Cooperative Learning in a Kindergarten Classroom

An Inquiry by:

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Description of Teaching Context

The subject of my inquiry takes place in a kindergarten classroom at Park Forest Elementary School. The class is comprised of 21 students: 5 male and 16 female. Three of the students participate in English as a Second Language (ESL) instruction on a regular basis. One ESL student is a Chinese female, one is a Japanese female, and one is a Venezuelan male. The Chinese student speaks nearly fluent English. The Japanese student spoke no English at the beginning of the year but now understands spoken English and has emerging fluency in English. The Venezuelan student recently moved to the United States and speaks no English. However, he is beginning to speak and understand simple phrases. The class also contains two bi-racial students, one male and one female; both students have an African-American father and a white mother. The female student recently relocated from Bellefonte in order to attend a more diverse school environment.

Park Forest Elementary School, part of the State College Area School District, emphasizes community building and citizenship skills. Every Tuesday afternoon, the entire student body, accompanied by teachers, attends an all-school meeting led by the principal. The meetings are held in the all-purpose room and consist of patriotic songs led by the music teacher and student instrumentalists, the pledge of allegiance, presentations by small groups depicting specific characteristics of good citizenship (i.e. organization, responsibility, effort, etc.), and awards for citizenship and community service. Community building is also part of the classroom. Every morning, students gather on the carpet for morning meeting. Morning meeting consists of a greeting, telling sharing (students share news and information with their classmates), a game, the morning letter, and calendar math. During this instructional time, students develop language and literacy skills, social skills, and mathematical reasoning abilities. Morning meeting establishes a safe and welcoming environment for each student.

Rationale

It is in the aforementioned context that my inquiry arose. The first time the students were asked to complete an assignment in small groups (2-3 students), I was disappointed by their response. They experienced difficulty sharing materials and working cooperatively to
accomplish the task. Many students requested an individual set of materials and did not want help from other students.

Since then, the students have had several additional opportunities to work in pairs and small groups. Their cooperation has improved, but there are still pressing issues. For example, when the teacher announces group or partner work, several students immediately cling to their best friend and make pleading faces accompanied by whimpering. Also, in some cases, one student dominates the pair or group with very little input coming from the other student(s).

Current educational theory and practice emphasize the importance of cooperative learning and collaborative group work to enhance students’ academic knowledge and social skills. Fuchs et al. (2002) cite Ames and Murray (1982) and Silverman and Stone (1972) who “showed that young children earn better-than-expected scores when they work constructively with peers” (Fuchs et al., 2002). In addition, Leonard H. King of Edith Cowan University writes in his study of high and low achievers’ perceptions of cooperative learning, “reviewing research evidence in favor of cooperative-learning approaches over other traditional and competitive outcomes, Slavin (1983, p. 362) concluded that ‘the overall effects of cooperative learning on student cooperation, mutual concern, race relations and relations with mainstreamed students, liking of school, self-esteem, and internal locus of control are positive and robust’” (King, 1993). In order to thrive in a diverse public school setting, children need to learn to work effectively with their classmates. Students must be taught how to participate in a group and be provided with multiple opportunities to practice these new skills.

In addition to students’ academic and social success, cooperation is a vital component of a healthy learning environment. In order to create a harmonious classroom climate and establish a community of learners, it is necessary to teach students to interact in positive ways. As a result of my observations, classroom experience, and educational theory, I chose to investigate the feasibility of group work and the academic and social effects of cooperative learning in a kindergarten classroom.

Wonderings and Questions

I have heard several colleagues claim that kindergarten students are at an age that is characterized by egocentrism. Knowing this, I wondered if kindergarten children, between the ages of five and six years old, are capable of working together as partners or in small groups to
successfully complete an academic task. I also wanted to know if cooperative group work provides academic or social benefits at this early stage of education. In order to address my main inquiry question, I needed to know if any students were already able to work cooperatively and under what conditions, how I can help my students assume roles associated with positive group dynamics, how I can incorporate multiple opportunities for the students to work together in small groups, and, finally, whether or not group work improves students’ academic and social successes in kindergarten and if so, in what ways.

Inquiry vs. Project

This undertaking qualifies as an inquiry and not a project because the answers to my questions were unknown. Most of the research and educational theory regarding cooperative learning and group work is based on students in older grades. Very little research has been conducted on cooperative learning and collaborative group work in a kindergarten setting. This inquiry aimed to adapt the research and theory developed for older students to a kindergarten class to determine if the benefits of cooperative learning still prevail and if the benefits are the same.

