Cooperative learning in the middle school: is it a developmentally appropriate strategy?

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Cooperative learning in the middle school: is it a developmentally appropriate strategy?

Abstract
"Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning" (Holt, 1993, p. 5). The strategy sounds simple, and it has existed throughout history in some format, but there are many aspects that come into play when cooperative learning is used. This review of literature examines what cooperative learning is, what the benefits of using cooperative learning strategies are, what problems can occur, and whether cooperative learning is an appropriate strategy for middle level students. The author discusses recommendations for resolving some of the problems that teachers have with cooperative learning strategies.
COOPERATIVE LEARNING IN THE MIDDLE SCHOOL: IS IT A DEVELOPMENTALLY APPROPRIATE STRATEGY?

A Graduate Review of Literature
Submitted to the Division of Middle Level Education
Department of Curriculum and Instruction
In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts in Education
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By
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Titled: COOPERATIVE LEARNING IN THE MIDDLE SCHOOL: IS IT A
DEVELOPMENTALLY APPROPRIATE STRATEGY?

Has been approved as meeting the research requirement for the Degree of Master of
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“Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other’s learning” (Holt, 1993, p. 5). The strategy sounds simple, and it has existed throughout history in some format, but there are many aspects that come into play when cooperative learning is used. This review of literature examines what cooperative learning is, what the benefits of using cooperative learning strategies are, what problems can occur, and whether cooperative learning is an appropriate strategy for middle level students. The author discusses recommendations for resolving some of the problems that teachers have with cooperative learning strategies.
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Chapter I

Introduction

Cooperative learning is a teaching strategy that involves students who work together to complete learning activities. The number of students in the group, group composition, format of the activity, and the assessment of the activity can all vary greatly. In the 1920s, social psychologists began to research cooperation (Slavin, 1995). Since the 1970s, there have been many studies conducted to test the benefits and pitfalls of cooperative learning activities in the classroom as well as texts, articles, and web pages created to transmit information about cooperative learning. At first there were four groups of researchers that developed and researched different cooperative learning methods; now there are many researchers throughout the world investigating aspects of the methods (Slavin, 1995).

Cooperative learning activities teach important skills that are essential in one’s life, so it is also essential that these types of activities are part of the school curriculum (Adams & Hamm, 1996; Holt, 1993; Vermette, 1998). According to the University of Northern Iowa (UNI) InTime Project (2003), constructivist theorists such as Piaget and Vygotsky, believed learning to be very social in nature. Children can learn best when they are able to socialize with peers and adults. This socialization allows for children to learn more advanced thinking processes and also to question their own thinking. The act of discussing helps students to “rehearse, elaborate, and expand their knowledge” (UNI, 2003, para. 2). When students question each other and explain the information to each other, they have to organize their thoughts. This process forces students to make
connections with the information they are learning. Vygotsky also developed the idea of the zone of proximal development, which is a level attained when students are challenged to think at a higher level by peers or adults who are at a higher cognitive level than they (UNI, 2003). The socialization process of cooperative learning can help students to attain higher levels of cognition than if those same students were learning in an individualized setting.

Many benefits have been documented for students who are involved in cooperative learning activities. Cognitive, motivational, social, and emotional benefits have been found for students who participate in cooperative learning activities (Adams & Hamm; Slavin, 1995; Balkcom, 1992; Cohen, 1994; Holt, 1993, Vermette, 1998).

Balkcom (1992) stated that benefits include, “improved academic achievement, improved behavior and attendance, increased self-confidence and motivation, and increased liking of school and classmates” (para. 2).

Cohen (1994) stated that small group activities make it possible for students to take a more active role in their learning and allows for more conversation between students; both are essential for authentic achievement to occur. She also noted that many agree that cooperative learning can lead to benefits in learning, higher order thinking, more socially acceptable behaviors, and can help to manage widely heterogeneous classrooms. Research conducted by Slavin (1994) has also proven that students learn better when they are actively involved in the activity, there is small group interaction, and they are involved in cooperative learning (Hendrix, 1999). Cooperative learning has also been shown to be beneficial for all students, including minority students and special needs students (Adams & Hamm, 1996).
Students of all abilities have shown increased academic achievement from the use of cooperative activities. The achievement benefits included increased comprehension (Okolo & Ferreti, 1996), increased recall and transfer (Fleming & Alexander, 2001; Vermette, 1998), and increased problem solving abilities (Gillies & Ashman, 2000; Vermette, 1998). Benefits also included improved reading, spelling, and language expression (Stevens & Slavin, 1995; Vermette, 1998), increased vocabulary, math computation and math application (Stevens & Slavin, 1995), and increased use of explanations and learning strategies (Fleming & Alexander, 2001; Gillies & Ashman, 2000; Gillies & Ashman, 1997).

Cooperative learning provided benefits for student motivation and social interactions. Students in classes that used cooperative learning liked the class more (Carlsmith & Cooper, 2002; Stevens & Slavin, 1995), had higher perceived abilities, (Stevens & Slavin, 1995), liked cooperative learning and had increased self-efficacy (Okolo & Ferreti, 1996), and were absent fewer days than those not in the cooperative groups (Vermette, 1998). Students in cooperative classes were more caring and cooperative, responded to the needs of their group members, provided help to each other, and more readily accepted students who were different than they were (Gillies & Ashman, 1997; Gillies & Ashman, 2000; Stevens & Slavin, 1995). Students also reported having more friends (Stevens & Slavin, 1995). Students in cooperative groups tended to work with students of different abilities and talents, and in turn were able to socialize with other students that they might not have interacted with before the use of cooperative learning. This made it easier for all students to have more friends. Jordan and LeMetais (1997) reported that students who were trained in the use of social skills were more
positive about new activities and groups, their behavior was better focused, and students
who were reluctant to participate, participated more and encouraged group members
more than when they were in individualistic classes.

Researchers have documented the benefits of using cooperative learning activities
in the classroom for a number of years (Adams & Hamm, 1996; Balkcom, 1992;
Carlsmith & Cooper, 2002; Cohen, 1994; Flemming & Alexander; Hendrix, 1999; Gillies
& Ashman, 2000; Gillies & Ashman, 1997; Holt, 1993, Okolo & Ferreti, 1996; Slavin,
1995; Stevens & Slavin, 1995; University of Northern Iowa, 2003; Vermette, 1998).
Researchers also have created programs to help teachers implement the cooperative
activities in ways that are most beneficial for students (Johnson & Johnson, n.d.; Johnson,
Johnson, & Holubec, 1999; Slavin, 1995). Even with the wealth of research, cooperative
learning often was not used according to the research knowledge for how it works best
(Antil, Jenkins, Wayne, & Vadasy, 1998; Kohn, 1992). It was often avoided or
misunderstood by many teachers, administrators, and parents. When cooperative learning
was used incorrectly, what could have been a successful strategy could become stressful
for students, parents, and teachers. Teachers need more information about how to
successfully implement cooperative learning so students are able to benefit from it
(Kohn, 1992).

According to a research summary completed and documented by the National
Middle School Association (NMSA), cooperative learning is one method middle schools
should use to meet the needs of young adolescents (NMSA, 2001b). A number of
resources, which will be discussed in further detail, list and explain similar benefits and
why cooperative learning is an appropriate instructional method.
Rationale

My rationale for doing this review of literature was that I had always believed that cooperative learning activities were an essential part of the middle school curriculum, but I did not know what the research stated. I wanted to find evidence that could support the use of these activities and demonstrate the appropriateness of their use in the middle level curriculum. I had been frustrated by the inability of students to work together in groups. Students often complained, argued, and did not contribute equally in the groups. Teachers, including me, seemed unprepared to teach students the skills necessary to cooperate. Because of this overall lack of knowledge of how cooperative learning works best, I investigated methods of cooperative learning. Through this review, I searched for information that will help teachers implement effective cooperative learning activities and will help teach students how to cooperate with one another.

