COOPERATIVE LEARNING EFFECTS ON THE CLASSROOM

by

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Abstract

Over the last several decades, educators have implemented cooperative learning strategies in an attempt to raise student achievement and increase student literacy. Cooperative learning techniques have been researched for over 50 years and have been connected positively to student performance. Teachers are faced with many different options while choosing a specific cooperative learning method. As teachers incorporate cooperative learning strategies into the classroom, characteristics such as positive interdependence, individual accountability, face-to-face interaction, social skills, and group processing must also be taken into account. Cooperative learning techniques have also been shown to increase student motivation and retention of the learning material. While, more research needs to be done, cooperative learning methods can have a positive impact on the classroom.
Chapter I: Introduction

Statement of the Problem

America's standing in the world is under attack due to several components. Technology, a global economy, the rise of nations, and educational reform movements within the United States, have put pressure on the educational system in the United States (Ravitch, 2010). American students are no longer competing against neighbors, students from the same state, or students from the United States. American students are now competing against students from around the world.

Technology, a global economy, the rise of nations, and educational reform movements within the United States, have placed the educational system in the United States at the forefront of debate in political circles (Ravitch, 2010). The availability of technology to the masses has evened the playing field for many students around the world. As the global economy has evolved, markets and countries around the world have progressed to the point where challenging the United States and other leading industrialized countries has become a reality. Technology and the global economy have allowed for the rise of nations of previously thought of third-world countries. Lastly, educational reform movements such as high stakes testing, have placed a significant amount of pressure on the United States' educational system to perform at a higher level in comparison to other nations (Ravitch, 2010).

According to the National Assessment of Educational Progress History Report Card, about one-third of fourth and eighth graders were below basic in performance (Caviglia-Harris, 2010). This trend continues into the high school level. Content literacy, specifically social studies, is a problem that affects students at the middle and high school levels. Content literacy is the ability to use reading and writing for the acquisition of new content in a given discipline (McPherson, 2007). Teachers are faced with a multitude of choices as to what are the most effective teaching strategies to enhance student learning in social studies. Legislation at the state and federal level is raising the bar in terms
of student achievement on standardized tests (Ravitch, 2010). In response to higher expectations and a perceived lack of results, researchers and teachers have been seeking the right kind of balance of teaching strategies for years.

Social studies educators are faced with the challenge of creating lessons which not only allow students to analyze government, history, culture or the economy of many different societies, but students must also understand the respective time period in relation to today. Content literacy levels vary widely among students, which can make learning in the social studies classroom difficult for students. Middle and secondary level social studies education has a performance problem (Caviglia-Harris, 2010). Conversely, educators can choose from many different teaching strategies in order to increase student achievement. Cooperative learning raises student achievement while developing collaborative skills in a mutually supporting environment (Slavin, 1995; Johnson, Johnson, & Holubec, 1991).

Cooperative learning is an educational situation where learning occurs while two or more students are working together to complete a common task (Siegel, 2005). While cooperative learning offers educators an option different than a teacher-centered approach, problems still exist in regards to which learning strategies prove to be more effective than others. Further problems exist with the level of competence by the teacher implementing the different cooperative learning techniques. A gap exists in research when comparing cooperative learning methods to each other and analyzing the outcomes with each other in terms of student achievement (Graham, 2005).

The goal of this literature review is to analyze the impact of cooperative learning strategies on student achievement, content literacy, and identify specific cooperative learning techniques as effective in the classroom. Positive and negative components to cooperative learning will also be included in the review. This literature review aims to present the factors and structure present in
effective cooperative learning techniques and how the implementation of cooperative learning can raise student achievement and content literacy.

**Theoretical Framework**

A theoretical model integrating identification with teaching strategies, content literacy, and student achievement will be used in this review. Specific actions such as cooperative and active learning in order to produce higher content literacy and student achievement will be addressed in this review.

**Theory of cooperative learning.** Cooperative learning is the structured, systematic instructional technique in which small groups work together to achieve a common goal (Slavin, 1991). Cooperative learning strategies employ many of the following characteristics and strategies in the classroom: positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing. Positive interdependence is the belief that students are linked together with other students in such a way that one cannot succeed unless the group members also succeed (Hendrix, 1999). Face-to-face interaction is the expectation that students will explain to each other how to solve problems and individual accountability is a requirement of students to complete their share of the work (Hendrix, 1999). Individual accountability can become problematic for educators when and if a portion of the students are not participating actively in the cooperative learning strategy. Social skills are also needed to accomplish mutual goals, students must know and trust each other, communicate effectively, and support and encourage each other (Hendrix, 1999). In terms of effective social skills and cooperative learning strategies, students need to be properly instructed as to how to communicate effectively within a group setting. Educators must monitor the communication dynamics within each group. Group processing enables group members to reflect on a group session to describe what actions of the group members were helpful and not helpful (Hendrix, 1999).
Cooperative learning strategies have demonstrated the ability to outperform teacher-centered strategies in the classroom. Cooperative learning techniques in the social studies classroom are not used as frequently as other disciplines use cooperative learning strategies (Yamarik, 2007). Furthermore, social studies teachers are faced with the question as to which learning strategies are the most effective for student achievement and content literacy. Utilizing theoretical frameworks based on Cooperative Learning Theory and strategies, this review will examine how cooperative learning strategies can impact student achievement and content literacy in the social studies classroom.

**Research Questions**

This literature review will explore structure, effectiveness, and the impact of cooperative learning strategies on student achievement and content literacy. The following research questions were developed to provide a framework for analysis within chapter two of this research paper:

1. What cooperative learning strategies promote a significant difference in student achievement?
2. Can cooperative learning strategies positively affect content literacy in the social studies classroom?
3. Do students in a cooperative learning environment outperform students in a classroom where traditional teaching strategies are used?

**Definition of Terms**

The following terms are significant in regards to cooperative learning strategies and will be used throughout this literature review. These terms frame the research questions and provide basic information in relation to the study.