Throughout the inquiry period, I experimented with different grouping arrangements for a variety of collaborative tasks to determine which scenarios were the most effective for encouraging cooperation. I examined different combinations of personality styles and cognitive ability to find out which students were best able to work together. I also planned opportunities for group work in a variety of academic subjects to decide which subjects and lessons lend themselves to collaborative group work.

Inquiry Plan Description

The first step of this inquiry involved the design and implementation of a system of group leaders for morning literacy centers, which included “Words Their Way,” a listening center, a computer center, guided reading, and phonics. To do this, I wrote the names of the members of each group on a piece of construction paper, using a different color paper for each group. I attached a small piece of Velcro in front of each name and fastened a magnetic strip to the back of each group’s paper. Then, I attached a piece of Velcro to the back of a medium-sized foam star sticker (see Appendix A). During morning centers, the group papers are attached to the
After reading education research literature, I implemented group sticker charts (see Appendix C). Every day during morning literacy centers, each group had the opportunity to earn a sticker for good behavior throughout the entire rotation. If any member(s) of a group did not work well at any of the centers, the group could not earn a sticker for that day. I introduced group sticker charts in an effort to improve the students’ behavior during morning centers and instill a sense of responsibility toward the other members of the group. Vedder and Veendrick (2003) reference one expert, Slavin, who “…contends that cooperative learning is likely to be ineffective if students are not rewarded as a group, while at the same time they are held personally accountable for reaching the learning goals” (Vedder et al., 2003). Group sticker charts were used during the final three weeks of data collection.

The next phase of the inquiry was dedicated to the planning and implementation of lessons involving partner and group work. During the first week of the inquiry period (February 19 to February 23), the students played math games in groups, played choice games in groups, completed partner addition worksheets using various math manipulatives (i.e. unifix cubes, links, dominos, buttons, rocks, etc.), and played computer games with partners. During the second week (February 26 to March 2), the students played a math game with their literacy group during my afternoon math center. For the third week of the inquiry period (March 5 to March 9), the students created shape murals in teacher-chosen groups of four. And, in the fourth and fifth weeks of the inquiry period (March 19 to March 23 and March 26 to March 30), the students hunted for shapes around the classroom with a partner. For this activity, I called on one student at a time to choose a partner with whom to work until every student had a partner. For the sixth
week of the inquiry period (April 2 to April 5), the students played a math game called “Fill the Hexagons” with a partner. Partners were chosen in the same manner as for the Shape Hunt. Each time the students worked in partners or groups, I circulated among the groups and recorded my observations, which I kept filed in one section of a large binder.

In addition to taking observation notes, I also administered two student surveys (see Appendix B). The surveys were given during morning meeting during the second week of the inquiry period on Friday, March 2\textsuperscript{nd} and during the sixth week on Thursday April 5\textsuperscript{th}. Each student was given a survey, a pencil, and a chalkboard on which to lean. I read each question to the students and allowed time in between for them to circle a “yes” or “no” response. I collected the surveys to be analyzed at a later date. In order to obtain more in-depth responses from the students, I videotaped interviews with several individual students and recorded a class discussion based on the interview questions (see Appendix C and Appendix D).

The final phase of the inquiry involved analyzing the data and formulating claims. The precise methods of data collection, a description of the data analysis process, and the claims at which I arrived are detailed in the following sections.

Data Collection

In order to address my main inquiry question, I collected a variety of data in the form of observation notes, student work samples, student surveys, student interviews, and a class discussion.

Observation notes

Throughout the data collection phase of the inquiry period (weeks one through six), I planned and implemented a variety of lessons involving partner and group work. Students had opportunities to work with their literacy groups, teacher-assigned groups, teacher-assigned partners, and student-chosen partners. Each time the students worked with partners or groups, I circulated among the groups and recorded my observations. My observations included significant negative events, significant positive events, and general impressions of the group’s capacity to work together. Each time I recorded observation notes, I wrote down the date, the activity, and the group assignments. All the daily observation notes were kept in one section of a large binder.
**Student work samples**

On two occasions, I collected student work samples from the entire class. During a math lesson, the students chose a partner with whom to complete an addition worksheet using various math manipulatives. Each student was given a worksheet to complete. After collecting the worksheets, I stapled together the two sheets from each partnership.

The second collection of student work samples was also acquired during a math activity. I assigned students to partners or groups of three to search the classroom for objects that correspond to various 3-D shapes. On the first day of the activity, each student was given a paper to tally the number of objects corresponding to each shape. On the second day of the activity, the students were each given a new paper to write the name of one object for each shape. I collected the papers from the second day of the activity and stapled together the papers from each partnership or group. I filed the student work samples in a second section of the large binder.