Purpose

Many educators know that cooperative learning is an essential part of their classrooms, but do they know what the research says? Time to conduct research to support the instructional methods that teachers use is limited, therefore teachers sometimes revert to practices used by their former teachers when they were students. This review of literature will provide an overview of the research on cooperative learning activities, and then provide information regarding the use of cooperative learning in the middle school. This background information is meant to build support and document that cooperative learning activities are developmentally appropriate forms of instruction and learning for middle level students. The intent of this review of literature is to provide a
strong research foundation for educators to aid their understanding of cooperative learning and how it works best.

**Importance of Literature Review**

The ability of people to work with others is an important skill in school, work, communities, and relationships throughout life. Schools have not done enough to teach children how to work together effectively (Holt, 1993). This literature review will survey selected information pertaining to cooperative learning, summarize the benefits of its use, examine the problems that can occur, and explain why it is a necessary part of the middle level curriculum. The information compiled and described will assist educators who are looking for research evidence regarding the use of cooperative learning activities in their classrooms. The review will also provide evidence about how to effectively implement cooperative learning activities and the importance of teaching students cooperative skills. Educators, administrators, and others may use this review to help initiate the use of cooperative learning activities that are appropriate for their students.

**Terminology**

In order for readers to have a common understanding of the terms used in this paper, the following definitions are presented:

**Cooperative learning**: Cooperative learning is “the instructional use of small groups so that students work together to maximize their own and each other’s learning” (Holt, 1993, 5). Cooperative learning involves students “working together to accomplish shared goals that are beneficial to individuals and the group. Students are able to learn together and perform alone” (Adams & Hamm, 1996, p. 1).

**Effect Size**: Effect size is used when researchers conduct a meta-analysis. Researchers
translate the results into an effect size which “expresses the increase or decrease in achievement of an experimental group (the group of students who are exposed to a specific instructional technique) in standard deviation units” (Marzano, Pickering, & Polluck, 2001, p. 4). Jacob Cohen determined .20 to be a small effect size, .50 to be a medium effect size, and .80 to be a large effect size (as cited in Marzano, Pickering, & Polluck, 2001).

**Group processing:** Group processing is a part of cooperative learning where “the small group reflects on how well they worked together, what individual actions were helpful, and what might be done to improve the teamwork in the future” (Adams & Hamm, 1996, p. 8).

**Individual accountability:** Individual accountability is a part of cooperative learning in which “individuals take personal responsibility for doing their fair share of the group work” (Adams & Hamm, 1996, p. 8).

**Middle School:** A middle school is “a school organization containing grades 6 to 8 (and sometimes grade 5) that, first, provides developmentally appropriate and responsive curricular, instructional, organizational, guidance, and overall educational experiences and, second, places major emphasis on 10-to 14-year-olds’ developmental and instructional needs” (Manning & Bucher, 2001, p. 8).

**Positive interdependence:** Positive interdependence is a part of cooperative “when students realize that they can reach their personal learning goals only when everyone in the group reaches their goals” (Adams & Hamm, 1996, p. 8).

**Young Adolescents:** Young adolescents are “students between the ages of 10-14 who experience the physical, psychosocial, and cognitive changes associated with the
early adolescence developmental period, yet who also exhibit tremendous
cultural, gender, developmental, and individual diversity that deserves to be
considered by middle school educators who plan educational experiences”
(Manning & Bucher, 2001, p. 9).

Research Questions

The following questions will be the focus of the review of literature:

1. What is cooperative learning?
2. How is cooperative learning beneficial?
3. What are the problems with cooperative learning?
4. Are cooperative learning activities appropriate instructional methods
   for middle level students?
Chapter 2

Methodology for Writing a Review of Literature

Because I believe that cooperative learning is an important part of middle school curriculum, I decided that I wanted to know more about what the research says about the strategy. I have attempted to add more cooperative learning strategies to my curriculum, but I have not always been happy with the results. Also, I have been criticized and questioned by a few parents and my administrator. I wanted a better understanding of how cooperative learning works best and a better understanding of information that would support my use of the strategy in my classes.

I decided to use the format of a review of literature due to my lack of research-based knowledge on cooperative learning. Throughout my education, I have read and been told that cooperative learning is a good method to use, but I have not had knowledge of research that would support this information. I have also not had explicit instruction in how to use cooperative learning appropriately such as the following: how groups work best, how to teach students to work cooperatively, how to grade groups so that each individual is accountable, or how to deal with groups that will not cooperate. During a preliminary research project in a graduate research class, I investigated some of the questions that I had and interviewed staff members in my building. Through this process, I found that many of my colleagues had similar issues and questions, even though they had much more experience. A review of literature would best answer the questions I had concerning cooperative learning implementation and strategies.
Method of Identifying and Locating Sources

I located sources by using online access to the Rod Library's electronic databases at the University of Northern Iowa. I conducted a search to find primary research documents that provided information about cooperative learning. The keywords used in the search included "cooperative learning" and "middle school." After receiving and critically reading the journal articles, I examined the reference lists for articles that might have useful information to compile a larger list of journal articles and books that were related to cooperative learning and the intended area of research. I requested articles and books and used them to compile more information and more resources. I also used the Internet to compile information as well as the local AEA library. I continued to use reference lists to find new and important sources as time permitted. A wealth of sources existed, and I ended the search for new sources due to the time constraints and my inability to read them all in time to write the review.

Procedures to Analyze the Sources and Criteria to Include the Sources

I considered the source, author, and date of each publication to judge the usefulness of the information. I critically examined the sources to determine whether they were relevant to the research questions, held current information, provided significant information about the topic, and were credible sources. The sources that did not fit the criteria were not used in the review of literature. Due to a limited amount of time and the wealth of resources available, the number of resources used was limited to what was available to the researcher.
Chapter 3

Review of Literature

Cooperative learning is a strategy that has existed in some format throughout the history of schools. Researchers began to study the strategy and its effects in 1898. Since then, researchers have conducted over 700 studies to test and compare the strategy to others strategies that were used in the school system (Johnson, Johnson, & Holubec, 1999). Throughout the years of research and classroom practice, many benefits were found. Benefits were found for all students in achievement, relationships and social aspects, and psychological health (Johnson, Johnson, & Holubec, 1999).

There have also been drawbacks to cooperative learning when it was not used appropriately. Teachers, parents, and students had the following complaints: students not doing equal work in the group, group members refusing to cooperate, arguments in the groups, and students’ grades tied to other students’ work and abilities. According to the research, in most cases, if the teachers were taught how to appropriately use cooperative groups in the classroom, these problems would be greatly reduced or eliminated (Johnson, Johnson, & Stanne, 2000). When students were trained how to interact appropriately in cooperative groups, there were also more benefits for all students (Antil, Jenkens, & Wayne, 1998; Gillies, 2002; Gillies & Adrian, 1997; Terwel, Gillies, van de Eeden, & Hoek, 2001; Wilczenski, Bontranger, Ventrone, & Correia, 2001)

The NMSA recommended the use of cooperative groups and heterogeneous grouping in their research summaries (NMSAa, NMSAb, NMSAc, 2001). The Association noted that cooperative learning is a way to vary instruction and keep middle school students engaged in learning. They also stated that it was important to meet the
developmental needs of adolescents to ensure that the students were learning in ways that were best for them and that they were able to apply what was learned to real world situations. Knowles and Brown (2000) reported that middle school students and teachers agreed that socialization was an important aspect of school and learning, and that cooperative learning was a way to achieve this. This review of literature was conducted to compile more information regarding the following research questions:

1. What is cooperative learning?
2. How is cooperative learning beneficial?
3. What are the problems with cooperative learning?
4. Are cooperative learning activities appropriate instructional methods for middle level students?

**What is Cooperative Learning?**

Cooperative learning took many forms, but in all cases it included students working together to learn with and from each other. Balkcom (1992) defined cooperative learning in the following way:

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 is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. (para. 2)

Effective cooperative learning activities were more than just having students work together in groups. The purpose of cooperative learning was to encourage discussion, teamwork, the development of social skills, and the use higher order thinking skills.
Activities that fit into the cooperative learning category generally included heterogeneous groups of students working together to learn, complete an activity, or produce a product or products together. The students were expected to individually learn the body of information and to make sure that the members of the team had learned the information (Vermette, 1998).

