected to focus on social interactions outside the classroom. Often, researchers did not take into account background variables such as home situation or behavior on the playground.

The second section of chapter two examined the relationship between cooperative learning and academic achievement. The results in this section indicated a

mostly positive relationship between the two. Four of the seven studies examined in this section (Stevens, 1979; Durukan, 2011; Johnson et al., 1976; and Ryan & Wheeler, 1997) showed that students engaged in cooperative reading, writing, and other academic experiences demonstrated significantly higher achievement scores than students in competitive or individualistic conditions. Three studies (Hanze & Berger, 2007; Bratt, 2008; and Gocer, 2010) found no positive effects of the Jigsaw method on academic achievement, although they did find the Jigsaw method of cooperative learning to have other, non-academic benefits in the classroom.

Research in the Academic Achievement section of Chapter two indicated that cooperative learning does contribute to academic achievement as long as it is used properly, although two studies (Hanze & Berger, 2007; and Gocer, 2010) found no positive effects of the Jigsaw method on academic achievement. The validity of these seven studies is strengthened somewhat by the commonality of their findings. Another strength is the use of pre-, post-, and retention-testing for both the experimental and the control groups in several studies (Stevens, 2003; Durukan, 2011; and Gocer, 2011), strengthening the studies' validity. One weaknesses detected in some of the studies from this section (Durukan, 2011; Johnson et al., 1976; Ryan & Wheeler, 1997) were small, unreliable sample sizes. The population selection process was also questionable in some studies. The participants of one study (Stevens, 2003) volunteered to participate in the study, suggesting that the study's outcomes may be a result of teacher and administration motivation more so than other factors. This issue can only be resolved through additional studies in other schools selected randomly rather than self-selected.

The third section of chapter two examined the relationship between joint and individual reward structures, competition versus cooperation, and individualized versus group feedback. The three studies (Vanman et al., 1997; Archer-Kath et al., and Ryan & Wheeler, 1997) examined in this section showed that individualized rather than joint reward structures, cooperation rather than competition, and individualized rather than group feedback contributed most positively to student perceptions of, and participation in, cooperative learning situations. Two studies (Vanman et al., 1997; and Archer-Kath et al., 1994) found that students who were given more individual feedback were more encouraging of their classmates, more on-task, more accepting of low-status group members, and more satisfied with their experience than those students who received group feedback. A third study (Ryan and Wheeler, 1997) found that students who were previously involved in a cooperative situation scored much higher on a simulation game than those students previously involved in a competitive situation. Though it is difficult to generalize about the strengths, weaknesses and trends in this category due to the small number of studies contained therein, it can be said that the strongest study (Vanman et al., 1997) demonstrates internal validity due to its replication of findings over the course of its three separate experiments. In addition, the researchers were meticulous in their description of the scenario methodology they used, giving the study great external validity. Weaknesses in this section include small sample sizes (Archer-Kath et al., 1994), lack of specific definitions (Ryan & Wheeler, 1997), and non-replication of testing.

Finally, research in the Teachers' Views section of Chapter two indicated that while cooperative learning methods are generally favored by teachers, they could be

difficult to achieve in classrooms with diverse behavioral, linguistic and learning needs, and that teacher training in cooperative learning methods is absolutely necessary to effectively implement it in the classroom. Of the four studies (Allison & Rehm, 2007; Robinson & Clardy, 2011; Baker & Clark, 2010; and Gillies & Boyle, 2011) examined in this section, two studies (Baker and Clark, 2010; Gillies and Boyle, 2011) found that teachers do favor cooperative learning as a valuable teaching method, but noted that it could often be difficult to achieve in classrooms with diverse behavioral and learning needs, and that a lack of teacher training can actually hinder student attitudes and inter-ethnic relations in cooperative learning groups. One study (Allison & Rehm, 2007) found that teachers rate cooperative learning—along with use of visuals, peer tutoring, and alternate assessment forms—as one of the top four most effective teaching strategies. Strengths and weaknesses of this section are varied. All the studies in this section are qualitative studies, but some of the studies exhibit more credibility, transferability, dependability and confirmability (as per Lincoln and Guba, 1985) than others. The most credible research is done by Baker & Clark (2010), although even this most credible study lacks a control group with which to compare the experimental group. The biggest threat to the credibility of Allison & Rehm's (2007) study is its methodology. The researchers do not explain how teachers were chosen to participate in the study and give no background information on the participants except that they were long-term middle school teachers from diverse parts of Florida. The confirmability of the study is also questionable in that the process and product of the data collection and analysis are not easily auditable by an outside party. However, given these aforementioned threats, the study could be conducted in other settings, strengthening its transferability. It is