**Student surveys**

I administered two different student surveys during the data collection period (see Appendix B). The surveys were given during morning meeting on March 2nd and April 5th. Each student was given a survey, a pencil, and a chalkboard on which to lean. After giving directions, I read each question to the students and allowed time for them to circle a “yes” or “no” response before continuing on to the next question. I collected the surveys and filed them in the third section of my inquiry binder.

**Student interviews**

In order to acquire more in-depth responses, I videotaped interviews of several students. The following questions provided the basis for the interview:

- Do you enjoy group work?
- What do you like about group work?
- What do you dislike about group work?
- Do you think you learn more when you work with a partner or group?
- Does it help to have someone to ask questions and talk to?
- What are some important things to remember when you work with a partner or group?
- What is hard about working with a partner or group?
• What is easy about working with a partner or group?

Transcripts from the interview were filed in a fourth section of the inquiry binder (see Appendix C).

Class discussion

Since I did not have enough time to interview each student individually, I videotaped a class discussion based on the same questions as the individual student interviews. I posed one additional question to the class: If you have a problem in your group, what can you do to solve it? I filed the transcript from the class discussion with the individual student interviews (see Appendix D).

Data Analysis

Once all of the data had been collected and organized, the next step was to analyze the various forms of data.

Comparing work samples

On two separate occasions, I collected student work samples from the entire class after completing math activities. The first sample is an addition worksheet completed in student-chosen pairs using a variety of math manipulatives. The second sample is a worksheet with various 3-D shapes and a space to write the name of one object in the classroom that corresponds to the 3-D shape. After collecting the samples (one paper from each student), I stapled together the papers from the partners or groups of three. I then compared the papers of each group member and highlighted any differences between the two worksheets (see Appendix E).

Revisiting observation notes

In order to review the data collected in the form of observation notes, I created a Microsoft Word notebook document in which to type my hand-written notes. Each tab of the notebook included the notes from one activity. I labeled each tab with the date of the activity and titled each page with a description of the corresponding activity. As I typed my notes, I was able to pick up on trends and formulate claims.

Graphing survey results

After the student surveys were collected, I tallied the number of “yes” and “no” responses for each question. I entered the data into a Microsoft Excel spreadsheet in order to create a chart.
The questions corresponded to the x-axis and the numbers of “yes” responses and “no” responses comprised the y-axis. I created a chart for the first and the second survey (see Appendix B).

The survey graphs provide a visual representation of the students’ preferences regarding partner and group work. Comparison between the first question of the first and second survey illustrates a change from the beginning of the data collection period to the end of the data collection period (6 weeks) in the number of students who like working with a partner and the number who do not. Comparison of the fourth question in the first survey and the second question of the second survey shows a change in the number of students who like working in groups and the number who do not over the six-week period.

**Creating student profiles**

Using the observation notes and student surveys, I created a profile for each student in a Microsoft Word notebook document. Each tab of the notebook was assigned to a different student. To compile a student’s profile, I went through the observation notes and re-typed each statement that pertained to that student. I also included the student’s responses to the two surveys. By compiling notes on each student, I was able to determine which students had difficulty working in partners and groups and which students did not experience difficulty during group work. I also highlighted changes in the students’ responses from the first survey to the second survey regarding their like or dislike of partner work and group work.

**Transcribing interviews and class discussion**

In order to build on the student surveys and obtain more in-depth responses from the students, I videotaped interviews with six students. I watched the video footage at a later date and transcribed each interview, including my questions and the student’s responses (see Appendix D). By videotaping the interviews, I was able to concentrate on the conversations with the students during the interviews without taking notes. The video also enabled me to review the interview several times to make an accurate transcription.

Due to time constraints, I could not conduct an individual interview with each student. In order to elicit additional opinions, I conducted a class discussion based on the same interview questions. I videotaped the class discussion so that I could transcribe the discussion at a later date (see Appendix E). The class discussion and individual student interviews revealed the students’ opinions regarding partner and group work and clarified what they had learned about working together.
Claims

Based on professional literature and the data collected over a six-week period, I have formulated three claims regarding my kindergarten students’ involvement with partner and group work.

Claim #1: Kindergarten students, age 5 and 6, are capable of working together in partners and small groups of three to five students. However, in order to be successful, some students may require teacher support. And, students who are able to work cooperatively with peers may not enjoy group work.