1. **Cooperative Learning Strategies.** The structured, systematic instructional techniques in which small groups work together to achieve a common goal (Slavin, 1991).

2. **Jigsaw.** Students are placed into teams to work on material that has been divided into sections (Aronson, Blaney, Stephan, Sikes, and Snapp, 1978).
3. **Learning Together.** Students are placed in groups where team building is emphasized and students learn together while completing worksheets (Johnson & Johnson 1989).

4. **Student Teams-Achievement Divisions.** Students are placed in groups in order to work within their teams to master a lesson presented by the teacher (Slavin, 1995).

5. **Teams-Games-Tournament.** Students are placed in groups which compete in academic games with members of other teams and contribute points to their team scores (Slavin, 1995).

6. **Group Investigation.** Students are placed in groups and decide how a topic will be researched, summarized, and how the workload will be divided (Sharan & Sharan 1976).

7. **Academic Controversy.** Academic Controversy is cooperative from of debate. Students are placed into groups, take opposing views, and then attempt to reach a consensus (Johnson, Johnson, & Smith, 1996).

8. **Team Assisted Individualization.** Students are placed in groups and work on their own assignments and then help other group members with their assignments. Group members are rewarded for the success of the group (Slavin, Leavey, & Madden, 1982).
Chapter II: Literature Review

Cooperative Learning Overview

Cooperative learning is frequently researched in education. Cooperative learning is a learning situation in which two or more students are working together to complete a common task (Siegel, 2005). Integrating cooperative learning strategies have proven to be effective in increasing student achievement across all grade levels and subject areas (Johnson & Johnson, 1989). The use of cooperative learning is an effective teaching and learning strategy. Consequently, which cooperative learning strategies promote a significant increase in student achievement and content literacy?

Schools are faced with pressure to produce competent students in an era of standardized tests, which has raised many questions about what is the best way to teach social studies (Soares & Wood, 2010). Educators can choose between lecture style, teacher centered methods and active or cooperative learning strategies. Literacy is a natural component of social studies and the social studies teacher is the key to successful literacy development (Key, Bradley, & Bradley, 2010). The volume of facts and details contained within social studies textbooks often takes priority over student learning activities (Little, Feng, VanTassel-Baska, Rogers, & Avery, 2007). Due to the volume of content, classroom teachers have a challenge of adapting texts to their students’ needs and deciding which instructional methods will maximize students’ learning and success (Hendrix, 1999). The expectation of this literature review was to gain an understanding of some common cooperative learning strategies and then determine the effectiveness of these strategies on student achievement in the social studies classroom.

Cooperative learning is a learning environment in which two or more students are working together to complete a common task (Siegel, 2005). A more complex summary of cooperative learning is detailed by the Office of Education Research Consumer Guide (1992):
Cooperative learning is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. (p. 1)

Cooperative learning research has identified the jigsaw, learning together, student teams-achievement divisions, teams-games-tournaments, academic controversy, and the most commonly utilized cooperative learning strategies.

**Jigsaw.** The Jigsaw method was developed by Elliot Aronson in 1978. In the Jigsaw method, students are assigned to multi-member teams to work on academic material that has been divided into sections. Each member of the group is assigned a section of study on which he or she becomes an expert. Experts are then assigned to expert groups in which the members of the group discuss the information and decide on the best way to present the material to members of their home teams. After the students have mastered the material, group members return to their home teams to teach the other members the material.

The research, in regards to the Jigsaw method, is positive. Jigsaw teaching is an appropriate strategy for social studies because there is often not always one answer to a question (Slavin, 1995). Rhetorical and open-minded questions are confronted more easily when students have exposure to a plethora of perspectives. Concept development is usually one of the main goals in a social studies lesson.

Additional reasons exist for implementing the Jigsaw method in a social studies classroom. The Jigsaw method proves to be useful because of narrative materials, such as a chapter, are often employed and the Jigsaw method had a positive effect on mean scores (Slavin, 1995). The fact that
social studies classrooms are reading intensive cannot be ignored. Student mastery of a social studies lesson is significant when planning a lesson. The Jigsaw method was identified by the literature as an ideal cooperative learning method for social studies.

**Learning together.** Learning together is a cooperative learning strategy created by David W. Johnson and Roger T. Johnson. Learning together was originally designed to help train teachers how to use cooperative learning groups in the classroom at the University of Minnesota in 1966. In the learning together strategy, cooperative effort includes five basic elements: face-to-face interaction, social skills, group processing, positive interdependence, and individual accountability (Johnson & Johnson, 1989). During the learning together process, students complete worksheets in groups of four or five. An emphasis is placed on team building and group self-reflection. Team grades are determined by the teacher. Student growth has appeared in the literature in regards to the social studies classroom because of the emphasis on the student and the interaction between students. The learning together teaching method had a positive effect on mean scores in the social studies classroom (Slavin, 1995).

**Student teams-achievement divisions.** Student Teams-Achievement Divisions is a cooperative learning strategy created by Robert Slavin in which groups of four work within their teams to master a lesson presented by the teacher. Students take individualized quizzes, which are compared to past performances, and then team scores are put together based on the extent to which the students in the group meet or surpass past performance (Slavin, 1995). Teams that meet the appropriate criteria may earn some kind of reward from the teacher. Slavin recognized through his research an increase in mean scores through the use of Student Teams-Achievement Divisions.

**Teams-games-tournament.** Teams-Games-Tournaments is a cooperative learning strategy developed by David Devries, Keith Edwards, and Robert Slavin. Teams-Games-Tournament is
similar to Student Teams-Achievement Divisions except students do not take individual quizzes. Instead, students participate in academic games with members of other teams and contribute points to their team scores. Slavin determined in his research an increase in mean scores through the use of Teams-Games-Tournaments (Slavin, 1995).

