ENHANCING STUDENT ACHIEVEMENT THROUGH COOPERATIVE LEARNING
AT THE ELEMENTARY LEVEL
by
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Table of Contents

Abstract

Since the 1980's, cooperative learning researchers examined the effectiveness and value of cooperative learning in educational settings. The purpose of this review of literature was to focus on cooperative learning with elementary students and factors that may impact learning and achievement. Three important studies lay the foundation for the paper and focus on: transforming an elementary school into a cooperative school where students and teachers work together to form a more cohesive educational environment; the teacher's role in the cooperative process; different techniques that teachers could use when implementing cooperative learning groups. The paper concludes with recommendations for teachers.

Chapter One: Introduction

Background

Educators use cooperative learning as a teaching method in all grade levels, in all curriculum areas, and for many different purposes, but all uses center around the goal of getting students to understand and learn the material presented. Cooperative learning allows students to communicate their ideas with each other, brainstorm responses, and work to solve problems together. The importance of students becoming more involved with the learning process has been emphasized and needs to be implemented in classrooms around the globe (Leikin & Zaslavsky, 1997).

Numerous studies have been done on student-lead learning groups and the results are overwhelmingly supportive to this teaching method (O'Donnell, 2006). "Research on cooperative learning is one of the greatest success stories in the history of educational research" (Slavin, 1996). The enthusiasm for this technique is widespread and the foundation for my research.

Statement of the Problem

Researchers, practitioners, and policy makers increasingly recognize that students can learn by collaborating with each other (as cited in Webb, Franke, Ing, Chan, De, Freund, & Battey, 2008). If this style of learning is so widely recognized, accepted, and expected, then teachers need to know how to incorporate the best techniques for this strategy into their teaching, especially at the elementary level where the building blocks of a child's education set in place.

Research Question

How can elementary schools best utilize cooperative learning to increase achievement levels, elevate students' attitudes, and enhance social relations?

Definition of Terms

"Cooperative learning is when individuals work together to achieve shared goals and work together to maximize their own and each other's learning" (Johnson, Johnson, & Smith, n.d.).

Student motivation is the interest in learning and the drive to achieve the academic goals (Slavin, 1984).

"Positive interdependence is when team members perceive that they need each other in order to complete the group's task" (Johnson, Johnson, & Smith, n.d.).

"Formal cooperative learning is when students work together for one or several class sessions to achieve shared learning goals and complete jointly specific tasks and assignments" (Johnson, Johnson, & Smith, n.d.).

"Informal cooperative learning is when students work together in temporary groups that last for only one discussion or class period to achieve joint learning goals" (Johnson, Johnson, & Smith, n.d.).

"Cooperative learning base is when long-term groups (lasting for at least one semester or year) are formed with stable membership. The primary responsibility is to give each member the support, encouragement, and assistance he or she needs to progressively develop academically, cognitively, and socially in healthy ways" (Johnson, Johnson, & Smith, n.d.).

"Cooperative elementary school model uses cooperative learning across variety of content areas, full-scale mainstreaming of academically handicapped students, teachers using peer coaching, teachers planning cooperatively, and parent involvement in the school" (Stevens & Slavin, 1995).

"Cooperative Integrated Reading and Composition (CIRC - Students work in cooperative teams on activities in reading comprehension, vocabulary, decoding, and spelling that are coordinated with their reading group instruction their basal readers. It also provides instruction in reading comprehension skills and writing and language arts skills integrated in a writing process approach (Stevens, Slavin, & Famish, 1991).

"Team Assisted Individualization is designed so that students manage the individualized program so that the teacher is freed to work with individuals or small groups. Students are motivated to complete the units rapidly because recognition of the group depends on how many units they complete, and the accuracy in completing them" (Slavin, Leavey, & Madden, 1984).

"Jigsaw - students are divided into competency groups of four to six students, each of which is given a list of subtopics to research. Individual members of each group then break off to work with the "experts" from other groups, researching a part of the material being studied, after which they return to their starting body in the role of instructor for their subcategory" (Jigsaw Teaching Techniques, n.d.).

Student Team Achievement Divisions (STAD) – a teaching method that is made up of five major components including a whole group presentation, student practice teams, quizzes on the presented information, setting goals for improved achievement levels, and team recognition based on performance (Slavin, 1991).