As an intern in a kindergarten classroom at Park Forest Elementary School, I quickly developed the impression that the majority of kindergarten teachers believe that kindergarten students, age 5 and 6, are too young and developmentally egocentric to work together in groups on academic tasks. This observation was expressed by Paul Vermette, Laurie Harper and Shelley DiMillo (2004) who contend that, “Often, teachers think of formal cooperative learning as a strategy for older students and conceptualize early childhood youngsters as too egocentric for effective partnering for cognitive and social growth” (Vermette et al., 2004). However, Vermette et al. have found that, “…teachers can learn to use well structured collaborative strategies with 4-8 year olds and those youngsters have much to gain cognitively and socially from the experience” (Vermette et al., 2004). As Vermette and his colleagues and I have found, kindergarten students are quite capable of working effectively together in partners and small groups.

On Friday of the first week of data collection, during the space unit, the students played games on NASA’s website in teacher-assigned pairs. Each pair of students shared a single computer on which to play space-themed letter, pattern, and puzzle games. Before beginning, the students were instructed to take turns playing the games, to share the computer and mouse, and to help each other succeed. As I surveyed the computer lab, I noticed several pairs of students working effectively together.

It is interesting to compare my observations with the students’ responses to Question 8 on the first survey: “Do you like working with a partner in computer lab?” For one of the pairs, I
recorded “I did not notice any problems with this partnership.” However, both members of this pair responded that they do not like working with a partner in computer lab. These students may have had negative experiences that I did not see in the computer lab. A second partnership, for which I did not notice any problems, had one member respond that she does not like having a partner in computer lab; the other partner was absent for the survey. I noted a third pair working very well together, who, consistent with my observation, both said they like working with a partner in computer lab. There were also a few partnerships, despite minor problems, such as one partner complaining of not receiving a turn on the computer or one child observed spinning around in his/her chair while the other partner played a game, for which both partners responded positively to having partners in computer lab.

A second activity for which I noticed positive group interaction occurred during the third week of data collection. The students were assigned to teacher-chosen groups of four with the task of creating large shape murals on butcher-block paper using a variety of shape tracers, construction paper, crayons, scissors, and glue. During the activity, I observed two groups working extremely well together and one group that experienced only minor difficulties. The first group was supervised by the classroom paraprofessional, Mrs. D, in order to assist a student who does not speak English and to monitor his behavior. It is unlikely that this group would have functioned well had Mrs. D not been present because the students cannot communicate with this ESL student and often become frustrated with his behavior. Paul Vedder and Annemarie Veendrick (2003) cite an expert, Cohen, who found that “…generally teacher regulation of cooperative learning may contribute to the quality of cooperation between students and to learning goals. However, Cohen warns against teacher regulation that interferes with the cooperative learning processes that constitute its quality and value in relationship to complex tasks. Outcome-oriented feedback and direct supervision and guidance would likely diminish students’ efforts for self-regulation and risk-taking” (Vedder et al. 2003). Although I have been inclined throughout the inquiry process to allow the students to be in control of their own collaborative efforts, Mrs. D’s participation in this group was warranted. With her help, the students came to a compromise to include two different scenes in one mural (a beach scene and a backyard scene). After this decision was made, the students took the initiative in creating the scenes of the mural.
I was extremely pleased with the positive efforts of a second group. One member of this group is known to have behavioral issues, especially when working with other children, and a second member of the group has made it clear that she prefers to work alone. Despite my doubts, the group members decided on a theme and each worked diligently on their portion of the project. I observed two students negotiating the location of various items on the mural and a third member industriously cutting out palm tree leaves for the beach scene.

Unfortunately, two of the groups did not boost my confidence in the ability of the students to work together cooperatively in groups. One group decided to split into pairs and create two separate murals on the same paper facing opposite directions (see Appendix C). The pair who initiated this strategy worked together on one half of the mural, while the other two students worked individually on the opposite side of the paper. The second group attempted to work together but argued frequently over such issues as the amount of grass to draw and which group member has the best coloring.

The class was divided again in their ability to collaborate during a partner math activity that took place during the fourth and fifth week of the data collection period. On the first day of the task, the students were assigned to teacher-chosen pairs or groups of three. Each student was given a worksheet with a variety of 3-D shapes taped to the back of a small chalkboard. The students were instructed to search the room for objects corresponding to each 3-D shape and to tally the total number of objects found. On the second day of the activity, the same partnerships were instructed to find one object for each shape and to record the name of the item, which would then be recorded on the class shape chart. Half the groups searched the room together, discussed various objects and recorded the items on their papers. The other half of the groups separated from their partners frequently and wrote down answers individually. I found myself repeatedly reminding members of the latter groups to stay with their partner.