**Cooperative Learning Methods**

Johnson, Johnson, and Stanne (2000) used a meta-analysis approach to analyze 164 studies, reviewing eight cooperative learning methods, and produced 194 independent effect sizes covering academic achievement. According to Johnson, Johnson, and Stanne, cooperative learning methods are being utilized because the methods are “clearly based on theory, validated by research, and operationalized into clear procedures educators can use” (p.2). Theories have been based on anthropology, sociology, economics, political science, and psychology. Second, Johnson, Johnson, and Stanne proclaim “here are over 900 research studies validating the effectiveness of cooperative over competitive and individualistic efforts” (p.4). The studies span over 100 years, include subjects in several different countries with different cultural and economic backgrounds. Cooperative learning methods have also been used in an attempt to cure many of society’s ills ranging from racism to bullying to violence. Third, cooperative learning methods offer strict and flexible guidelines for educators. Teachers have a wide range of methods in which to choose. Conversely, with so many options and very few direction as to which and how to incorporate cooperative learning strategies, the goal of this research study was to identify the effectiveness of varying cooperative methods.

Johnson, Johnson, and Stanne (2000) identified four issues with cooperative learning methods. The first of these issues included how much research was attainable to support cooperative learning methods. Past studies were identified mostly as efficacy studies focusing on short-term effects which left the question as to the effectiveness or real world effects of cooperative learning strategies.
Johnson, Johnson, and Stanne realized a current shortage of information in regards to achievement. According to Johnson, Johnson, and Stanne the second issue is “there has never been a comprehensive assessment of how many of cooperative learning methods have been empirically tested” (p.4). Cooperative learning methods can be altered in many different ways, making identifying the strategies difficult. Calculating the effectiveness of cooperative learning on achievement is the third issue and determining the characteristics of effective cooperative learning strategies was the fourth issue. Johnson, Johnson, and Stanne (2000) described the fourth issue as:

Methods of cooperative learning may be placed on a continuum from direct to conceptual.

More direct cooperative learning methods consist of very specific and well-defined techniques that teachers can learn in a few minutes and apply immediately. Teachers are trained to use direct procedures in a lock-step way that is the same in all situations. (p.5)

While direct cooperative learning methods are rather easily taught to and incorporated by teachers, these methods do not seem to offer a great amount of flexibility. Johnson, Johnson, and Stanne (2000) described the opposite end of the cooperative learning continuum as:

More conceptual cooperative learning methods consist of conceptual frameworks teachers learn and use a template to restructure current lessons and activities into cooperative ones. Teachers are trained to create cooperative lessons to fit their specific circumstances. Direct methods may initially be more appealing and seem more user friendly, while conceptual methods may be integrated into teachers’ teaching repertoires and used throughout their career. (p.5)

Initially, conceptual methods may be more complicated and time consuming to learn and implement in the classroom, but once these methods are mastered, the ability to adapt and alter these methods can become an asset to the teacher. The method used in the analysis was meta-analysis. Two
independent variables, the method of cooperative learning and the classification of the method, were used. Individual studies were classified based on the definition of the method utilized in the study such as jigsaw or Learning Together. Classification was determined by applying the concepts of direct or conceptual cooperative learning methods. The dependent variable was characterized as student achievement.

Figure 3 represents the meta-analysis results found by Johnson, Johnson, and Stanne (2000). The table represents the effectiveness of eight specific cooperative learning strategies and compares the cooperative methods to competitive and individualistic learning. In each case, cooperative learning strategies outperformed classrooms with competitive or individualistic structures.
Table 3: Meta-Analysis Results For Cooperative Learning Methods

<table>
<thead>
<tr>
<th>Learning Together</th>
<th>Average Effect Sizes</th>
<th>Weighted Effect Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effect</td>
<td>Sd</td>
</tr>
<tr>
<td>Cooperation vs. Competition</td>
<td>0.82</td>
<td>0.50</td>
</tr>
<tr>
<td>Cooperative vs. Individual.</td>
<td>1.03</td>
<td>0.69</td>
</tr>
<tr>
<td>Competitive vs. Individualistic</td>
<td>0.06</td>
<td>0.47</td>
</tr>
<tr>
<td><strong>TGT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intergroup Comp vs. Competition</td>
<td>0.48</td>
<td>0.69</td>
</tr>
<tr>
<td>Intergroup Comp vs. Individualistic</td>
<td>0.58</td>
<td>0.43</td>
</tr>
<tr>
<td><strong>Group Investigation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperation vs. Competition</td>
<td>0.37</td>
<td>1.19</td>
</tr>
<tr>
<td>Cooperation vs. Individual.</td>
<td>0.62</td>
<td>1</td>
</tr>
<tr>
<td><strong>Academic Controversy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative vs. Competition</td>
<td>0.59</td>
<td>0.44</td>
</tr>
<tr>
<td>Cooperative vs. Individual.</td>
<td>0.91</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Jigsaw</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperation vs. Competition</td>
<td>0.29</td>
<td>0.78</td>
</tr>
<tr>
<td>Cooperation vs. Individual.</td>
<td>0.13</td>
<td>0.29</td>
</tr>
<tr>
<td><strong>STAD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intergroup Comp vs. Competition</td>
<td>0.51</td>
<td>0.72</td>
</tr>
<tr>
<td>Intergroup Comp vs. Individ.</td>
<td>0.29</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>TAI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative vs. Competitive</td>
<td>0.25</td>
<td>0.14</td>
</tr>
<tr>
<td>Cooperative vs. Individual.</td>
<td>0.33</td>
<td>0.26</td>
</tr>
<tr>
<td>Competitive vs. Individual</td>
<td>-0.08</td>
<td>0.52</td>
</tr>
<tr>
<td><strong>CIRC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperation vs. Competition</td>
<td>0.18</td>
<td>0.23</td>
</tr>
<tr>
<td>Cooperation vs. Individual.</td>
<td>0.18</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: sd = standard deviation; k = the number of averaged effect sizes in the meta-analysis; SE = standard error; Cld 95% = the value of the 95% confidence interval around the weighted effect size; fsn = fail safe N (the number of additional studies needed to change the significance of the results below 0.20).