       <u>Teams-Games-Tournament</u> – much like the STAD, but students play weekly games to show mastery of subject matter in which they compete with members of other teams who are comparable in past performances (Slavin, 1991).

Chapter Two: Literature Review

Background

Cooperative Learning and Student Achievement

A considerable amount of research has shown the effectiveness of cooperative learning in education (Stevens & Slavin, 1995). Cooperative learning is not just placing students together for an assignment. They need to interact to maximize their learning potential. By setting a goal for the group to work toward, students will take ownership in the group. Students who utilize their group members have a chance to discuss the problem(s) and their ideas. This discussion is the perfect opportunity for learning to occur. Stevens and Slavin (1995) explain the use of a "cognitive apprenticeship" in which students of different achievement levels work together to learn new material. Students with higher-level academic abilities are able to use their mastery of the concepts to give explanations to the other students, whereas, the lower students are able to use the scaffolding of their fellow classmates as a comprehension technique to understand the material.

Cooperative learning is not always looked at as the best teaching method. Some researchers have shown a disadvantage in group work with student learning. Lower achieving students could fall behind due to their passive nature or lack of confidence (King, 1993). If the high achieving students dominate the group and discussions, the lower achieving students may not feel comfortable sharing in the discussion. In this instance, the learning opportunity could pass them by without anyone realizing the lack of understanding. Other shortcomings of cooperative learning is the time required for some groups to work cohesively and the inability to teach the curriculum in a small group

setting (Good, Reys, Grouws, & Mulryan, (1989;1990). In Chapter 2, I will look at the research on the best techniques to use with cooperative learning that will enable teachers to reduce this type of outcome.

Cooperative Learning and Student Attitudes

Cooperative learning not only enhances the building of knowledge, but also student motivation. Getting students to want to learn is the hardest job for most teachers. Many students have predetermined ideas about school that hinder their educational process. To help students enjoy the process of learning we need to look at the factors that drive their interests. We need to help the students who are satisfied with lower achievement find the motivation to work harder and attain higher grades. "The principal idea behind cooperative learning is that by rewarding groups as well as individuals for their academic achievement, peer norms will come to favor rather than oppose high achievement" (Slavin, 1984).

Learning social skills is extremely important for students. The students' need to be individuals strongly conflicts with their need to belong (Wood, 1987). Social skills of students who participate in cooperative learning are proven to rise (Slavin, 1991). By working in groups, students have the opportunity to find their voice, actively listen to arguments made by classmates, and work through conflict. The experience of group learning is a valuable lesson that students can use for the rest of their lives.

Cooperative Learning Achievements at the Elementary Level

Introduction

Many components are needed to successfully incorporate cooperative teaching in the elementary classroom. Students at this age are at their foundational learning level and

need a lot of support in the educational process. What educators need to realize is cooperative learning is not just a tool to use with our students. Forming cooperative groups at the professional level can also enhance our teaching. Using our colleagues to discuss teaching and discipline strategies can only strengthen our own methods and confidence. By taking the cooperative learning approach as a whole school, the building's academic community can offer so much more to their student body.

Design of the Study

Stevens and Slavin (1995) preformed a two-year study that consisted of 1,012 students in second through sixth grade in five elementary schools of a suburban Maryland school district. Twenty-one classes in two treatment schools were matched with twenty-four classes in three control schools. They were matched using scores on the California Achievement Test for reading, language, and math. They also tried to keep the bias of socio-economic status and ethnic background to a minimum by selecting schools in the same or similar neighborhoods. The student populations of each school had 4% to 15% minority status (M=7.3%) and 2% to 20% of the students received free or reduced lunch (M=10.2%). All schools were located in predominately working-class neighborhoods. The learning disabled population in each school ranged from 7% - 12%.

It was very important to have full teacher cooperation, so before selecting schools Stevens and Slavin gave a brief overview of the project's duration and its benefits. The teacher's questions were then answered and they were then given a vote as to participate or not. The schools that had 75% or more of their teachers agree were selected.

To start the process, the treatment schools had to adopt the cooperative elementary school model. The staff was given instruction on each component prior to its

implementation which happened gradually for the first year. During the year the research

staff observed classes, held meetings with teachers, and participated in steering

committee meetings to facilitate the implementation of some of the components of the

model.

The comparison schools continued to use their current teaching methods. Some

used group work, but none was structured. They also did not implement most of the other

components of the model, mainly the inclusion of academically handicapped students in

regular classrooms.