Cooperative learning groups were arranged in many different ways. The most common grouping was heterogeneous groups with students of different abilities, talents, sexes, cultures, and languages. Group size ranged from two to six students. Groups were arranged for short periods of time or for long periods of time. The cooperative strategies differed depending on the teacher’s goals for the learning activities (Slavin, 1995).

Theories: Why Cooperative Learning Worked

Slavin (1995) noted that two major categories of theory describe why cooperative learning works. The first theory centered on motivation. The motivational theorists focused on how cooperative goals led to improvements in the classroom, increased learning, and proacademic norms in the classroom. The second theory focused on cognitive aspects of learning. The cognitive theorists stressed the importance of working together in the achievement of learning. Those that supported constructivist learning and the theory of information processing valued cooperative learning because it allowed for group discussion in which students could rehearse, elaborate, and expand their knowledge (UNI, 2003). Supporters of Piagetian theory stated that the group interaction led to students questioning their ideas and the ideas of others and allowed students to try new ideas (UNI, 2003). Piaget, as cited in Slavin (2003), believed that "social-arbitrary
knowledge—language, values, rules, morality, and social symbols (such as reading and math)—can be learned only in interactions with others” (p. 17).

Vygotsky’s supporters believed that social interaction was essential to learning. Social interaction led to higher-level thinking (UNI, 2003). According to Slavin (1995), Vygotsky believed that when students collaborated in the learning process, it led to higher levels of learning. Students only achieved certain levels of development with the help of adults or through discussion with their more capable peers. Cognitive elaboration theories stated that for students to retain what they learn, they must connect what was learned to something they already knew (Slavin, 1993). The theory stated that the information must be restructured or elaborated on by the student. The most effective way for students to elaborate was to explain the material to someone else (Slavin, 2003).

Leading Researcher—Robert E. Slavin

A few key elements must be included to ensure that cooperative learning was as productive or more productive than competitive learning. These elements differed depending on which leading proponent of cooperative learning was subscribed to. One leading researcher in the field included Robert E. Slavin. He completed research and developed cooperative learning programs through his position at Johns Hopkins University as the director of the Early and Elementary School Program at the Center for Research on Effective Schooling for Disadvantaged Students. Slavin and Johns Hopkins University developed the Student Team Learning methods including Student Teams-Achievement Divisions (STAD), Teams-Games-Tournaments (TGT), Jigsaw II, Team Accelerated Instruction (TAI), and Cooperative Integrated Reading and Composition
More than half of all experimental studies of practical cooperative learning methods involve Student Team Learning Methods (Slavin, 1996, para. 5).

Three central concepts were involved in all Student Team Learning methods. They included team rewards, individual accountability, and equal opportunities for success. In all of the techniques, teams had the opportunity to earn team rewards if they achieved above the teacher's desired criterion. The criterion was to learn the objectives being taught. Every team could receive a reward, as they were not in competition with one another, but with the criterion. Individual accountability referred to the team's success depending on the success of all members. Each member had to take a quiz or be assessed individually, which required team members to work together to ensure that all team members had mastered the material. The last concept, equal opportunities for success, meant that students were attempting to contribute to their teams by improving over their own past performance. In this way all students, high, average, and low achievers were equally challenged and valued within the group (Slavin, 1991; Slavin, 1995).

Leading Researchers—Roger T. Johnson and David W. Johnson

Many researchers (Adams & Hamm, 1996; California Department of Education, 2003; Gillies & Ashman, 1997; Hendrix, 1999; Holt, 1993; Marzano, Pickering, & Polluck, 2001; Stevens & Slavin, 1995; UNI, 2003; Vermette, 1998) mentioned and accepted Johnson and Johnson's basic elements of cooperative learning. Johnson and Johnson are professors at the University of Minnesota and co-directors of the Cooperative Learning Center. They developed cooperative learning techniques and researched their
effectiveness. The basic elements of cooperative learning according to Johnson and Johnson (n.d.) included:

1. Clearly perceived positive interdependence.
2. Considerable promotive (face to face) interaction.
3. Clearly perceived individual accountability and personal responsibility to achieve the group’s goals.
4. Frequent use of the relevant interpersonal and small-group skills.
5. Frequent and regular group processing of current functioning to improve the group’s future effectiveness. (p. 1)

Positive interdependence.

According to Johnson and Johnson (n.d.) and Holt (1993), the positive interdependence element was similar to Slavin’s concept of individual accountability in that students felt that they would sink or swim together. Students learned the material and made sure that all members of the group learned the assigned material. Positive interdependence was promoted using many techniques. Some of the techniques included the following: goal interdependence or mutual goals; reward interdependence, where all students received the same reward if the group achieved its goals; positive resource interdependence, where each member had only a portion of the materials needed so members had to combine resources to achieve their goals; and positive role interdependence, where each member had a specific role to complete in order for the group to be successful (Johnson & Johnson, n.d.; Holt, 1993). According to Johnson and Johnson (n.d), “group membership and interpersonal interaction among students do not produce higher achievement unless positive interdependence is clearly structured” (p. 2).
Face-to-face interaction.

The second element essential to cooperative learning, according to Johnson and Johnson, was face-to-face interaction (n.d.). Students met with each other and provided help to one another, exchanged resources, processed the information they were learning, provided feedback in order to improve their performance, challenged each others’ conclusions and reasoning, and pushed group members to put the effort forth that was needed to achieve the group’s goals. Verbal exchanges and explanations were found to lead to higher levels of understanding the material (Johnson & Johnson, n.d.; Holt, 1993).

Individual accountability and personal responsibility.

According to Johnson and Johnson (n.d.) and Holt (1993), individual accountability and personal responsibility was the third element. Each individual was assessed and each member held responsible by his or her group members for doing his or her fair share for the group’s success. To check for individual accountability, students were given individual exams. A group member might be selected to give an answer for the entire group. Observations of the groups were made with a record of information about each member’s contributions. Each member would be individually responsible for completing a task similar to the one they completed as a group after the activity (Johnson & Johnson, n.d.; Holt, 1993).

Interpersonal and small-group skills.

Interpersonal and small-group skills involved students learning to get to know each other, to communicate accurately, to accept and support each other, and to resolve conflict constructively (Johnson & Johnson, n.d.). Students do not know this naturally;
teachers must teach them these skills in order for cooperative learning to be successful (Johnson & Johnson, n.d.; Holt, 1993).

**Group processing.**

Johnson and Johnson, (n.d.) identified group processing as the last essential element of cooperative learning. Students must be given time to reflect on their group work. They needed to describe what member actions were helpful and not helpful as well as make decisions about what to continue or change (Johnson & Johnson, n.d.; Holt, 1993).

**Methods of Cooperative Learning**

Many different cooperative learning methods have been created and researched. Those that were most commonly discussed throughout the examination of the literature were Student Teams-Achievement Divisions, Teams-Games-Tournaments, Jigsaw II, Team Accelerated Instruction, Cooperative Integrated Reading and Composition, Learning Together, Group Investigation, and Complex Instruction. Student Team Learning methods included Student Teams-Achievement Divisions, Teams-Games-Tournaments, Jigsaw II, Team Accelerated Instruction, and Cooperative Integrated Reading and Composition. The Student Team Learning methods were all developed, researched, and promoted by researchers including Robert Slavin at Johns Hopkins University. David and Roger Johnson of the University of Minnesota developed the Learning Together model of cooperative learning. Shlomo and Sharan at the University of Tel Aviv developed the Group Investigation method. Elizabeth Cohen and colleagues from Stanford University developed the Complex Instruction method.
Student teams-achievement divisions.

Student Teams-Achievement Divisions (STAD) involved four-member heterogeneous groups where the teacher presented a lesson, students reviewed together to ensure that each member mastered the lesson, and then all students took individual quizzes (Slavin, 1995). Students' quiz scores were compared to their average and points were given to each team depending on how well each member met or surpassed his or her average. The team's scores were then figured and teams that met certain criteria earned certificates or rewards. This method was used in all subject areas grades two through college levels (Slavin, 1995).