Figure 3. A meta-analysis of the major cooperative learning strategies. Adapted from “Cooperative Learning Methods: A Meta-Analysis” by Johnson, Johnson, and Stanne, 2000, p. 10.
The results, as shown in Table 3, demonstrate an overall improvement in achievement when cooperative learning methods are integrated into the classroom.

**Cooperative Learning in the Classroom**

Over the years, cooperative learning has been a highly researched topic in education. Over the last quarter century, cooperative learning strategies have arrived as a popular option to traditional instruction due to the positive influence on student esteem, performance, and on-task behavior (Mills & Durden, 1992).

Steven Yamarik (2007), using multivariate regression analysis, analyzed the effect of group learning on learning outcomes in economic instruction. Yamarik applied cooperative learning to an economics course in 2002 and again in 2004. The subjects assessed were 116 students in four macroeconomic courses. Thirty five students from an early afternoon course and 22 more students in a late afternoon class were assessed in 2002. The early afternoon class was used as the control section and the late afternoon section was used as the experimental group. Yamarik again assessed students in 2004 by assessing 35 students in the early afternoon and 24 more students in the late afternoon. The early afternoon section was the experimental group and the late afternoon section was used as the control group. Interest, participation, preparation, participation, attendance, and performance were identified as the types of results being tracked. Interest, participation, and preparation were tracked by using both pre-experiment and post-experiment questionnaires. Students’ preparation was measured by how much the students wanted to talk to other students and the instructor, and the amount of time spent working on class expectations outside of the classroom. Participation was measured by how much interaction students had while working together, the amount interaction by students concerning the work, and how much students participated in the last three classes. Class attendance records were used to measure attendance. Interest was measured by how much satisfaction students received from
economics and the application of economics in their daily life. Performance was measured by using a midterm and final exam.

The course was divided into five main parts: introduction, long-run static model, long run growth model, short run model, and macroeconomic policy. Final grades for the course were calculated based on percentages for attendance, problem sets, midterm exam, and final exam. The control groups experienced a traditional, lecture led teaching method. The first 15 minutes of class were led by the instructor introducing the topic and then followed by a question and answer session. The instructor relied upon volunteers from the class to answer the questions. The experimental groups were led by student discussion while the instructor circulated the room. During the final 15 minutes of class, a representative from each group presented answers to the class. The statistical tool used was a multivariate regression analysis. Once the demographic and academic factors were controlled for the classroom, the results of the midterm and final exams served as the ultimate indicator. Student learning in the experimental group, or the cooperative learning group, was measurably higher than in the control group, or the lecture style group. The cooperative learning groups scored four to six points higher on the exams than the lecture style groups (Yamarik, 2007).

Yamarik asked “did students in the cooperative learning group perform better on the exams than students in the lecture group?” The author concluded:

First, cooperative learning raised student-instructor interaction. Students seemed less inhibited about asking questions in the small groups. Second, cooperative learning increased group studying for the exams. Furthermore, students in the cooperative learning group often came to my office as a group whereas students in the experimental group came individually. As a result, more students from the cooperative learning sections sought help from me outside the
classroom. Third, the novelty of working in small groups sparked greater interest in the material. (Yamarik, 2007, p. 275)

While the groups using cooperative learning scored higher on the midterm and final exams, the author found limitations. Interest, participation, and preparation results could not be measured definitively and more research is required in reference to the effects of cooperative learning on performance.

Majoka, Khan, and Shah (2011) looked at the impact of cooperative learning and traditional methods of teaching in social studies. The quantitative experimental study compared achievement scores among all the students at the elementary level in public schools of the Mansehra District in Pakistan. Participants were students in the 7th class Social Studies which contained 100 students for the sample. The control group and the experimental group each contained 50 students. Students were placed in each group based on the mean scores of a pre-test. Two teachers were selected for the study, each having the same academic qualification and teaching experience. Students in the control group were taught using a lecture method for each of the three parts of the lesson. The experimental group experienced one day of direct teaching followed by a worksheet and team time. Statistical tools used in the study were standard deviation, effect size, and percentile point gain. The pre-test and post-test scores served as the data of the study. Majoka, Khan, and Shah concluded student learning in a cooperative classroom enhanced the students’ ability to learn in the subject of social studies. Additionally, cooperative learning proved to be more effective than the traditional method for students labeled as high and average achievers. Several factors could limit the findings in this particular study. First, utilizing two different teachers could possibly skew the results. Although the teachers have similar backgrounds, there is no specific way to gauge whether or not the control group and the experimental group would have scored the same if only one teacher was utilized. Second, the
sample size of 100 students could be larger. Finally, the academic ability of the students comprising the two groups is vague.

A review of the two previously stated studies demonstrates the effectiveness of cooperative learning methods in the classroom. The dynamics of the group setting offer students an opportunity to not only interact with the learning material differently, but also allow students to interact with each other. The effect of this interaction when combined with heightened levels of motivation increase student achievement.

**Cooperative Learning and Grade Point Average**

Dalrymple (2009) analyzed students at Missouri Western State University. Dalrymple’s sample included 50 college students of varying age and majors. The goal was to find the effects of cooperative learning on grade point average. According to Dalrymple “the survey consisted of six questions that asked students if study in groups or independently for classes” and also “asked the students their age, major, GPA, and year in school” (2009, p.3). An independent sample t test was used to identify the effects of studying in groups on GPA. At the heart of the research question, Dalrymple was trying to see if cooperative learning methods such as studying in groups had a positive effect on students’ GPA. The results of the survey produced no significant change in GPA in regards to the amount of group studying or lack thereof. According to Dalrymple:

If I were to re-do this study I would re-word some of the questions on my survey. Some of the students commented that they were hard to understand. Some of my questions were also a little personal, such as asking them to put their GPA and their grade for the class. I do not know if the results would be the same if I re-did the study. A student could lie about their GPA or grade and that could effect the whole study. (p. 3)
It is evident this study had some significant shortcomings such as whether or not the information included in the surveys was factual. However, the results suggest no significant increase in GPA at the collegiate level. The implications for K-12 are relevant because the study could have been done differently. Students that achieve higher on a daily basis typically have higher assessment scores which often leads to a higher grade point average.