Time allotted to the reading, language arts, and math lessons were the same in

treatment and comparison schools. All schools used basal reading programs, but the

treatment schools did not use the workbooks that came with the series as the control

group did. As for language arts, all schools used the district-adopted curriculum, but the

treatment group mainly used the Cooperative Integrated Reading and Composition

(CIRC) writing program and supplemented with the district curriculum. In mathematics,

the district adopted textbooks were used in comparison schools whereas the treatment

schools used the Team Assisted Individualization Mathematics (TAI) curriculum.

Along with the CIRC and the TAI teaching methods, the teachers in the treatment

classes were also trained in the Jigsaw II, Teams-Games-Tournaments (TGT), and

Student Teams Achievement Division. After learning each technique, the teachers used

cooperative learning on a daily basis and by the end of the first year had mainstreamed

60% of the learning disabled students.

In the second year of the study all components of the research were in place and

the mainstreamed students were getting remedial instruction by the special education

teachers who were now team teaching with the general education teachers. The teachers in each grade level met weekly for planning and teachers across grade levels met on occasion to plan as well. The steering committee met monthly to discuss and evaluate the process.

The treatment schools published a biweekly newsletter to keep the parents and community informed of their activities. The parents also were given periodic parent-faculty meetings to explain the school events. The study did not specify the community outreach measures that the control schools used.

Measuring the Outcomes

To measure the entering achievements of the students, Stevens and Slavin (1995) used the district scores from the California Achievement Test (CAT), Form C, which was given in the fall of the first year of the study. The total reading, total language, and total math scores were used for the study and further transformed into z scores to analyze scores by grade level. To measure the exiting achievements of the students, the teachers were asked to administer a subtest of the CAT, Form E, in the spring of the first and second years of the study. The subtest had a median .91 reliability. The scores were once again transformed to z scores.

Measuring the attitudes of students was done as a pre- and posttest, given in the fall of the first year and the spring of the second year respectively. Stevens and Slavin (1995) chose to use an attitude test that asked the students to rate their attitude toward and their ability perceptions in the three areas on the achievement test, reading, language, and math. For each subject, students also rated their ability and interest on a 3-point scale.

The attitude measure had alpha reliabilities of .35 for pre-measure and .33 for post-measure. For perceived ability, the alpha reliabilities were .32 and .37, respectively.

The last measure was of social relations. The pre- and post-measures were given at about the same time as the attitude tests. Students were asked to list their friends in the class. Stevens and Slavin (1995) analyzed the results by comparing the average number of friends listed by treatment and control students. The reliability was .52 for this measure. The data was reanalyzed for the learning disabled students to see how many times they were written down by a non-handicapped student. The researchers wanted to get a measure of acceptance of mainstreamed students.

Results of Study

The researchers reported having a potentially influential nested design, students within classes within schools, so they tried to disentangle the results by using the hierarchical linear model (HLM). "The HLM is more thoroughly discussed by Raudenbush and Bryk". (Stevens & Slavin, 1995)

Of the initial 1,012 students, 873 had pre-test data available and remained in the study for the duration. Approximately 13.7% of the population did not stay in the district or study for the two years, though only 11% of the treatment students left.

Stevens and Slavin (1995) reported that "the test scores that were converted into z scores were used in the achievement analysis with the appropriate pretest used as a covariate to increase the power of analysis". They then tested the homogeneity of regressions and found no significant violation. They also initially tested the grade-by-treatment analyses, but found no significant outcomes to report.

The achievement pretests in reading and language showed no significant differences (t < 1). Math scores, however, did (t = 2.02, p = .05) favoring the comparison students. Posttests after the first year showed significant differences favoring the treatment students in reading vocabulary (t = 2.14, p < .05), but the magnitude of the effect size was relatively small with the effect size of + .17 standard deviations. No significant differences were found in reading comprehension (t = 1.63), language mechanics (t < 1), language expression (t < 1), math computation (t = 1.34), or math application (t < 1). (Stevens & Slavin, 1995)

Posttests after the second year showed more differences. Significant differences were found in reading vocabulary (t = 3.04, p < .01), reading comprehension (t = 3.62, p<.01), language expression (t = 2.93, p< .01), and math computation (t = 3.77, p < .01). There were no significant differences on language mechanics (t = 1.16) or math applications (t = 1.24). Magnitude of the effects ranged from .21 to .29 standard deviations. (Stevens & Slavin, 1995)

Stevens and Slavin (1995) reported that looking at pre- and post-measures of student attitudes, no significant differences were found in reading, language, or math. There were also no premeasured differences of perceived ability in the three areas. After two years, however, students in the cooperative elementary school did have higher perceived ability in reading (t = 2.05, p<.05) and language arts (t = 2.99, p<.01). The magnitude of the effects was +.20 and +.26, respectively.