Teams-games-tournaments.

Teams-Games-Tournaments (TGT) involved the same methodology as STAD, but replaced the quizzes with weekly tournaments (Slavin, 1995). A student from each team played games with members of the teams to win points for their team. Students were assigned to a group depending on their past average so that each tournament table had members with similar ability. The top scorer at each table earned their team sixty points (Slavin, 1995).

Jigsaw II.

Jigsaw II was created as an adaptation of Elliot Aronson's original Jigsaw technique. Students worked in four-person, heterogeneous teams and were each assigned a separate portion of the information to become an expert about (Slavin, 1995). After each student read the material, they then met with the experts from the other teams to discuss their common topic, and finally, they returned to their original group to teach their topic to their teammates. The final step was a quiz or assessment on all topics. The
scoring and team recognition was based on individual improvement like in STAD (Slavin, 1995).

**Team accelerated instruction.**

Team Accelerated Instruction (TAI) used four-member heterogeneous groups and certificates for high-performing teams like STAD and TGT. The method was different because it combined cooperative learning and individualized instruction. It was designed to teach mathematics for students in grades three through six. Students took a placement test and moved through the program at their own pace. Teammates were responsible for checking each other's work and helping each other with problems. Final unit tests were taken individually. Each team earned rewards based on the number of units completed by all the team members, when teams exceeded the criterion scores on final tests, and extra points were rewarded for perfect papers and completed homework (Slavin, 1995).

**Cooperative integrated reading and composition.**

Cooperative Integrated Reading and Composition (CIRC) was a strategy developed to teach reading and writing in the upper elementary and middle grades (Slavin, 1995). The method included, “teacher instruction, team practice, team pre-assessments, and a quiz” (Slavin, 1995, p. 8). Students from different reading levels were assigned to pairs. The pairs worked on activities such as reading to each other, making predictions, summarizing, writing responses, mastering comprehension and main ideas, and practicing skills such as spelling, decoding, and vocabulary. Students did not take the quiz until their teammates agreed that they were ready to take it (Slavin, 1995). The average performance of all team members was used to determine rewards (Slavin, 1995).
Learning together.

Johnson and Johnson developed the Learning Together methods that involved four or five member heterogeneous groups (Holt, 1993; Johnson, Johnson, & Holubec, 1999). They categorized their groups as formal, informal, and base groups. Formal groups had specific assignments to complete and work together for an extended period of time. Informal groups lasted for a short period of time, only a few minutes, and were formed for a short discussion. Base groups were long-term groups who were together for at least a semester and whose main purpose was to provide peer support and accountability (Holt, 1993; Johnson, Johnson, & Holubec, 1999).

Group investigation.

Shlomo and Yael Sharan created the Group Investigation method at the University of Tel Aviv (Slavin, 1995). According to Sharan and Sharan, the teacher presented a general topic question to the class and then allowed students to discuss what they wanted to know about the topic. Students with similar interests then formed a group. Students in the group then developed questions that they wanted to investigate. Students divided up the questions and took on roles within the group such as recorder, coordinator, resource person, and steering committee. Each student was responsible for compiling research, evaluating and analyzing the information, and developing answers to their question (Sharan & Sharan, 1989/1990). Finally, each group presented its findings to the class in a format such as “an exhibit, a model, a learning center, a written report, a dramatic presentation, a guided tour, or a slide presentation” (Sharan & Sharan, 1989/1990, p. 20).
Complex instruction.

Elizabeth Cohen and her colleagues from Stanford University developed the Complex Instruction cooperative learning method (Slavin, 1995). The method involved discovery learning and emphasized respect for the abilities of all students (Slavin, 1995). The teacher assigned open-ended, interdependent group tasks. Students were expected to be both academic and linguistic resources for each other. Teachers were expected to observe group behavior and teach strategies to address unequal participation and individual student status issues (Cohen, Lotan, Scarloss, & Arellano, 1999). The projects involved a wide variety of roles and skills so that each student could be good at something and could help the group to succeed (Slavin, 1995).

Summary of Basics of Cooperative Learning

Cooperative learning activities included groups of students working together to complete an activity. Students in cooperative groups worked to learn and to help their group members to learn. In most methods, the groups were organized heterogeneously with two to six students in each group. Depending on the activity and its purpose, groups were together from a few minutes to a few weeks. Researchers in the field of cooperative learning such as Slavin, Johnson and Johnson, Shlomo and Sharan, and Cohen developed, studied, and taught their cooperative methods. Each researcher developed key components that they felt were necessary in order for their method to be successful in the classroom.

How Is Cooperative Learning Beneficial?

Cooperative learning activities were found to be beneficial in a number of areas. When discussing the benefits of cooperative learning, researchers usually compared
cooperative activities to competitive or individualistic activities, not to homogeneous grouping. The researchers were attempting to determine whether cooperative learning activities were as beneficial as common classroom practices where students were involved in individualistic or competitive activities. Later researchers began to look at group composition to determine which groups showed the most benefits. When the large amount of literature was reviewed concerning cooperative learning, benefits were found in the areas of academic achievement, social acceptance, attitudes, and self-esteem (Adams & Hamm, 1995; Balkcom, 1992; Cohen, 1994; Holt, 1993; Slavin, 1995; Vermette, 1998). According to Johnson, Johnson, and Stanne (2000), there were over 900 studies that demonstrated the benefits of cooperative learning over competitive or individualistic learning activities. They also stated that the research had value and generalizability because many different researchers in many different fields of study completed the studies.

*Academic Benefits*

Cooperative learning activities led to increased academic achievement, which is the focus of recent legislation and the goal of educators. In an overview of literature from the past 90 years, Johnson and Johnson (n.d.) looked at 875 studies and found that cooperative learning led to more higher-level reasoning, more new ideas and solutions, and a greater transfer of what was learned to other situations. They compared cooperative learning to competitive learning and found an effect size of .66 with a standard deviation of .94 for cooperative learning strategies. When cooperative learning and individualistic learning were compared, they found an effect size of .63 with a standard deviation of .81 for the cooperative learning strategies.
Johnson, Johnson, and Stanne (2000) also conducted an overview of studies. They conducted a meta-analysis of 158 studies on specific cooperative learning strategies to determine the academic benefits of each of popular cooperative learning strategies. The strategies included Learning Together, Teams-Games-Tournaments, Group Investigation, Constructive Controversy, Jigsaw, Student Teams Achievement Divisions, Complex Instruction, Team Accelerated Instruction, Cooperative Learning Structures, and Cooperative Integrated Reading and Composition. All strategies had positive effect sizes. Learning Together showed the largest effect size of 1.04 while CIRC showed the smallest effect size of 0.13. Learning Together versus competitive learning showed a .85 effect size while Learning Together versus individualistic learning showed a 1.04 effect size. According to Johnson, Johnson and Stanne (2000), the data they found demonstrated that all the cooperative learning strategies had substantial effects and led to higher achievement over competitive or individualist learning. In a similar review of research, Slavin (1995) found that sixty-three of the ninety-nine studies “significantly favored cooperative learning” (p. 21). Only five of the studies reviewed by Slavin favored the control groups in which competitive learning took place. Another review of studies by Marzano, Pickering, and Pollock (2001) also found that cooperative learning had positive effects on achievement. The authors reviewed five synthesis studies on cooperative learning and found that the average effect size of the synthesis studies ranged from 0.30 to 0.78. The average effect size for all five synthesizes was .60. In synthesis studies of cooperative learning versus individual competition and cooperative learning versus individual students tasks, they found a .78 effect size. The synthesis studies showed that
cooperative learning strategies have shown consistent benefits in learning over
dindividualistic learning strategies.