Cooperative Learning beyond the Classroom

Huang and Su (2010) analyzed the teaching model based on cooperative learning and how cooperative learning can bring value into the world of software training. The research methods of Nobel laureates were cited and the use of cooperative research methods were found to have increased from 41% in the first 25 years of Nobel Prize awards to 75% in the last 25 years of the Nobel Prize award. If the “best” and “brightest” in the world were applying certain cooperative strategies to research, could these characteristics be transferred to other learning areas as well? The application of a teaching based model on cooperative learning provided for some key components such as communication and ownership of the learning process. Johnson and Johnson (1989) explained “the interactive relationships among students were more powerful than the influences of any other factor on students’ learning achievement, socialization and development” (p. 7). The role of the teacher changed in the teaching model based on cooperative learning. The teacher was no longer the only source of direction for students and students could access a wider range of information. As Huang and Su continued to research the teaching model based on cooperative learning in regards to software development, communication was found to be a key characteristic. Communication in the software development process was found to be used more than 40% of the time and “the survey of global 500 CIOs found that 70% of people thought the key to success is the effective use of communication” (Huang & Su, 2010, pp. 3-4). The important goals of the teaching model based on cooperative
learning were changing the role of student to student and teacher, personal responsibility, the benefit of mutual teaching, and evaluating the quality and quantity of cooperative learning. Students must take an active role in the learning process. Huang and Su (2010) concluded:

In cooperative learning, because cooperative learning groups have active interdependence, it will cultivate team spirit of students penetrating into the teaching of the class, and team spirit will play an important role in the conversion process of China’s software industry from handicraft workshop to industrial production. Therefore, the introduction of teaching model based on cooperative learning into computer courses will lay a good foundation of the development of IQ for students entering the society. (p.5)

The effect of teaching model based on cooperative learning has yielded positive results. Students have taken an active role in learning because the learning process has changed with the ownership of the process now being placed on the student. Hunag and Su write “students move from I am asked to learn to now I want to learn” (p. 5). Students have also expressed the ability to maintain knowledge for longer periods of time because of the process of inheritance.

**Cooperative Learning as a Motivational Set**

The motivational aspect to cooperative learning should not be overlooked. Some students like to cooperate with their peers (Gardner, 1999). Teachers, in an attempt to provide for students’ needs for affiliation, autonomy, and physical activity, may also use cooperative learning strategies for students’ needs to be social (Hootstein, 1994). Educators must also be aware of students’ emotional needs as well as the intellectual needs. Benware and Deci (1984) analyzed the quality of learning with an active voice versus passive motivational set. The premise explored learning to teach, learning to be tested, and how motivation on the part of the student affected performance. Specifically, data was collected regarding intrinsic motivation during an active motivational set compared to extrinsic
motivation based on a passive motivational set. Benware and Deci describe active learning as “learning in order to teach is an instance of the more general case of active learning—learning that is done with the expectation of using the material” (p. 758). Forty one first year students from the University of Rochester comprised the subjects. The experimental group, which focused on learning to teach, had 19 introductory Psychology students. The control group, which focused on learning to take an exam, had 21 introductory Psychology students. Students were given a week to read an article. The following instructions were distributed to the control group:

The purpose of studying and learning the article is so that when you return to the laboratory you will score as high as possible on an examination based on the article. The examination will be like a typical examination based on a reading assignment. Again, use whatever study methods seem most appropriate for you (Benware & Deci 1984, p. 760)

Students returned to class and completed an assessment gauging the students’ motivation. The students then took the exam. The experimental group was given the same article with the following instructions:

The purpose of studying and learning the article is so that when you return to the laboratory you will be able to teach the contents to another student. The student to whom you teach the contents will then be given an examination based on the article. The examination will be like a typical examination based on the reading assignment. Again, use whatever study methods seem appropriate for you. (Benware & Deci, 1984, p. 760)

Again, students’ motivation was gauged through the use of a questionnaire and then students took the exam. The experimental group was researched to find whether or not the motivation to learn the content of the article changed due to the expectation of having to teach the information found in the article. The level of intrinsic motivation was determined by ascertaining the amount of interest,
enjoyment, and the willingness of students to use additional time towards the assignment. The level of enjoyment, interest, and the willingness of students to use additional time towards the assignment served as the dependent measurements. The active/passive component was utilized as the manipulation check. Students were asked to reveal whether they participated in an active or passive motivational set while knowing an exam would follow the learning assignment. Students were asked to do the same when the criteria changed from an exam to teaching other students. Benware and Deci found the students in the experimental group, or active motivational set, rated the activity level high. To be exact, the mean score for activity level was 8.47 on a scale of 10 during learning with the expectation of teaching and scored the activity level for learning to be examined with a mean of 4.63. The experimental group found an active learning setting to be more motivational in learning the material. Conversely, students in the control group learned with the expectation of being examined on the material. The control group responses in regards to activity level did not show a discernable difference in activity. The mean score for learning to teach was 7.72 and 7.09 for learning to be examined. Consequently, students experienced more intrinsic motivation while actively learning the material with the expectation of teaching the material to other students. However, the findings go beyond the level of students’ motivation in an active/passive motivational set. Students in the experimental group scored higher in both conceptual learning and rote learning than the control group. As a result, students in the experimental group were using the setting and material as a way to learn from each other, which increased the feeling of being more active and led to better results in terms of learning (Benware & Deci, 1984).

**Cooperative integrated reading and composition.** Cooperative Integrated Reading and Composition is a cooperative learning method developed by Madden, Slavin, and Stevens (1986) to teach reading and writing. CIRC places students in pairs of two or more and students follow a
sequence of teacher instruction, team practice, team pre-assessments, and quizzes. Rewards are given to teams based on the average performance of all team members on all reading and writing activities.