Overall, despite the shortcomings of certain partnerships and groups, the evidence clearly shows that kindergarten students are, in fact, capable of working together. Several partnerships and groups were extremely successful in completing various collaborative tasks. These observations are supported by Vermette et al. who state, “the use of projects, learning centers, reading groups, problem-solving sessions, and computer time can all be structured in ways that build in the power of cooperative learning and which are consistent with standards-based content
expectations for this age group” (Vermette et al., 2003). In this inquiry, I have discovered the ability of my students to work cooperatively in several of the aforementioned learning situations.

Claim #2: Kindergarten students understand and can articulate the benefits of collaborative group work.

Current educational theory emphasizes the importance of collaborative group work in elementary school classrooms for both its academic and social benefits. Proponents of cooperative learning base their argument on the work of Piaget and Vygotsky. Judith Kleine Staarman, Karen Krol and Henry van der Meijden (2005) summarize the socio-cognitive and socio-cultural approaches to learning. They state, “within the cognitive development approach, both the socio-cognitive (based on the work of Piaget) and the socio-cultural approach (based on the work of Vygotsky) emphasize the role of social interaction in the construction of knowledge. Both cognitive approaches maintain that peer learning provides rich and necessary opportunities for students to reflect upon reactions and perspectives of other peers. This reflection may lead to the revision of students’ cognitive systems and such revisions can, in turn, lead to the establishment of new meanings” (Staarman et al., 2005). Further expansion of these theories comes from Lynn S Fuchs, Douglas Fuchs, Laura Yazdian, and Sarah R. Powell (2002), who note that “…based on the work of Piaget…internal cognitive conflict arises when children express alternative perspectives. In resolving those disagreements, children explain and justify positions, question beliefs, seek new information, or adopt alternative frameworks and conceptualizations” (Fuchs et al., 2002). I observed this directly during a partner math activity involving a hunt for 3-D shapes within the classroom. A student called her partner over to the classroom behavior stoplight as an example of a cylinder. Her partner argued that the circular construction paper lights are not cylinders because they are not round like the globe. As a result of this encounter, the first child is confronted with her partner’s more advanced concept of cylinders and must adapt her own concept of cylinders to account for this newly acquired information.

In addition to experiencing the benefits of cooperative learning, the students understand and are able to articulate the academic and social benefits of partner and group work. At the culmination of the data collection period, I conducted several videotaped interviews with
individual students and one class discussion regarding the students’ impressions of partner and group work (see Appendix C and Appendix D). When asked what he likes about group work, the first interviewee replied, “Well, I like that you can get some help from the people in your group. Cause if you weren’t in groups, you would have to find someone else to ask your question…but if you’re in a group already, you can ask the people in your group for help.” The sixth student interviewed had a similar response to this question; she answered, “People help you.” When asked if he thinks he learns more when working with someone else, the first interviewee responded, “Yes…cause if you don’t know something you can ask somebody in the group and then they can answer it.” The second student interviewed replied, “Yes…because we work in a team.” And, the sixth student interviewed responded, “Yes…because they help you find the answers.” The fourth student interviewed was unsure whether or not she learns more with a partner or group as she responded “kind of.” I followed up on her response by asking if it helps to have someone to ask questions and talk to and she said yes. The fifth student interviewed did not believe that she learns more with a partner or group but agreed that it helps to have someone to ask questions and talk to. The third student interviewed, not mentioned above, does not like group work nor does he believe that he learns more with a partner or group.

Since I was unable to interview each student individually due to time constraints, I held a discussion during morning meeting with the entire class based on the questions asked in the individual interviews. I first asked the students to raise their hand if they like partner and group work; I counted twelve hands. I then asked the students what they like about group work and allowed each student who raised his/her hand to respond to the question. Responses included, “It’s fun to work with other people,” “They help you with the questions,” “I like it because you have someone to help you if you get stuck,” “They can help you if you don’t know the answer,” and “You have a friend with you.” Student responses regarding the opportunity to ask questions and solicit help during group work clearly indicate the students’ understanding of the academic benefits of cooperative learning. Comments such as “it’s fun to work with other people” and “you have a friend with you” indicate that students appreciate the social aspect of cooperative learning as well.

In addition to the individual interviews and class discussion, the second survey shows thirteen positive responses to Question 3 – “Do you learn more when you work with a partner or group?” – as opposed to only five negative responses. The survey also shows that twelve
students have more fun working with a partner or group, as opposed to six who do not have more fun. Beyond the academic and social benefits identified by the students, researchers and theorists have identified several additional benefits of which the students may be unaware. Edmund T. Emmer and Mary Claire Gerwels (2002) contend, “although higher student achievement is one of the goals of the developers of [cooperative learning], additional reasons for using [cooperative learning] include improved motivation, positive attitudes, better social skills, and accommodation of heterogeneity” (Emmer et al., 2002). The kindergarten students at Park Forest Elementary School room 120 were able to reap many of the academic and social benefits of cooperative learning cited throughout educational research.