In the study of social relations, Stevens and Slavin (1995) looked at the list of friends reported by students in both treatment and comparison schools. The premeasured showed no significant differences in either group (t < 1.0). At the end of two years

students at the treatment schools listed significantly more students than did the comparison school students (t = 3.91, p<.01). The magnitude was +.42 standard deviations.

Stevens and Slavin (1995) found many more significant effects when analyzing the data for the learning disabled students. On pre-test measures the learning disabled students from both institutions had similar achievement scores in reading (F=1.33), language (F=3.19), and math (F<1). After the first year, learning disabled students followed a similar pattern to regular education students for both treatment and comparison schools, however, those in the treatment schools scored slightly higher overall. After the second year the achievement for these students followed the pattern of regular students again. There were significant differences in those students in the cooperative elementary in reading vocabulary (F=13.48, p<.01), reading comprehension (F=14.39 , p < .01), language expression (F= 11.41, p<.01), math computation (F=10.77, p < .01), and math application (F= 3.75, p < .05). No significant differences were found in language mechanics (F< 1.0). The effect sizes were much larger than those of the non-handicapped students ranging from +.35 to +.85. (Stevens & Slavin, 1995)

Stevens and Slavin (1995) also reported no significant differences in the pre-measures of social relations for handicapped students. They did, however, find that many more friends were listed on the post-test for the students in the treatment schools as compared to their counterparts in the comparison schools (t=3.42, p<.01). These results showed substantial differences with an effect size of +.86. Handicapped children from the treatment schools were also found to be recorded as friends of non-handicapped students

much more than those in the comparison schools by the end of the second year of the study ($t= 4.33$, $p<.01$) The effect size showed nearly a full deviation difference (+.90).

Stevens and Slavin (1995) did not originally hypothesize outcomes for the gifted students. The results were analyzed post hoc, and showed significant gains as well. The gifted students were identified as the top 10% of the scores on the achievement pre-test. The comparison schools pulled their gifted students out on a twice-weekly basis for enrichment purposes. In the cooperative elementary school the gifted students stayed in the general education class with the rest of the students. The gifted students were not significantly different in the pre-test scores in reading ($F=1.21$) and language ($F=2.11$). The gifted students from the comparison schools did have higher math scores ($F=4.28$, $p<.05$). An ANCOVA was used to analyze the post-test data for the three areas.

After two years, the gifted students from the treatment school had significantly higher scores in reading vocabulary ($F=11.06$, $p<.01$), reading comprehension ($F=12.13$, $p<.01$), language expression ($F=6.09$, $p<.05$), and math computation ($F=6.09$, $p<.05$) as compared to the students in the comparison schools. As far as social relations, the students in the treatment schools averaged 1.5 more friends than those in the comparison schools. (Stevens & Slavin, 1995)

The Role of the Teacher in Student Collaboration

Introduction

As we continue to look at the process of student collaboration one avenue needs to be pursued, the role of the teacher. "Teacher practices, especially their accustomed instructional practices when they teach curricular material, may play an important role in how students interact with each other (Webb, Franke, Ing, Chan, De, Freund, & Battey

(2008)." The modeling that teachers can offer, and the guidance of explaining ideas to peers, will be very valuable to students when they begin their group work.