Success For All is a cooperative learning program in several urban and rural elementary schools with the goal of improving early intervention techniques in the area of reading. The urban elementary schools were selected based on a significant number of minority students with low academic performance. Hurley, et. al. (2001) performed a study which focused on reading scores and the effect of the Success For All program on the Texas Assessment of Academic Skills. A total of 111 Texas schools comprised the research. Title 1 schools, consisting of a majority of minority students, made up more than half of the schools involved in the study. The time period for the study was from 1994-1998. Students participating in the Success For All program had teachers using strategies adapted from Cooperative Integrated Reading Composition, or CIRC, starting in the first grade and continuing through fifth grade. In the Cooperative Integrated Reading Composition, or CIRC, is where students work in small, cooperative learning teams which focus on main idea, summarization, vocabulary building, home reading, and creative writing activities (Stevens, Slavin, Madden, & Farnish, 1987). Test scores were averaged for the 111 schools including grades three through five. The students’ test scores involved in the Success For All program for four years were compared to test scores from all of the students in the state of Texas. Students participating in the Success For All program in Texas on average gained 5.85 percentage points more than the state average on the standardized test. As students spent more time in the program, the student’s test score also increased on average. The authors of the study did acknowledge the fact that at some level, the results of the study may have been effected by high achieving students who could not improve at the same rate as lower achieving students.
Slavin and Madden (1999) continued to review the Success For All Program, which incorporates the Cooperative Integrated Reading and Composition (CIRC) learning strategy. In this case, the authors of the study reviewed the reading performances of students in bilingual programs. In the bilingual version of CIRC, known as BCIRC, students operate in small cooperative groups. Slavin and Madden characterized the small cooperative group work as:

Students read to each other, work together to identify characters, settings, problems, and problem solutions in narratives, summarize stories to each other, and work together on writing, reading, comprehension, and vocabulary activities. (p. 4)

Students, in grades K-5 attending schools in Philadelphia, California, and Arizona, were the focus of the study. Students in one Philadelphia school, 62% of which were from Asian backgrounds, were compared to another school in which the student population was similar. Asian students participating in the Success For All program outperformed the control group students by 2.9 years in fourth grade and 2.8 years in fifth grade. Non-Asian students also experienced a positive outcome on the test. Students in California were ESL with Spanish being the dominant language, also participated in the Success For All study. SFA students outperformed the control group. However, in California, the differences between the two groups decreased as the grade levels increased. This could be attributed to higher achieving students. Similar results were also found in Arizona as well.
Chapter III: Results and Analysis Relative to Problem

The intent of this literature review was to explore the impact of cooperative learning strategies on student achievement and content literacy. Furthermore, this literature review examined the effectiveness of cooperative learning strategies on student achievement compared to students in a classroom where traditional strategies were used. This review utilized the following research questions as a conceptual framework for questioning analysis.

1. What cooperative learning strategies promote a significant difference in student achievement?

2. Can cooperative learning strategies positively affect content literacy in the social studies classroom?

3. Do students in a cooperative learning environment outperform students in a classroom where traditional teaching strategies are used?

Cooperative learning strategies have been widely implemented in classrooms for decades. Educators have a wide array of cooperative learning strategies from which to choose. This can increase the difficulty of identifying specific strategies that prove to be most effective. As districts attempt to find ways to improve student achievement in a world of standardized tests and global competition, the proper use of cooperative learning strategies in all classrooms and at levels, including social studies, can improve overall student performance and content literacy.

Chapter three provides an overview of the research results and identifies which cooperative learning strategies prove to be the most effective. This chapter will examine the factors that make cooperative learning effective for teachers and students.

Overview of Cooperative Learning in the Classroom
Cooperative learning is the structured, systematic instructional technique in which small groups work together to achieve a common goal (Slavin, 1991). According to Johnson and Johnson (1989), the following characteristics are found in the classroom in which cooperative learning techniques are integrated:

1. **Positive interdependence**: Positive interdependence provides students with the idea that each student is connected to each other along with success. In order for the group to be successful, each member of the group must succeed. Mutual learning goals help to reinforce positive interdependence. Students are provided with the learning material and given the responsibility of making sure each member of the group learns the material. Joint rewards, such as bonus points, can also be used as motivation. For example, if every member of the group reaches a performance goal on an assessment, each member of the group will receive extra points. The research reveals that students learning in a cooperative learning environment demonstrated higher levels of positive interdependence. The research has identified positive interdependence as a key component to effective cooperative learning in the classroom. Groups, which work together with purpose, commitment, and motivation, can outperform teacher-centered classrooms.

2. **Face-to-face interaction**: Face-to-face interaction encourages students to take an active role in the success of the group. Students can accomplish this by helping each other learn the assigned learning material. Personal interaction allows students to support each other and share personal knowledge of the material. Johnson and Johnson (1989) acknowledged that “accountability to peers, ability to influence each other’s reasoning and conclusions, social modeling, social support and interpersonal rewards all increase” (p. 71) during face-to-face interaction. The research reveals that the face-to-face interaction component to cooperative learning techniques
positively effects student achievement, which in turn, demonstrates an increased level of content literacy, and helps students reach higher levels of achievement than students learning in a teacher centered classroom.

3. Individual accountability: Individual accountability is present when performance results are provided to the group and individual members. Teachers who have implemented cooperative learning strategies into the classroom do so with the intention of using the group dynamic to make each individual member better. In order to measure improvement and current level of accomplishment, individual accountability is utilized to ensure a fair distribution of the workload. Individual accountability should be structured as follows:

- Giving an individual test to each student
- Randomly selecting one student’s product to represent to the entire group
- Having each student explain what they have learned to a classmate

(Johnson & Johnson, 1989, p.71)

An analysis of the research reveals a preponderance of one of these characteristics being utilized in the studies. Testing the individual student was typically utilized to gauge achievement. However, the research did demonstrate some incorporation of the other two characteristics.