**Claim #3: The nature of the task influences the behavior of the group, for example, competitive games versus collaborative projects.**

After reviewing the observation notes from the beginning of the data collection period to the end, I noticed that the nature of the task affected the functioning of the group. During the first week of the inquiry period, the students played games on two separate occasions with their literacy groups. On the first day, each group played Jungle Run (similar to Shoots and Ladders) during my afternoon math center. I told the students how to play the game and then sat back to observe. Each of the five groups had at least one argument during the 15-minute center. Two groups had minor arguments from which they recovered quickly to resume play in a cooperative manner. The remaining three groups, however, encountered serious issues throughout the game. The arguments generally involved who would go first and the remaining order of play, whose turn it was and the possession of the dice, and handling other players’ game pieces.

The following afternoon, the same literacy groups played games of their choice (chosen by one teacher-selected group member) simultaneously. Chosen games included Hi-Ho Cherrio, Candyland, Jungle Run, The Lion King, and The Very Hungry Caterpillar. Once again, I listened to arguments over playing order and who goes first and questioning of other players’ location on the game board. Mrs. D, the classroom paraprofessional, determined the need to supervise one group. The guest teacher also played a game with one of our most challenging students and one other student who volunteered to join them. One group managed to play well
together because they were busy trying to figure out how to play the game. They looked at the
directions to set up the game board and made up their own rules of how to play.

During the last week of the data collection period, the students played a math game called
“Fill the Hexagons” in student-chosen partners (certain students were chosen, based on good
behavior, to choose a partner with whom to work). Rather than structure the game as a
competition to be the first player to fill the hexagons with various shapes, I had the students work
together, taking turns to fill all six hexagons on the board. I rewarded the groups that succeeded
in the task with a sticker for each student. The only problem encountered during this lesson was
one student who pouted and refused to play because the student she wanted to work with was
chosen by someone else. After playing a round of the game with this student’s would-be partner,
she decided to play. Besides this one incident, all the students enjoyed the game and played well
together.

By comparing group functioning during competitive game play and collaborative game
play, I have come to the conclusion that the nature of the task (competitive or collaborative)
strongly impacted the behavior of the groups within this kindergarten classroom. During
competitive games, in which one player can win the game and the others can lose, group
members have a tendency to work against each other in defense of their position on the board. In
order for one student to win, the others must lose, and, therefore, the goal of each individual
becomes ensuring his/her chance to win. This phenomenon is evident in arguments over who
gets to go first and whose turn it is and the mistrust displayed among group members as they
question and double-check the other players’ positions on the board. These findings are in
congruence with Staarman et al. (2005) who contend that “according to the social behavioral
approaches, peer learning occurs when members of a group are moving toward a goal and when
the accomplishment of the goal by any one member of the group requires that other members
also reach the goal” (Staarman et al., 2005). During competitive games, group members do not
strive to reach a common goal; rather, each individual group member aims to reach the goal
ahead of the others. In collaborative games, on the other hand, students cooperate in an effort to
accomplish a shared objective.

Despite the evidence to support this claim, it must also be noted that the students played
the competitive games in groups of four, whereas, the collaborative game was played in pairs.
The number of players in each group may be a factor in how well the group functions. Also, the
competitive games were played during the first week of the data collection period, whereas the collaborative game was played during the final week of the data collection period. When the students played competitive games, they had had little exposure to collaborative group work. By the end of the data collection period, the students had had more than five weeks of experience working together in partners and groups. This may indicate that the amount of experience students have working in groups determines their ability to work together. It is likely that each of these factors contributes to the students’ ability to work together.

Conclusions

For the remainder of this year and throughout my future teaching practice, I plan to continue building opportunities for cooperative partner and group work into my lessons. Throughout the inquiry period, I have seen the positive beginnings of cooperative learning in my classroom. There is room for improvement for me, as a teacher, and for my students, as cooperative learners. My next step is to continue to improve upon the implementation of collaborative group work by giving the students multiple opportunities to work together toward common goals, providing feedback, and discussing group work experiences with the students.

Next year, it is likely that I will be the only adult in a classroom of twenty-some children. It will be impossible for me to attend to each student and provide feedback at all times. By establishing a community of learners and implementing cooperative learning into the classroom, the students will be able to rely on each other for assistance and feedback, rather than relying solely on the teacher. Partner and group will allow for my students to ask questions, receive answers, and provide explanation whenever the need arises. As the students develop personal responsibility and social responsibility toward their peers, the knowledge gained by one student will benefit the entire learning community as the students share their experience and expertise.