Design of Study

Webb, et al. looked at three teachers from two schools in an urban school district in Southern California. A second grade and third grade teacher from school A and a second grade teacher from school B were the focus of this study. The schools each contained more than 1100 students. The students were predominantly Latino and African-American and 98% of the student body received free or reduced lunch in each school. Both schools also served a substantial proportion of English Language Learners (A=63% and B=58%), and have low achievement scores (the lowest docile ranking, 1 out of 10, on California's Academic Performance Index during the year of data collection. Neither school met federal Academic Yearly Progress (AYP) requirements. (Webb et. Al, 2008)

These teachers were selected for two reasons. First, they had previously gone through a larger study focused on teacher efforts to engage students in algebraic thinking. The teachers received at least one year of on-site professional development. Second, they taught in similar schools and had been previously been observed using small group collaborative work in similar ways, but showed major differences in achievement. The teachers were observed about one year after concluding the professional development. (Webb, et al., 2008)

Data collection consisted of two videotaped sessions, during a one week time frame, for each of the three teachers. In each class, 12 students were selected randomly to have microphones for recording their discussion during collaborative work time. Comparison of the recorded students with the non-recorded students showed no

significant differences in gender, ethnicity, or performance on achievement tests administered in this study. Teachers were asked to cover the topics of equality and relational thinking, but received no further direction about which particular problems they should present. Transcripts of each class were made recording the student and teacher conversations verbatim. (Webb, et al., 2008)

The data collected on the video/audio recordings were coded into teacher and student interactions during whole class and paired student discussions during collaborative work time. All teachers asked for student explanation nearly every time, but the degree to which teachers asked students to give further explanation was much different (teacher 1 - 46%, teacher 2 - 50%, and teacher 3 – 93%, $p < .001$). The three teachers also differed in whether or not they pressed for further explanation based on the correctness of students' first attempt at explaining their answers. Teacher 1 requested further explanation in about half of the instances, despite the initial explanation being correct and/or complete. Teacher 2 always requested further explanation when initial explanations were vague or incorrect, but much less often when the initial explanations were correct and complete. Teacher 3 asked for further explanation in nearly all segments, apart from of the accuracy and completeness of students' initial explanations. (Webb, et al., 2008)

Differences in student participation also showed up in the data collected. Classroom 3 students gave correct and complete answers at a much higher level both at the initial explanation (71%) and after further elaboration (79%). In classroom 2, students gave correct answers (80%) initially, but lacked further explanation (20%). Classroom 1 students elaborated more frequently than classroom 2 (43%), but lacked complete and

correct explanations (25%). Even though they tried to go into more detailed explanations, their answers were more commonly wrong (68%).

Comparisons of the paired discussions showed that students in Classroom 1 gave fewer correct and complete explanations than students in Classroom 2 (25% vs. 80%, $p = .006$) and in Classroom 3 (25% vs. 71%, $p = .001$). Students in Classroom 3 gave further explanation more often than students in Classroom 1 (79% vs. 43%, $p = .013$) and in Classroom 2 (79% vs. 20%, $p = .002$). (Webb, et al., 2008)

Teacher 1 did not push for complete and correct answers from students, nor did she address answers that were wrong. She did ask questions to gain the answers she wanted and then reorganized the thoughts into a correct answer for the whole group. Teacher 2 had more correct answers, but failed to push her students to further explain their ideas. She, like teacher 1, led students through a series of questions that eventually brought out the correct answer instead of pushing the students to further their own thoughts. Teacher 3, differing from her counterparts, pushed for more details whether the students' answers were right or wrong. By asking questions about the students' answers she was able to cause her students to take their explanation to the next level and thoroughly address how to solve the problem.

Results

Webb et al. (2008) reported significant differences between the three classrooms that were studied. Of the three classrooms, Classroom 3 had significantly higher achievement levels in both the written and interview assessments. The mean proportion of problems correct in the written test was .51 and in the interview .59 (p< .05). Classroom 2 and Classroom 1 were much lower in the written test scoring .29 and .22

respectively on the written test. In the interview, Classroom 2 scored a mean proportion

of .36 and Classroom 1 was .18 (p< .05).

Utilizing Cooperative Learning Techniques

Introduction

We know that cooperative learning can improve students' cognitive growth,

enhance their motivation and attitudes, and provide a social arena that students can

construct lasting relationships with classmates. Cooperative learning is a proven teaching

method (Slavin, 1984, 1991, 1996; Steinbrink, & Jones, 1993; Whicker, Bol, & Nunnery,

1997). However, do teachers really know how to maximize the potential? This section is

intended to look at the characteristics of the most educationally enhancing cooperative

learning techniques.

Two characteristics are found to be common to effective cooperation learning

models: incentive to cooperate and individual accountability (Stevens & Slavin, 1995).