Academic benefits can be separated into a number of different areas of benefits.
According to the research examined in this review, academic benefits included increased
achievement (Stevens & Slavin, 1995; Vermette, 1998), increased comprehension, recall,
transfer of knowledge, and problem solving (Gillies & Ashman, 2000; Okolo & Ferreti,
1996; Vermette, 1998), and improved reading, spelling, and language expression
(Vermette, 1998). Academic benefits were also influenced by the giving and receiving of
explanations (Gillies & Ashman, 1997; Terwel, Gillies, van de Eeden, & Hoek, 2001;
Webb, Troper, & Fall, 1995), and the amount of training students received in social and
cooporative skills (Fleming & Alexander, 2001).

*Increased achievement.*

Researchers found different academic benefits over the years. One area
investigated was increased achievement. Vermette (1998) cited three studies that found
that the cooperative learning activities led to increased achievement. Nichols and Miller
(as cited in Vermette, 1998) found that student achievement was higher after using a TAI
team approach. Mesch, Johnson and Johnson (as cited in Vermette; 1998) found that the
experimental group that used cooperative learning activities with positive goal
interdependence and bonuses for group growth and achievement, scored higher on tests
than the control group that used individualistic learning. The experimental group’s
average on the test was 80%, while the control group’s average was 73.5%. In a study
conducted by Sharan, Ackerman, and Hertz-Lazariwitz (as cited in Vermette, 1998), the
researchers found that students grades two through six all benefited by using cooperative
learning. At the end of the study, the experimental group performed better on higher order test items than the control group. This showed that they not only remembered information, but that they could also use higher order thinking skills to explain and apply what they learned.

One study conducted by Stevens and Slavin (1995) investigated a school that adopted cooperative learning across content areas and throughout the school. Teachers, students, and parents were all involved cooperatively in the learning process. After the first year, the school showed higher achievement in reading vocabulary scores. After the second year, there was “significantly higher achievement in reading vocabulary, reading comprehension, language expression, and math computation than did their peers in traditional schools” (Stevens & Slavin, 1995, p. 321). The handicapped children in the same school also showed improvement after the two years of full mainstreaming and cooperative groups. The handicapped children had “significantly higher achievement in reading vocabulary, reading comprehension, language expression, math computation, and math application in comparison with similar students in comparison schools” (p. 321).

Comprehension, recall, transfer of knowledge, and problem solving.

Increased comprehension, recall, and transfer of knowledge as well as improved problem-solving abilities have been documented as academic improvement linked to cooperative learning. Vermette (1998) cited studies that found examples of these types of improvement. Johnson, Skon, and Johnson (as cited in Vermette, 1998), found that students in cooperative groups had the highest achievement and the best reasoning strategies. They also noted that high-ability students seemed to benefit from discussions and from giving explanations of what they learned. Johnson, Johnson, and Stanne (as
cited in Vermette, 1998) found that “cooperative groups learned more, recalled more, and did much better on problem-solving tasks” (p. 49) than students in competitive or individualistic conditions. A study conducted by Humphreys, Johnson, and Johnson (as cited in Vermette, 1998), found that students in cooperative groups scored higher on a retention test, liked their classes more, and recalled more over a longer period. In similar studies, Okolo and Ferreti (1996) found that students had increased knowledge of the topic being studied after using cooperative learning. Gillies and Ashman (2000) learned that learning disabled students could learn routines for solving problems, especially for difficult questions requiring the applications of ideas, after using heterogeneous cooperative groups.

*Improved reading, spelling, and language expression.*

Vermette (1998) cited studies that demonstrated that cooperative learning led to improved reading, spelling, and language expression. Stevens, Madden, Slavin, and Farnish (as cited in Vermette, 1998) conducted two studies of third and fourth graders in language arts classes. Vermette noted that direct instruction and cooperative learning were combined. The combination led to high achievement and improved ability of students to express themselves through their writing. Another study by Louth, McAllister, and McAllister (as cited in Vermette, 1998) found that only the students that used the teamed approaches showed improvement in their writing after an eight-week period of learning. Students who participated in the independent writing lessons did not show improvement in their writing from the pre-test writing sample to the post-test writing sample. The students in the cooperative groups also demonstrated improved attitudes about writing and their ability to write.
Giving and receiving explanations.

One aspect that led to positive effects when cooperative learning was used was the giving of explanations by students in groups. According to Webb, Troper, and Fall (1995), many researchers investigated the effects of giving and receiving explanations in small groups. It was powerful for students to give explanations because it forced them to rethink the information and reorganize it so it could be explained to the other student(s). Explanations forced the explainer to understand the perspective of the other student who asked the question, and to explain the information in new ways. Students that received an explanation benefited most when they had asked for the explanation. The receiver had to realize what they did not understand and construct a question in order to get the help needed. Students had to be open to help in order for the help to be received well (Terwel, Gillies, van de Eeden, & Hoek, 2001). The explanation led to better understanding of the problem, reading, or activity, and helped students to “construct lasting and effective problem-solving skills and knowledge” (Sweller, 1989 as cited in Webb, Troper, & Fall, 1995, p. 406). Gillies and Ashman (1997) found that all ability levels of students gave some explanations, and all recorded gains in learning.

Students trained in social and cooperative skills.

In another study, Fleming and Alexander (2001) taught students different strategies through cooperative groups. They investigated the effects of the groups immediately after the group activities and then five and a half weeks later to see whether the effects would remain consistent over time. They discovered that “talking about strategies, regardless of what those strategies are, leads children to gain understanding of how they work and when they might work more than children who were set to work on
the task alone” (p. 597). The treatment group showed more change in mental explanations immediately following the activities and again five and a half weeks later when the delayed test was given. After 5.5 weeks, the treatment group had no students that were using strategies that were at a lower level than when they began the activities, while the control group had 18% using strategies that were at a lower level than when they began the activities. They found that the treatment groups showed long-standing recall benefits, and all students who had exhibited a sophisticated strategy in the first post-test, still used the strategy after 5.5 weeks had passed (Fleming & Alexander, 2001).

**Social Benefits**

According to Holt (1993), schools did not allow enough interaction among students and did not teach the social skills needed. Students needed to learn cooperative skills so that they were able to cooperate in school and in their future lives (Adams & Hamm, 1996; Holt, 1993; Taylor & Larson, 1999). Employers value people who have good interpersonal skills and are able to work with others (Holt, 1993). This lack of interaction was harmful for young adolescents while they went through school. It was also harmful for the students once they graduated and went into the working world, had relationships with friends and family, and participated in the community. Students needed instructional activities that taught them to “understand, manage, and express their feelings, and to engage in rewarding interactions with others” (Taylor & Larson, 1999, para. 1).

Kirk stated, “cooperative learning has the capacity to promote consideration and sensitivity to the views of others and cultivate such social values as respect for and enthusiasm to help others” (quoted in Donovan, 2002, para. 9). After using cooperative
learning, students were more cooperative, able to respond to the needs of their group members, and provided more assistance to other students than those in traditional classrooms (Gillies & Ashman, 1997). In a later study, Gillies and Ashman (2000) found that cooperative learning positively affected helping behaviors and learning outcomes. Terwel, Gillies, van de Eeden, and Hoek (2001) found that students in classes that were trained in cooperative skills had higher scores on cooperation than students who were just told to cooperate. Teachers were first trained in small group skills, interpersonal skills, and how to teach the same skills to students. The students were split into two groups, one where they were trained in the cooperative skills, and one where they were just told to cooperate. Okolo and Ferreti (1996) found that students in cooperative groups communicated and worked toward completing their activities. Cooperative learning led to students who were more positive about new activities and groups, with more focused behavior. Students who were reluctant to participate in traditional classroom activities often participated more in cooperative groups and encouraged group mates. Students who isolated themselves from the class and teacher had more positive relationships with teachers after participating in cooperative groups (Jordan & LeMatais, 1997). Cooperative learning activities often led to students who were actively engaged in their learning and who actively participated in discussions with their group members. This meant that there was very little off task talk or behaviors (Boxtel, Linden, & Roelofs, 2002).