unknown whether the study demonstrates dependability because the author of this review was unable to find any other articles surveying teachers for teaching method preference. Robinson & Clardy's (2011) study has findings consistent with other similar studies, but its methodology is severely flawed, weakening its credibility. The only data sources the researchers draw from are "recollections of past events (as we remember them), artifacts and documents" (p. 102). While the researchers do have a large amount of experience with students to draw from, those experiences are subjective and thus neither credible nor confirmable in a scientific study.

### **Classroom Implications**

This review summarized and analyzed the literature on connections between cooperative learning and both inter-ethnic relations and academic achievement in order to inform classroom practice. The body of research represented in this review has some important implications for teaching in diverse K-12 schools.

Following the Supreme Court's 1954 *Brown v. Board of Education* decision, which called for the desegregation of U.S. public schools, sociologist Gordon Allport argued that schools would not automatically become desegregated simply by placing students of varying ethnic backgrounds in the same classroom, but that specific steps must be taken to implement desegregation. Bellmore, Graham, Juvonen, Nichina and Witkow (2007) agree—their study suggested that ethnic diversity in the classroom is not enough on its own to encourage race relations and prejudice reduction among students. Although some studies (Van Geel and Wedder, 2011) do suggest that ethnic diversity in the classroom is positively related to students' supportive attitudes toward multiculturalism, the research in this review shows that mere classroom proximity is not

enough to encourage positive inter-ethnic relations. The research also shows that cooperative learning methods, if well-taught by the teacher, well-understood by the students, and carefully orchestrated in the classroom, can contribute positively to both inter-ethnic relations and academic achievement. Baker and Clark (2010) and Gillies and Boyle (2011) noted that cooperative learning methods could often be difficult to achieve in classrooms with diverse behavioral and learning needs, and that a lack of teacher training can actually hinder student attitudes, academic achievement, and inter-ethnic relations in cooperative learning groups. Similarly, Gillies (2004) examined both structured and unstructured cooperative learning groups and found that students in structured groups displayed more cooperative behavior—students were less likely to cut each other off, listen to each other, share their ideas and help each other. Implicit in this information is that teachers must have a solid understanding of the cooperative learning methodology. It is also the teacher's responsibility to ensure that groups are carefully structured, and that students have an understanding of their roles and responsibilities in a cooperative group setting.

The research also showed that using individual rather than group feedback and reward structures within cooperative learning groups created a more positive relationship between cooperative learning and both inter-ethnic relations and academic achievement. Vanman et al. (1997) and Archer-Kath et al. (1994) found that students who were given more individual feedback were more encouraging of their classmates, more on-task, more accepting of low-status group members, and more satisfied with their experience than those students who received group feedback. Implicit in this is that cooperative learning groups should not be used to create a smaller workload for the

teacher. Rather, if cooperative learning methods are being implemented properly, students working in groups will still receive individual feedback and have individualized rewards.

According to Arends, cooperative learning “presents opportunities for students of varying backgrounds . . . to work interdependently on common tasks, and to . . . learn to appreciate each other” (112). If cooperative learning is implemented correctly, the studies in this paper have shown that inter-ethnic relations and academic achievement will be encouraged.

Allport and Shlomo Sharan proposed three conditions to combat racial prejudice: “(1) unmediated interethnic contact, (2) occurring under conditions of equal status between members of the various groups participating in a given setting, (3) where the setting officially sanctions interethnic cooperation” (1984, p. 2, as cited by Arends, p. 115).

Although the cooperative learning method of teaching meets all three of the aforementioned conditions necessary to combat racial prejudice, it is currently either an emerging or completely absent teaching method in most schools. Traditional, behaviorist, transmission-based teaching methods are still favored in most schools, even though the studies in this paper show that cooperative learning can promote positive inter-ethnic relations and contribute to academic achievement.

The 30 studies analyzed in this paper have given a clear answer to the question asked in this paper— to what degree do cooperative learning practices relate to or affect interethnic relations and academic achievement in diverse K-12 classrooms, and how can teachers most effectively implement cooperative learning in the classroom?