The drawbacks of groups composed entirely of weak students could cause more

confusion or continued low achievement, and groups of all strong students are likely to

deal out the work without engaging in the discussion and informal tutoring sessions that

lead to many of the proven instructional benefits of cooperative learning (Fedler & Brent,

2001). Webb (1982) points out the effects of cooperative academic tasks depend on

behaviors within the group, thriving in some instances, destructive in others.

Strategies

The beginning stages of cooperative learning are essential to start in the right

direction. Felder and Brent (2001) put together a fifteen-year, qualitative study that

looked at students in grade school as well as at the collegiate level and compiled lists of

techniques that produced the best results when using cooperative learning. The data they collected was through observation of their own classes using cooperative learning methods. The results of their experience were compiled and shared with educators around the country. As Felder and Brent (2001) presented their data, other teachers would offer ideas on using cooperative learning. If an idea arose that was based on superlative experience, the researchers included the method in their findings. This type of research leaves many windows for bias and sampling error, but with the amount of years their cooperative learning ideas have been tested, I would have to deem their research worthy of consideration for academic settings.

Forming teams is the first step in maximizing student efforts. By keeping the groups heterogeneous in academic ability and learning style, but homogeneous in interests you will form a more cohesive bond and allow for an adequate working environment (Felder & Brent, 2001). The combining of students is very fragile and much thought should be put into this first, very important, step. By reducing the group friction from the beginning, you eliminate excess time that some groups may take to bond and form a cohesive working unit.

Educators need to understand that not all students will work well in groups, or prosper from group work. In this instance, teachers often wondered if they should allow students to work on their own. Felder & Brent (2001) advise against allowing students to opt out of group work. The experience is too valuable to miss out on. Learning to work with peers is a life skill and the students have to learn to accept they will not always get the choice of whom they work with, but the quality of work should still be the same.

When group members cannot work together harmoniously, the teacher needs to equip them with strategies to overcome the conflicts. "Often group conflicts stem from different expectations group members have for one another" (Felder & Brent, 2001). When conflicts or other areas of concern do arise, the class should discuss the problems as a whole group. A plan of action should be agreed upon and then taken back to the small groups. By putting the ownership of the problems back in the students' hands, you will be more likely to see the students handle them within their own groups.

A peer-review can also help the group members get a better understanding of what is expected of them as well as how they performed during a certain task. By asking the students to rate their own performance along with the performance of their group members, you are giving them the opportunity to reflect on the group's interactions. This meta-cognitive skill will form a standard for the students when they are working in groups in the future.

Chapter III: Results and Analysis

Study Results

The first study shows the overwhelmingly positive affect that cooperative learning has on student achievement levels, social relations, and student attitudes. Stevens and Slavin (1995) showed an increase in all of these areas in the Cooperative Elementary School Model. By taking the step to incorporate cooperative learning not only at the student level, but also at the professional level, the students and teaching staff were increasing their level of knowledge by working with their peers and colleagues. By taking this step as a whole, the entire educational community was able to raise their standards of learning and working relationships. "Multifaceted instructional programs that use state-of-the-art instruction and curriculum with cooperative learning classroom processes can produce and maintain significantly higher achievement" (Stevens & Slavin, 1995).

What was interesting about results that Stevens and Slavin (1995) found was all students, from gifted to educationally handicapped, were able to succeed and raise their levels of achievement while all working together. There was no need for pullout remedial or enrichment lessons to obtain higher academic scores for the outlying students. "Well-structured, cooperative learning programs used in the cooperative elementary school can be vehicles to enhance a school's ability to successfully mainstream learning disabled students into the regular classroom" (Stevens & Slavin, 1995). The whole student population worked together, and in turn started to form a more cohesive learning community that presented itself in the results of the students' attitudes and social relations.

The second study shifted the focus to the teacher and looked at the facilitator's role in student collaboration. Not all students enter the educational arena with the ability to work with their peers. To ensure all students are getting as much as they can out of cooperative learning lessons, teachers need to model good techniques for group work. When teachers reiterate what the student is explaining and ask for further explanation, they are giving the students an idea of how they should have discussions in small groups (O'Conner, 1993). It is important to model good techniques for students to follow so the group work has structure. If the group is to be successful, they need to have an organized discussion where all members can benefit.

Webb et. al (2008) showed that a teacher who rephrases the students' ideas and pushes them for a more thorough explanation can produce much higher levels of thinking. By focusing the students to put their thoughts into words, and not just stating the answers, teachers can help their students develop their metacognitive skills. If they are aware that they are having trouble with a concept, they are more likely to ask peers in the small group to further explain their thinking.