4. Social skills: Social skills are the ability to relate to and function with other people. Group efforts require students to interact on an interpersonal level. In many cases, students must be taught skills such as how to lead, resolve conflict, building trust, and effective decision-making. Although logic would suggest that effective social skills would be present during successful group learning, identifying and quantifying these skills proved to be elusive in the research utilized in this review.
5. **Group processing**: Group processing occurs when students are able to self-evaluate the structure, workings, and accomplishments of the group. During group processing, students are able to identify the strengths and weaknesses of group in terms of collaboration, defining the problem, and overall achievement. Group processing is viewed as an essential part of the cooperative learning experience. However, quantifying the effect of group processing on student achievement and content literacy has not been found in the research.

**Figure 1. Outcomes of Cooperative Learning**

![Diagram](image)

*Figure 1. The relationship between positive interdependence and cooperative learning characteristics. Adapted from “Making Cooperative Learning Work” by Johnson and Johnson, 1999, p. 72.*

**Theory of Cooperative Learning Applied to Achievement**

Numerous research studies on cooperative learning have been conducted and have validated theorists’ claims about the strategy as an effective teaching and learning approach. According to *Research Corner: Education Data and Research Analysis from Edvantia* (2005), “Studies on cooperative learning indicate a strong impact on student achievement as well as increased motivation
and improved social interactions with adults and peers” (p.68). Evidently, cooperative learning methods are effective in a variety of ways. The research has shown increases in student achievement at the elementary, middle, high school, and collegiate levels. The theory of cooperative learning has also been successfully applied to the workplace. Research indicates student achievement has increased when effective cooperative learning techniques have been applied to a range of courses, including social studies. Motivation was identified as a key component to achievement.

Cooperative learning as a motivational strategy works. Some students like to cooperate with their peers (Gardner, 1999). Teachers, in an effort to meet their students’ needs for affiliation, autonomy, and physical activity, have utilized cooperative learning to address the students’ need to be social (Hootstein, 1994). The level of students’ motivation, whether to succeed individually or in a group, increases with the use of cooperative learning strategies. Once motivated, students interact with each other and with the learning material in way that supersedes students in a traditional, teacher-centered classroom. “Given the nature of the student and the reportedly positive results of cooperative learning strategies on cognitive and affective domains, it would appear that cooperative learning is an essential element in instruction” (Niemi, 1999, p. 14).

Effective cooperative learning techniques, however, appear to require more than just putting students in groups and giving each student a test at the end of the learning material. “To use cooperative learning effectively, one must know what is and is not a cooperative group” (Johnson, Johnson, & Holubec, 1998, p. 9). Johnson, Johnson, and Holubec (1998) identified four different types of cooperative groups. A pseudo learning group included students working together with no interest of helping each other and often kept information from other members of the group because the belief is that each student would be ranked from highest to lowest in terms of performance. In a traditional classroom learning group, students work together to complete the assigned learning
material. While students rely on each other for information, the level of motivation to teach each other remains low because assessments and rewards are given on an individual basis. As is the case in a pseudo learning group, higher performing students tend to perform at a higher level if the work was done individually. Cooperative learning groups place an emphasis on shared goals. While in groups, students work together to accomplish mutual goals and individual performance is monitored by the teacher. “The result is that the group is more than a sum of its parts, and all students perform higher academically than they would if they worked alone” (Johnson & Johnson, 1999, p. 68). Johnson and Johnson (1999) also identified a high performance cooperative group as meeting all of the requirements for being a cooperative learning group. While a high performance cooperative learning group has proven elusive to achieve, the group’s level of commitment allows this type of group to outperform all other types of cooperative learning groups.

Cooperative learning strategies have been proven through research to increase student achievement and content literacy in the classroom. When cooperative learning techniques are applied to the classroom setting, the structure of the group becomes important to the overall success of the group. Simply placing students in a group does not constitute a cooperative learning strategy. According to Johnson and Johnson (1999):

Study groups, project groups, lab groups, homerooms, and reading groups are groups, but they are not necessarily cooperative. Even with the best intentions, teachers may be using traditional classroom learning groups rather than cooperative learning groups. To ensure that a group is cooperative, educators must understand the different ways cooperative learning may be used and the basic elements that need to be carefully structured within every cooperative activity. (p. 68)
A review of the literature provides inconclusive results in terms of satisfying Johnson and Johnson’s categorical description of a cooperative learning group. Characteristics of each cooperative learning group became evident in the research, but the specific type of structure utilized in the sample was often either omitted or ignored. The research fails to identify the sample groups as anything other than a cooperative learning group. Instead, a review of the literature indicates the importance of motivation and the type of cooperative learning strategy selected by the educator.