The social benefits of cooperative learning were found for students of all learning abilities including students with disabilities, and also students such as English as a second language (ESL) students (Slavin, 1995; Vermette, 1998). Cooperative learning offered
the opportunity for mainstreamed special education students to interact with their peers. Slavin (1995) noted that many studies had shown that cooperative learning activities can lead to better social acceptance of special education students. Cooperative learning also allowed for daily interpersonal contact between students. Students that worked together and learned together often were more likely to accept one another and possibly become friends (Slavin, 1995). Stevens and Slavin (1995) reported that cooperative learning promoted better social relations among students. They also reported that handicapped students were more socially accepted, and gifted students reported having more friends than those in the control schools. In another earlier study, Johnson, Johnson, DeWeerdt, Lyons, and Zaidman (as cited in Vermette, 1998) used groups of four students each with one severely disabled student. When comparing the cooperative groups to traditional individualistic classes, they found that students in the cooperative classes were more positive and helpful towards students with disabilities.

English language learners as well as students from different cultures were able to interact with their peers in cooperative groups. Many culturally diverse learners found cooperative activities “more satisfying and useful than individual learning activities” Fields (as cited in Adams and Hamm, 1996, p. 7). Cooperative activities helped to promote a more positive school atmosphere with students who cooperated and accepted each other and each other’s differences.

Other Benefits: Attitude and Self-esteem

Cooperative learning showed other types of benefits. Students, in a class that involved cooperative learning, gave the class a higher satisfaction rating than those that were not using cooperative learning in the same class. The students in the cooperative
class also rated the overall quality of the level of learning in the class higher than the control students did (Carlsmith & Cooper, 2002). Okolo and Ferretti (1996) found that after using cooperative activities, all students experienced improved attitudes towards cooperative learning and had increased self-efficacy. Students were also rarely off task. Cooperative learning also helped students to feel better about their abilities (Patrick, 1994; Stevens & Slavin, 1995). Students with learning disabilities perceived their ability in reading and language arts as higher than before they did the cooperative activities and gifted students had better attitudes towards language arts and a higher perceived ability (Stevens & Slavin, 1995).

Summary of the Benefits of Cooperative Learning

Academic benefits included increased academic achievement (Gillies & Ashman, 2000; Okolo & Ferreti, 1996; Stevens & Slavin, 1995; Vermette, 1998); increased comprehension, recall, transfer of knowledge, and problem solving (Vermette, 1998); and improved reading, spelling, and language expression (Vermette, 1998). Giving explanations was a key aspect of cooperative learning that was studied by researchers. According to Webb, Troper, and Fall (1995), researchers found that giving explanations helped students to learn. When students asked for an explanation and received one, the student receiving the explanation also benefited.

Students who were trained in cooperative and social skills were more likely to be successful in cooperative groups than students who were not trained in those skills. Social benefits included students learning to become compassionate about other students, students who were more positive about the activities, groups, and classes, and students who were more actively engaged in their learning.
What Are the Problems With Cooperative Learning?

When teachers misunderstood cooperative learning and attempted to incorporate cooperative learning without using research-based methods, problems arose (Antil, Jenkins, Wayne, & Vadas, 1998). Many teachers used cooperative groups for positive reasons such as the academic and social benefits that it provided. However, researchers found that very few teachers used cooperative learning according to the approved research methods (Antil, Jenkins, Wayne, & Vadas, 1998). When teachers did not use research-based methods to establish the groups, a problem developed where students became “free riders” and did not participate in the group activities (Gabrielle & Montecinos, 2001; Slavin, 1995). Teachers may not have used research-based methods because there was so much literature, there was inadequate training (Kohn, 1992), the researchers didn’t agree on one correct method, they were uncomfortable teaching social skills, or they disagreed with the research (Antil, Jenkins, Wayne, & Vadas, 1998). The last problem found was that group compositions determined how well the group worked. Teachers needed to strongly consider many factors when determining the groups of students that would work together. Ability, gender, personality, and the task all needed to be considered when groups were formed (Leonard & McElroy, 2000; Webb, 1982).

Misunderstanding of Cooperative Learning

In a study conducted by Antil, Jenkins, Wayne and Vadas (1998), the researchers interviewed teachers to see if the teachers used cooperative learning, how often they used it, and why they used it. They then made classroom observations to determine whether the teachers’ perceptions matched what they were actually doing. Ninety-three percent of the 85 teachers reported using cooperative learning. Twenty-one
teachers were interviewed. Seventeen (81%) said that they used cooperative lessons every day. Most of the teachers stated that they used cooperative learning because of the academic and social benefits that it provided. However, the researchers found that few teachers actually used cooperative learning activities according to approved research methods, and few tied in any individual accountability and group goals. Research showed that many of the benefits related to cooperative learning were related to productive student interactions where students gave and received explanations (Antil, Jenkins, Wayne & Vadasy, 1998). When students in the groups did not interact and were not held individually accountable, there were few explanations given. Students could sit back and watch others do the work for them.

Slavin (1995) called the problem of students not doing their fair share the “free rider effect” (p. 19). He defined it as when “some group members do all or most of the work (and learning) while others go along for the ride” (p. 19). In most cases this problem developed when there was a single task for the group to complete. In some cases, groups ignored less skilled members, and other times individual group members were lazy or unwilling to participate. When there was only one task to be done, there was little reward for full group participation, and it allowed the problem of free riders to take place (Gabrielle & Montecinos, 2001; Slavin, 1995).

Inadequate Training and Information For Teachers

Another problem that existed was that the researchers did not agree on what was the best way to develop the groups, the group activity and interaction, the way to score aspects of the assignments, and whether or not there should be any reward system (Gabrielle & Montecinos, 2001; Kohn, 1992; Kohn, 1991). The amount of literature
about cooperative learning was overwhelming which could lead to confusion among educators about what was the appropriate strategy to use as well as how to implement the strategy. Kohn (1992) noted that many times schools would bring in speakers and consultants to instruct teachers and administrators in the correct way to implement cooperative learning. The speakers gave their one to two day presentations and then left the school in limbo. This left teachers wondering how to deal with students that wouldn’t work together, how to set up the groups, when to reshuffle the groups, how to get students to help each other in the groups, and with many other questions. In most cases, cooperative learning then ended up a strategy that was only used occasionally and often it was used incorrectly (Kohn, 1992). “It has been estimated, for example, that only 5% to 10% of participants in a CL [Cooperative Learning] workshop will continue to use the cooperative approach over time if ongoing coaching and support are absent” (Male, as cited in Kohn, 1992, p. 40).

**Teachers Not Following Researchers’ Recommendations**

Since the researchers didn’t fully agree on a specific set of rules for cooperative learning, many teachers created their own activities. Often the teachers did not follow the researchers recommendations about how to create the activities (Antil, Jenkins, Wayne, & Vadasy, 1998; Leonard & McElroy, 2000). The difference between the research and the way it was practiced could have been for a number of reasons (Antil, Jenkins, Wayne & Vadasy, 1998). First, teachers may have been confused and had little research knowledge to help them create the activities. The teachers accepted the fact that cooperative learning was beneficial and created activities that they thought appropriate without using research to back up their plans. Second, teachers may have felt that it was
impractical and time consuming to record all the information and complete all the observations needed to appropriately implement the strategy. Third, teachers may not have agreed with or were not comfortable teaching social skills and just wanted students to learn to work in groups. Fourth, the teachers may have disagreed with researchers that cooperative learning led to higher academic achievement. Lastly, the teachers may have observed that the researchers were unanimous about the benefits of cooperative learning, but that they were not unanimous about how to achieve those benefits (Antil, Jenkins, Wayne, & Vadasy, 1998).

**Group Composition**

The way that the group was composed made a difference in how the group worked together. Many aspects came into play when looking at whether a group worked or not. Ability, gender, and personality all influenced how well a group worked together (Webb, 1982). It was recommended that teachers thoughtfully consider how the groups were composed because heterogeneous grouping did not always benefit all students. “Success of cooperative learning groups is determined by the cohesiveness of the students in the group, their willingness to complete the task, and the quality of the task itself” (Leonard & McElroy, 2000).