As the students take over the role of facilitator the teacher is freed up to work more in-depth with the students who continue to struggle in a small group setting. With the budget cuts affecting many schools, and the class sizes on the rise, this teaching method could transform the classrooms for the future. Teachers can shift the learning goals to the students and free up more time to spend with the lower-achieving students who would not get as much one-on-one time in a classroom that is not cooperatively based.

The last study I examined was the comprehensive look at methods and techniques compiled by Felder and Brent (2001). This article would be a perfect starting place for anyone interested in implementing cooperative learning into their classroom. All the techniques they discussed where very valuable, but the one I found most interesting was the resolution of conflicts.

Their recommendation to bring the problem of one small group back to the whole group opens up so many more opportunities to learn from each other. So many times teachers will try to take care of the problems that arise on their own, but what a valuable lesson to give to the students' peers that were not involved. Not only are you forming another cooperative learning opportunity, but also modeling another strategy that can be taken back to the small groups. This is also a great technique to improve social skills by giving the students the chance to respectfully discuss the problem and find a solution.

Analysis of Results

All of these studies showed different aspects of cooperative learning, but all show how valuable it can be. Students at the elementary level would gain a rich base of academic and social learning that they could call on for the rest of their educational and professional careers. If certain characteristics of all the studies were merged, the union could result in a tremendous program for any building or district looking to transform their curriculum and school community.

Chapter IV: Recommendations and Conclusion

Recommendations

It is important to note that all teachers in the two studies had extensive professional development before implementing this style of learning into their teaching methods. Just as in any subject area, educators need to know the content before initiating this learning technique. Stevens and Slavin (1995) provided curriculum material as well as training on how to instruct students using Jigsaw II, TGT, and STAD teaching methods. The same was true for the teachers in the second study. Web et al. (2008) also chose to look at teachers who had previously gone through a larger study focused on engaging students in algebraic thinking and who had received at least one year of on-site professional development.

My recommendation to educators looking to implement cooperative learning into their classroom would be to explore the ideas and information produced by Robert Slavin, who has researched this topic for over 30 years, and The Cooperative Learning Center at the University of Minnesota, which is a research and training center focusing on cooperative learning techniques. Cooperative learning can be very difficult for some students who have low social skills, and group learning can get very frustrating to both teachers and students when implemented incorrectly.

Areas of Further Research

Stevens and Slavin (1995) did not specifically address all components of the school model such as peer coaching and cooperation between teachers. This is the area I would like to see further research in. Knowing how colleagues work together is a huge part of the success of the school community. Further research of the cooperative school

should contain information on the teacher mentoring and professional collaboration and its effects on the student achievement levels.

Second, I would like to see further studies done on the Cooperative Elementary School in rural districts. We can see from the results that it enhances the education of the treatment schools, but I am wondering if the data would change in a more rural population. A rural district, like the one I teach in, may not have the resources available to them to incorporate the comprehensive model.

Lastly, I would like to see more research on the effect of student behavior as a whole, which was not measured in the study done by Stevens and Slavin (1995). Was the school community more positive with the incorporation of the Cooperative Elementary School? It would be interesting to see if there was a direct effect on the school climate after implementing this school model. If the conflicts were resolved using the method presented by Felder and Brent (2001), the students may also recall their prior knowledge of conflict-resolution to deal with behavior issues outside of the classroom as well. This in turn could have a direct impact on behavior and school climate as well.

Conclusion and Summary

The cooperative style of learning makes students work toward a common goal, and succeed as a group where as each member is an integral part. The study performed by Stevens and Slavin (1995) showed that students showed increased social relations across the two-year time frame. Imagine the effect after four or six. This kind of school atmosphere would foster an environment where all students are looked at as an essential part of the learning community.

The cooperative elementary school could be the basis for a nation-wide school reform. A whole school reform to put learning back into the hands of the students would not only be empowering, but also rewarding to the student population. "Cooperative learning has a positive impact on achievement, intergroup relations, self-esteem, attitudes toward school, and working with peers" (Slavin, 1994). With higher achievement scores and improved social relations, the data from the Cooperative Elementary School Model suggests that cooperative learning points to one possible solution to our failing schools and the prejudices in our society.

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