**Performance of Specific Cooperative Learning Strategies in the Classroom**

Cooperative learning has been present in education for a number of decades. Educators have a myriad of choices in regards to which cooperative learning strategies are most effective. The overall research results for this study show an increase in student achievement based on all eight cooperative learning methods. Included in the review of the literature were samples from K-12 settings utilizing multiple content areas, college, and in the workplace. However, cooperative learning techniques are not created equal, in fact, certain strategies have better outcomes than others based on setting, structure, and implementation. Classroom setting can be differentiated by comparing cooperative learning with competitive and individualistic learning techniques. Competitive learning involves negative and positive outcomes for group members (Johnson, Johnson, & Stanne, 2000). Individualistic learning occurs with little to no interdependence among students. Johnson, Johnson, and Stanne (2000) ranked eight of the top cooperative learning strategies to each other and then compared those methods to competitive and individualistic instruction.
Table 4: Ranking Of Cooperative Learning Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Coop v Comp</th>
<th>n</th>
<th>Method</th>
<th>Coop v Ind</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT</td>
<td>0.85</td>
<td>26</td>
<td>LT</td>
<td>1.04</td>
<td>57</td>
</tr>
<tr>
<td>AC</td>
<td>0.67</td>
<td>19</td>
<td>AC</td>
<td>0.91</td>
<td>11</td>
</tr>
<tr>
<td>STAD</td>
<td>0.51</td>
<td>15</td>
<td>GI</td>
<td>0.62</td>
<td>1</td>
</tr>
<tr>
<td>TGT</td>
<td>0.48</td>
<td>9</td>
<td>TGT</td>
<td>0.58</td>
<td>5</td>
</tr>
<tr>
<td>GI</td>
<td>0.37</td>
<td>2</td>
<td>TAI</td>
<td>0.33</td>
<td>8</td>
</tr>
<tr>
<td>Jigsaw</td>
<td>0.29</td>
<td>9</td>
<td>STAD</td>
<td>0.29</td>
<td>14</td>
</tr>
<tr>
<td>TAI</td>
<td>0.25</td>
<td>7</td>
<td>CIRC</td>
<td>0.18</td>
<td>1</td>
</tr>
<tr>
<td>CIRC</td>
<td>0.18</td>
<td>7</td>
<td>Jigsaw</td>
<td>0.13</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 4. Cooperative learning methods in relationship to competitive and individualistic classrooms. Adapted from “Cooperative Learning Methods: A Met-Analysis” by Johnson, Johnson, and Stanne, 2000, p.11.

Cooperative learning methods can be evaluated based on five dimensions. Figure 5 illustrates the rankings for eight different cooperative learning techniques. Each strategy is evaluated on ease of learning the method, ease of initial use in the classroom, ease of long-term maintenance of use of method, robustness of the method, and adaptability of method to changing conditions (Johnson, Johnson, & Stanne, 2000). Cooperative learning techniques were placed on a five-point scale from easy being one and difficult being five. Conceptual learning when applied to cooperative learning methods led to higher achievement than competitive and individualistic learning. All eight of the listed cooperative learning strategies led to higher student achievement. Learning Together and Academic Controversy rated as the most difficult on the scale but still produced higher levels of achievement than teacher centered classrooms. Cooperative Integrated Reading and Composition, Team Assisted Individualization, Teams-Games-Tournaments, and Jigsaw all rated as rather easy on
the five-point scale.

<table>
<thead>
<tr>
<th>Method</th>
<th>Learn</th>
<th>Initial Use</th>
<th>Maintain</th>
<th>Robust</th>
<th>Adaptability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Together</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>TGT</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Group Investigation</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Academic Controversy</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Jigsaw</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>STAD</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>TAI</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>CIRC</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Complex Instruction</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Cooperative Structures</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Figure 5. Adapted from “Cooperative Learning Methods: A Meta-Analysis” by Johnson, Johnson, and Stanne, 2000, p. 12.

A review of the literature has led to a positive analysis for cooperative learning methods on student achievement and content literacy. The review also identified eight cooperative learning techniques, explained which strategies were most successful in the classroom, compared specific learning techniques with competitive and individualistic methods, and highlighted the importance of the motivational set in learning. Conversely, the literature also identified several shortcomings in the research to date. The potential for bias is also present in a number of the foundational research studies due to the research being conducted by the creator of the cooperative learning strategy being researched. Another unknown at this time is the effectiveness of cooperative learning strategies when various teachers adapt these methods to fit their classroom.
Chapter IV: Recommendations and Conclusion

Recommendation

Educators are looking for specific learning techniques to improve student achievement and content literacy. Cooperative learning methods will most likely be one of the learning techniques teachers explore in an attempt to provide a learning environment conducive to higher student achievement. The variety of cooperative learning strategies available to teachers forces each individual teacher to thoroughly research the structure of each cooperative learning method. Simply putting students in groups is not good enough and does not satisfy the expectations of effective cooperative learning. Cooperative learning methods have a track record of positive results in the classroom. Once the proper amount of background information has been attained by the teacher, an educated choice can be made as to which cooperative learning techniques are best suited for their classroom and students. As a specific cooperative learning method is chosen, teachers should monitor the dynamics of the group setting, place an emphasis on collaboration and motivation, and assess the mastery of learning materials by the students on a group and individual basis. Assessments can be done in a variety of ways and include daily competitions, debate, worksheets, quizzes, tests, and other types of assessment. The students must be empowered with the necessary environment and structure in order to reach higher levels of achievement and content literacy. Cooperative learning methods, with the guidance of an informed teacher, will have a positive impact on student achievement.

Areas of Further Research

I would want to perform a quantitative research study to further answer my research questions. Included in my study would be a large number of teachers and students in a variety of different school settings. Teachers of varying levels of experience and students at different grade levels must be apart of the sample. If possible, previous student academic achievement would be preferred. The
differences in school settings include geographical location and size of the district. Research questionnaires would have to be developed. The composition of the questionnaires will be key to the results derived from the questionnaires. The goal of the research questionnaires would be to identify the specific cooperative learning method chosen by the teacher, how the learning technique was implemented, the structure and expectations in which the students were to learn, and assessments used to gauge content literacy and student achievement. The data attained from the questionnaires must be cross categorized and compiled for analysis. Analysis of the data will be used to identify similarities and differences in the cooperative learning strategies selected, implementation of the techniques, and overall student achievement. Inside the data, the study would look for causal relationships between cooperative learning strategies and effective, specific cooperative learning techniques and student achievement and content literacy. Further study of cooperative learning strategies may identify ways to improve not only a specific cooperative learning strategy, but may also improve how teachers implement the various cooperative learning techniques in their classrooms.

Conclusion

Cooperative learning strategies will continue to be utilized by educators. Student achievement and content literacy are paramount in a world of global competition and educational reform driven groups in the United States. If teachers are going to use cooperative learning strategies to increase student achievement and content literacy, teachers must identify an effective cooperative learning strategy with attention to positive interdependence, face-to-face interaction, individual accountability, group processing, and social skills. Teachers that successfully incorporate the foundations of cooperative learning methods can expect a positive effect on student achievement and content literacy.
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