New Wonderings

Although this inquiry has shed light on many of my initial wonderings, I am left with some unanswered questions and, through the process, have developed further wonderings. In the relatively brief period of data collection, I was unable to determine whether or not cooperative group work increases students’ social and academic success in school. Although the students were able to articulate many academic and social benefits of group work, I do not have the data
to validate a claim regarding improved academic and social success. I was also unable to
determine the precise conditions that foster positive cooperative behavior among students. There
was too little time and too few opportunities to collect data for the variety of conditional factors
likely to have an effect on cooperative learning.

Further wonderings that have developed throughout the inquiry process include the
following:

• Why have some students’ feelings about partner and group work changed over the six-
  week inquiry period?

• How can I teach kindergarten students to work more effectively in cooperative
  partnerships and groups?

• If students are introduced to group work in kindergarten, will they be more successful
  with cooperative learning in later grades?

• How can I ensure positive group experiences?
Appendix A: Photographs

Literacy groups with stars beside the group leaders.

Group sticker chart after the first day.

Shape mural split into two separate halves.
Appendix B: Student Surveys

Initial survey taken March 2\textsuperscript{nd}, 2007

Yes or No Survey

1. Do you like working with a partner?
   Yes    No

2. Do you like choosing your own partner?
   Yes    No

3. Do you like when the teacher chooses your partner?
   Yes    No

4. Do you like working with more than one other student?
   Yes    No

5. Do you like playing games with your classmates?
   Yes    No

6. Do you like working with your friends?
   Yes    No

7. Do you like working with other students?
   Yes    No

8. Do you like working with a partner in computer lab?
   Yes    No
Completed Student Survey:

Yes or No Survey

1. Do you like working with a partner?
   - Yes
   - No

2. Do you like choosing your own partner?
   - Yes
   - No

3. Do you like when the teacher chooses your partner?
   - Yes
   - No

4. Do you like working with more than one other student?
   - Yes
   - No

5. Do you like playing games with your classmates?
   - Yes
   - No

6. Do you like working with your friends?
   - Yes
   - No

7. Do you like working with other students?
   - Yes
   - No

8. Do you like working with a partner in computer lab?
   - Yes
   - No
Initial survey results:

**First Survey**

<table>
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<tr>
<th>Survey Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Do you like partner work?</td>
<td>18</td>
<td>2</td>
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<td>Do you like choosing your partner?</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Do you like the teacher to choose your partner?</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Do you like group work?</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Do you like group games?</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Do you like working with friends?</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Do you like working with non-friends?</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Do you like a partner for computer lab?</td>
<td>11</td>
<td>9</td>
</tr>
</tbody>
</table>
Final survey taken April 5th, 2007

**Yes or No Survey II**

1. Do you like working with a partner?
   
   Yes  No

2. Do you like working with a group?
   
   Yes  No

3. Do you learn more when you work with a partner or group?
   
   Yes  No

4. Do you have more fun when you work with a partner or group?
   
   Yes  No

5. Do you like partner telling sharing?
   
   Yes  No

6. Do you like having group leaders?
   
   Yes  No

7. Do you like having group sticker charts?
   
   Yes  No

8. Do you want to continue working in pairs and groups?
   
   Yes  No
Yes or No Survey II

1. Do you like working with a partner?
   - Yes
   - No

2. Do you like working with a group?
   - Yes
   - No

3. Do you learn more when you work with a partner or group?
   - Yes
   - No

4. Do you have more fun when you work with a partner or group?
   - Yes
   - No

5. Do you like partner telling sharing?
   - Yes
   - No

6. Do you like having group leaders?
   - Yes
   - No

7. Do you like having group sticker charts?
   - Yes
   - No

8. Do you want to continue working in pairs and groups?
   - Yes
   - No
Final survey results:
Appendix C: Interview Transcripts

Interview #1:

Do you enjoy group work?
Yup.
And what do you like about it?
Well I like that you can get some help from the people in your group. Cause if you weren’t in groups you would have to find someone else to ask your question…but if you’re in a group you can ask the people in your group for help.
So you can ask your group members for help.
Is there anything you don’t like about group work?
Sometimes the other people in your group they will annoy you.
Do you think that you learn more when you work with someone else?
Yes.
How do you learn more?
Cause if you don’t know something you can ask somebody in the group and then they can answer it.
What are some important things to remember when you work in a group?
You have to not push the other people.
Anything else?
No hitting, no being violent.
Are there any other things you have to do when you work in a group?
When you’re on the computers you cant say I want to be on it first for two days in a row. Cause if you go on first for two days in a row that can keep other people from going on at all cause then you forget.
What do you think is hard about working with a partner or a group?
Not anything is hard to me.