With only two or three exceptions, the data gathered and findings analyzed show that cooperative learning methods are, indeed, effective in encouraging race relations, prejudice reduction, and academic achievement in diverse classrooms. With this knowledge, the most responsible choice for educators, school administrators, and teacher education programs is to implement and teach cooperative learning methods.

Although the vast majority of studies analyzed in this paper indicate that cooperative learning methods encourage positive inter-ethnic relations and academic achievement in diverse classrooms, some studies have shown no clear connections between these and one particular type of cooperative learning—the Jigsaw method. Bratt (2008) found no positive correlation between Jigsaw and prejudice reduction among students. Hanze and Berger (2007) and Gocer (2010) found that the Jigsaw model cannot be directly linked to improving either intergroup relations or promoting academic achievement. However, the Jigsaw method is just one approach to cooperative learning. Others, including Student Teams Achievement Divisions (STAD) and Group Investigation (GI) have been analyzed in this paper and found to improve intergroup relations and promote academic achievement. Additionally, Bratt (2008) found no detrimental effects of the Jigsaw method on either inter-ethnic relations or academic achievements—the effects he observed were null. Teachers, administrators and cooperative learning workshops should focus on cooperative learning methods other than Jigsaw.

### **Suggestions for Further Research**

The body of research analyzed and critiqued for this review of literature hoped to inform the discussion on to what degree cooperative learning practices relate to or

affect interethnic relations and academic achievement in diverse K-12 classrooms, and how teachers can most effectively implement cooperative learning in the classroom. The body of research analyzed here is vast and fairly complete. In terms of future research, however, there is room for improvement. This body of research would benefit from more study replications, and more qualitative studies could be included to create a more complete body of research with fewer gaps.

The body of research would certainly benefit from more replication of studies. Only two studies (Vanman et al., 1997; Bratt, 2008) examined in this review contained multiple replications of the same experiment. Study results overall would have greater impact and credibility if they were replicated multiple times.

There was a noticeable lack of qualitative studies examining the relationship between cooperative learning and both inter-ethnic relations and academic achievement. Of the 30 studies examined in this literature review, only seven were qualitative studies—the remaining 23 were quantitative studies. This body of research would certainly benefit from more qualitative studies. The distinctive style, rich detail, insight, and human factor that qualitative studies are capable of would add to the discussion on cooperative learning and its effects on inter-ethnic relations and academic achievement.

### **Conclusion**

Chapter one examined traditional transmission-based education methods in light of current population trends. Classroom makeup is rapidly changing—it is no longer socially responsible or just for educators to fail to take into account classroom cultural and learning diversity. Chapter one suggested that teachers and teachers-in-training

must be properly trained in, and willing to implement, teaching methods that encourage positive development of race relations, a reduction in prejudice in students from all ethnic, cultural, and socioeconomic backgrounds, and skills and methods to effectively teach materials to a variety of students. Chapter one also introduced the guiding question of this paper—to what degree do cooperative learning practices relate to or affect interethnic relations and academic achievement in diverse K-12 classrooms, and how can teachers most effectively implement cooperative learning in the classroom?

Chapter two reviewed the research about cooperative and group learning. The research was organized into four sections: cooperative learning's effects on inter-ethnic relations, cooperative learning's effects on academic achievement, the effects of joint reward structures, competition, and feedback in cooperative learning groups, and teachers' views of cooperative learning. Each of the 30 studies examined were summarized and analyzed for strengths and weaknesses. The research was reviewed to examine whether cooperative learning methods were effective in encouraging inter-ethnic relations and academic achievement in diverse secondary classrooms.

Chapter three revisited the guiding question—to what degree do cooperative learning methods affect inter-ethnic relations and academic achievement in diverse secondary classrooms, and how can teachers best implement those methods in their classroom—and provides a summary of the findings from chapter two to answer the question of the study, discuss classroom implications, and present suggestions for future research in this area.

The cultural and ethnic make-up of the world is rapidly changing—it is no longer socially responsible or just for educators to fail to take into account classroom cultural

and learning diversity. It is clear from the research examined in this paper that cooperative learning methods encourage academic achievement, race relations, and prejudice reduction, and should be implemented properly in every classroom.

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