**Summary of Problems With Cooperative Learning**

Cooperative group activities have shown that they can have many benefits when used correctly. However, sometimes problems developed. No learning strategy has been found to be foolproof, so teacher knowledge of the possible problems was essential. Teachers needed the support of research and experts in the field to help them create activities with optimum benefits for all students.
Are Cooperative Learning Activities Appropriate Instructional Methods For Middle Level Students?

Cooperative learning activities have been studied at many different age levels and have been found to be beneficial to students of all abilities. Adams and Hamm (1996) stated that “cooperative learning is one of the success stories of educational reform” (p. 2) and “cooperative learning is one of several approaches and methods that have been consistently supported by research across the curriculum” (p. 2). The big question was whether cooperative activities were appropriate for middle level schools and adolescents.

Changes and Needs During Early Adolescence

Early adolescence was a complex period of life with many different changes that occur. During early adolescence, children experienced cognitive, psychosocial, and physical changes (Manning & Bucher, 2001). All of the changes that young adolescents experienced affected how well they did in school, how they felt about themselves, and how they felt about school. Because of the changes, successful teachers had to focus on the many needs of children in the middle school. Young adolescents had specific needs that had to be met so that learning occurred. “Seven key developmental needs (Scales, 1991) characterized early adolescence:

- Positive social interaction with adults and peers
- Structure and clear limits
- Physical activity
- Creative expression
- Competence and achievement
- Meaningful participation in families, school communities
Middle school students needed to feel that they could achieve, needed to be able to interact with their peers, and needed to be able to move at times while learning. Middle schools and teachers needed to implement strategies that met the unique needs of adolescents. Schools needed to create a positive, cooperative climate where children had a sense of belonging and importance (Manning & Bucher, 2001; NMSA, 2001b; Taylor & Larson, 1999). It was important to teach middle school students social and emotional skills so that they were able to succeed in school and life.

Cooperative Learning in Middle School

According to the NMSA (2001a; 2001b), cooperative learning activities were one aspect of exemplary middle schools. Adolescents were focused strongly on their peers and worried about social acceptance. Cooperative learning activities allowed for social interaction with peers and provided the opportunity to feel accepted and needed. Cooperative learning also helped students to feel that they could achieve. For some students, the traditional competitive classroom was overwhelming and led to giving up. Cooperative learning allowed children to cooperate to learn and achieve their learning goals (Manning & Bucher, 2001). Schurr, Thompson, Thompson, and Lounsbury (1996) cited recommendations from Turning Points: Preparing American Youth for the 21st Century that stated that schools should ensure success for all students. Suggestions to ensure success included the use of cooperative learning and peer tutoring and the elimination of tracking and ability grouping. These recommendations were made for all schools.
Young Adolescents’ Need to Socialize

Cooperative learning helped to meet one of the most important needs of young adolescents, the need to socialize. Developmentally responsive schools created learning opportunities that recognized this need to socialize throughout the school day (Clark & Clark, 1994; Knowles & Brown, 2000). In a National Association of Secondary School Principals national study of eighth grade, there were eleven recommendations for educators to use when restructuring middle level schools. Recommendation number six stated, “the social needs of middle level students must be recognized” (Clark & Clark, 1994, p. 52-53). They also recommended that adolescents needed appropriate ways to interact and work together including cooperative learning groups, peer tutoring, peer mediation, community projects, and youth service (Clark & Clark, 1994). Wenzel, reported that students who focused on the pursuit of multiple goals such as social responsibility, academic-mastery, and positive evaluations, earned higher grades (as cited in Clark and Clark, 1994). Cooperative learning helped to teach more students to focus on multiple goals. Wenzel also noted “the primary goal of educational institutions is to socialize children into society by teaching work and responsibility oriented values” (Clark & Clark, 1994, p. 100). Cooperative learning was one strategy that helped to meet those goals.

According to Knowles and Brown (2000), both students and teachers reported that social aspects of schools were important. Students reported that learning to get along with others and being able to talk to others in school was important. Teachers agreed that learning to socialize was the most important aspect to be learned in middle school. Teachers reported that the social needs of adolescents needed to be considered when
decisions were made in the middle school (Knowles & Brown, 2000). Knowles and Brown (2000) stated, “effective educators take advantage of socialization needs of young adolescents by designing collaborative student learning experiences” (p. 113). They also noted, “brain-based learning, constructivist theory, and the needs of the young adolescent all point to the positive role that socialization can play in the learning process” (Knowles & Brown, 2000, p. 112). Learning was enhanced when students discussed their thinking out loud, shared their ideas with others, and produced collaborative work (Knowles & Brown, 2000).

**Summary of Cooperative Learning For Young Adolescents**

Cooperative learning enhanced the learning experiences for all students including middle level students. It allowed middle level students to socialize with their peers of all abilities, ethnicities, genders, and languages. It helped students to learn to accept people whom were different than them in some way. It helped students to understand their peers’ differences and become team players. It allowed for students to feel successful and important in their learning environment. Some cooperative learning activities led to students learning higher order thinking skills and helped to tie what was learned to the real world. For a number of reasons, cooperative learning was a very successful strategy for teachers in middle level schools. It was a method that helped teachers to meet the developmental needs of young adolescents.
Cooperation is a key component to life. It has been for centuries. Those who could get along with others, make deals, and could use each other’s strengths to benefit the community, had strong communities (Holt, 1993). Cooperation today continues to be important both in school and in society. The question is how should cooperative skills be taught. “School is where we learn to become team players and to understand that there are differences in the way people think” (Knowles & Brown, 2000, p. 112). Following the recommendation of Knowles and Brown would mean that the primary source of learning cooperative skills and appropriate social skills should be the schools.

Scientists began to study cooperation in the 1920s. Since the 1970s, many studies have been conducted testing the many aspects of cooperative learning (Slavin, 1995). In these studies, many cooperative strategies were found to be beneficial to students. Cooperative learning was “one of the most important tools for ensuring student success” (Johnson, Johnson, & Holubec, 1999, p. 11). Students in cooperative classes tended to be more caring and cooperative than those in traditional classes. The strategies not only met the need to teach social skills (Gillies & Ashman, 1997; Gillies & Ashman, 2000; Jordan & LeMetsais, 1997; Stevens & Slavin, 1995), but they have led to increased comprehension (Okolo & Ferreti, 1996), recall and transfer (Fleming & Alexander, 2001; Vermette, 1998), and increased problem solving abilities (Gillies & Ashman, 2000; Vermette, 1998). Students in cooperative classes also tended to like school (Vermette, 1998), the class (Carlsmith & Cooper, 2002), and the topic more that those not in
cooperative classes (Stevens & Slavin, 1995; Vermette, 1998). The many benefits of cooperative learning were found for students of almost every age group, level of ability, gender, and culture. It has been shown to help lead to better acceptance of those who are different from the "norm" and helped students who would have normally been pulled out of the regular classroom make more friends (Stevens & Slavin, 1995).

Early adolescence is a special time period in life when students have needs that must be met. Those needs included the need for "positive social interaction with adults and peers, structure and clear limits, physical activity, creative expression, competence and achievement, meaningful participation in families, school and communities, and opportunities for self-definition" (NMSA, 2001b, para. 2). Cooperative learning activities helped teachers to meet many of the needs of young adolescents. NMSA recommended using cooperative learning activities to vary instruction (2001a). Lounsbury and Clark (as cited in Clark & Clark, 1994) noted a NASSP national study in which the authors recommended that in order to restructure middle schools, "the social needs of middle level student musts be recognized" (p. 52). The authors of the study stated that developmentally appropriate middle schools set up schedules and activities that allowed students to interact appropriately. They recommended cooperative learning activities.

Recommendations

It has been established that cooperative learning activities can be beneficial to all students. The key word in the last sentence is "can." Many teachers, parents, students, and administrators know that cooperative activities are not always as effective as they can and should be. A couple of reasons exist for the problems that occur when cooperative learning activities are used including the following: lack of teacher instruction about how
to appropriately use cooperative learning activities, researchers that disagreed about the best way to implement cooperative learning activities in several ways, and lack of student instruction in the necessary social and cooperative skills. Adams and Hamm (1996) recommended that there are a few steps to take to help insure that cooperative learning activities are successful. The most important factor that they noted was the teacher and her ability to use appropriate strategies to make the cooperative groups successful. Finally, recommendations for changes in teacher education and suggestions for current teachers are included.

Lack of Instruction About the Appropriate Use of Cooperative Learning

Teachers have had very little instruction in how to correctly implement and assess cooperative learning activities. Teachers were told throughout their education that cooperative learning was a good strategy, but there was very little direct instruction as to how to develop cooperative activities. Texts and workbooks described cooperative activities with little information about how to appropriately implement the activities so that students learned and worked well together. The key components of cooperative learning were usually mentioned, but without instruction as to how the key components should be applied to the activity the teacher planned to use, the components were less meaningful (Johnson, Johnson, & Stanne, 2000).

In my case, as a beginning teacher, I relied on my memory of the way groups and projects were set-up in my different years of schooling to help me to plan cooperative activities. At the same time, I remembered that I often did not like working in the groups as a student because I ended up doing most of the work. Because of this lack of knowledge about cooperative learning, teachers needed to also make sure that when they
did use groups, they followed the research that documented how to make it a successful strategy (Antil, Jenkins, Wayne, & Vadasy, 1998; Leonard & McElroy, 2000).

Disagreement Among Researchers

Another problem that existed was that there was disagreement among the researchers about what was the best way to implement cooperative learning (Antil, Jenkins, Wayne, & Vadasy, 1998; Slavin, 1991). There was disagreement about whether there should be any form of competition involved when cooperative groups are used. There was also disagreement about whether there should be any system of rewards. Lastly, there was disagreement about how structured cooperative activities should be.

My recommendation would be for teachers to do some general research and pick the strategies and theorists that best fit their own philosophies, students, and school atmospheres. The second step would then be to do some more in depth research and training in the specific theories that they have chosen. Then they would be able to implement the strategies in appropriate ways according to the research for how cooperative learning works best. As Johnson, Johnson, and Stanne (2000) stated,

While any teacher may develop a version of cooperative learning that is very effective, without research studies it is unknown whether other teachers can expect reliable results when the method is used. The unevaluated cooperative learning methods, therefore, should be used with some caution (p. 7).

Importance of Teaching Social Skills

Cooperative groups seemed not to have been successful in some cases because students were put into groups and told to work together without being taught social and interpersonal skills. Social and interpersonal skills were an essential component needed
so that the groups actually cooperated. “The behavior called for in cooperative small groups is radically different from the behavior required in conventional classroom settings” (Cohen, 1994, p. 26). Students who were trained in social and group skills tended to be more cooperative and helpful (Gillies & Ashman, 2000; Gillies, 2002; Terwel, Gillies, van de Eeden, & Hoek, 2001; Webb, Nemer, Chizhik, & Sugrue, 1998; Wilczenski, Bontranger, Ventron, & Correia, 2001), even two years after receiving the training (Gillies, 2002). Groups that interacted positively showed more problem-solving skills (Wilczenski, Bontranger, Ventron, & Correia, 2001). The social interaction in groups and the explanations that take place were essential aspects that influenced how much learning took place (Holt, 1993; Slavin, 1995).

Social skills and interpersonal skills need to be taught explicitly in order for the cooperative groups to be the most successful (Cohen, 1994; Gillies & Ashman, 1997; Slavin, 1995; Terwel, Gillies, van de Eeden, & Hoek, 2001; Webb, 1997). Gillies (2002) found that students who were trained in small group and interpersonal behaviors were more cooperative, and “they were task oriented, listened to each other and shared resources” (p. 6). Untrained groups in Gillies’s study were more non-cooperative and off-task. She also found that trained students were better at reading their teammates and determining when they needed help, prompts, or further explanation. The trained groups also used higher level thinking skills more than the untrained groups (Gillies, 2002).

Suggestions for Teachers to Consider

Adams and Hamm (1996) recommended that certain steps should be taken to ensure that cooperative group work would be successful. First, they recommended that the classroom be reorganized so that students could collaborate when asked. Their second
recommendation was to allow for noise in the classroom as long as the noise was constructive. The third recommendation for teachers was to allow students a time to reflect on group work. At the end of the cooperative activity or when the period was coming to a close, it was recommended to allow for a time of reflection so that students could discuss what worked well and what needed improvement. The discussion of how the groups were working should be done within the groups and with the teacher so that the groups could be as successful as possible. The fourth recommendation was that the learning should be evaluated by objective measures such as tests, quizzes, and exams, and subjective measures such as evaluating the learning climate. Teachers should make observations about “self-esteem, individual and group achievement, discipline, cooperation, values, expression, and learning together” (Adams & Hamm, 1996, p. 6-7).

A fifth recommendation was to use heterogeneous groups with up to five students in a group. The sixth recommendation was that class rules for group work should be devised and student input should be allowed. The seventh recommendation was that teachers should use the six basic elements of “positive interdependence, face-to-face interaction, individual accountability, personal responsibility for reaching group goals, frequent practice with small-group interpersonal skills, and regular group processing with reflection” (Adams and Hamm, 1996, p. 8).

Lastly, Adams and Hamm (1996) also stated that the most important factor that determines whether the groups worked appropriately was the teachers. The teachers should provide time to allow students to talk about what they were learning, and to work through the learning activity. The teachers must use “group goals, individual accountability, and an equal opportunity for all group members to achieve success”
(Adams & Hamm, 1996, p. 9). Teachers also needed to model what they expected from students. They should emphasize learning by working through the problem rather than by getting the right answer (Adams & Hamm, 1996). Cohen (1994) agreed in her review of literature stating that the successful classrooms were those where teachers assigned roles so that the students all had to talk and work together. Gillies (1997) also stated that teachers should develop activities involving questions that allowed for students to actively search and use the information that they were learning. Activities that just asked for students to find a correct answer were not as successful or useful as cooperative learning activities because activities that called for a correct answer required little or no group discussion.

**Personal Recommendations**

I suggest that there needs to be changes in the way teachers are educated. As undergraduates, teachers are told that cooperative learning is a beneficial strategy that should be used in classrooms. Middle level teachers are also told that because of the needs of young adolescents, they should use cooperative learning activities. The cooperative activities can help to meet the students' social needs by allowing for interaction. The activities can meet their cognitive needs by allowing students to investigate topics that are relevant to their lives, to engage them in their learning, and to create projects that are relevant to real world situations and demonstrate their learning. However, teachers are not given explicit instruction in how to correctly set up the activities or how to assess students' progress, group involvement, and the final projects. This leaves teachers to set up the groups on their own, and in many cases, without following the rules set up by the researchers that have developed the strategies and have
tested them to learn which are more successful. Many teachers, especially beginning teachers, have little time to do in depth research on every strategy that they use. Then teachers tend to revert back to the way they remember doing things as a student. This is not the best way to teach. I suggest that there needs to be more explicit teaching of learning strategies in the undergraduate teaching program.

For those currently in the teaching field, I suggest that time be set aside to conduct research on the cooperative learning methods that are being used. It would also be a good idea for teachers to take classes focusing on specific strategies and how they work best so that they can continue to improve their curriculum and instruction. I plan on trying to attend some classes through the Cooperative Learning Center at the University of Minnesota, which is under the direction of leading researchers in the cooperative learning field, Roger and David Johnson. I also suggest that schools need to seriously consider their professional development plans to ensure that teachers are learning and their curriculum is improving. Schools need to provide the tools, knowledge, and support needed for teachers and students to be successful.

Conclusion

Cooperative learning is a successful and essential teaching strategy that has existed in some format throughout the history of schools and society. It has been studied by researchers and has been found to have many benefits for all students. It is a strategy that can help middle level teachers to meet the many needs of young adolescents. Teachers should use the information researchers have developed, about how to appropriately implement the cooperative learning activities, to ensure the activities they use are the most beneficial for their students. Cooperative learning activities should
continue to be a part of research today and in the future so that educators can continue to
learn more about the best way to implement the strategies.
References