Interview #2:

Do you enjoy group work?
Yes.
Why, what do you like about it?
Because I like to help people.
Do you think you learn more when you work with a group?
Yes.
Why?
Because we work in a team.
Does it help to have other students to have to ask questions?
Yes.
Do you ask questions in your groups?
Yes.
What are some important things to remember when you work with a partner or group?
Well to work together you have to help being a teamwork
Are there any things you don’t like about group work?
Well.
Is there anything that’s hard that’s working with a group?
Yes
What?
Like in our teamwork picture, our ocean got a little bit up to the sky
Are there any things that are easy about working together
Yes.
Like what?
To help doing like the grass like not getting scribble scrabble.

Interview #3:

Do you enjoy group work?
Mmm, I don’t know.
Sometimes maybe, and sometimes not?
Yea, I don’t know what group work is.
That’s when you work with other students.
Well, I don’t like group work.
What don’t you like about it?
Well, since _____ always says a lot to me, even when we are doing group work.
It annoys me.
Are there any things that you like about group work?
No.
Do you learn more when you work with others?
No.
Does it help to have another student to ask questions or talk to?
No.
You would rather work by yourself?
Yea.
Why do you like to work by yourself?
Well, I don’t know why I like to work by myself.
Interview #4:

Do you enjoy group work? 
Sometimes.
What do you like about it? 
I’m not really sure.
What don’t you like about group work? 
Cause it’s kind of boring.
Do you think you learn more when you work with other students? 
Kind of.
How so? 
I don’t know.
Does it help to have someone to ask questions and talk to? 
Yes.
What are some important things to remember when working with a partner or a group? 
Make sure they’re not bad…like ______.
What are some things you need to do? 
I don’t know...Like to share.
What are some other things? 
Take turns.
What’s hard about working with a partner or group? 
I don’t know.
And what’s easy about it? 
It’s not that hard kind of.
Anything else you want to say about group work? 
It’s important.
Why is it important do you think? 
Do you like having a partner? 
Yes.
So do you like working with one other student? 
I only like to have two partners, _____ and _____.
Do you get along well when working together? 
Yes.
And you help each other out? 
Yes.
**Interview #5**

Do you enjoy group work?
No.
Never? Do you like it sometimes?
Sometimes.
What do you like about it?
Its fun.
What don’t you like about it?
I don’t know.
Do you think you learn more when you work with other children?
No.
Does it help to have someone to ask questions or talk to?
Yes.
What are some important things you need to remember when you work with a partner or group?
I don’t know.
Do you need to share?
Yes.
What are some other things?
I don’t know.
What is hard about working with a group or partner? Are there things that are hard?
Yes.
Like what?
I don’t know.
Is it hard to make decisions together?
Yes.
Is it hard to share materials?
Yes.
What are some things that are easy? Are there things that are easy?
Not really.
You think its hard then?
Yes.

**Interview #6:**

Do you enjoy group work?
Yes.
What do you like about it?
People help you.
Is there anything else?
No.
Are there some things you don’t like?
No.
Do you think you learn more with a partner or group?
Yes?
Why?
Because they help you find the answers.
Do you think it’s good to have someone to ask questions?
Yes.
What are some important things you have to remember when working with a partner or group?
You need to help.
Anything else?
No.
What is hard about working with someone else?
Is it hard to make decisions?
Yes.
Is it hard to share materials?
Yes.
Are there things that are easy about working together?
No.
Appendix D: Class Discussion

Teacher: I would like to know if you enjoy group work or partner work. Raise your hand. (Counts hands) 12 people like it.
Teacher: What I want to know is what do you like about group work?
Student: Its fun to work with other people.
Student: It’s more fun to work with other people than to just work by yourself.
Student: They help you with the questions.
Student: When you work with people you don’t feel alone.
Student: I like it because you have someone to help you if you get stuck.
Student: if
Student: They can help if you don’t know the answer.
Student: You have a friend with you.
Teacher: Are there some things we don’t like about working with a partner or group?
Student: Well you know _____ always says too much to me.
Student: That it’s too noisy.
Student: That you fight.
Student: Sometimes the person like annoys you while you’re concentrating really hard.
Student: That it’s too loud and you can’t think.
Student: Well, sometimes when you’re in a group, you could sometimes they argue about something like me and _____ were fighting because I forget what the one day…
Student: Sometimes they will keep asking you questions.
Student: Some people can be too loud.
Student: They can like grab your pencil.
Teacher: What are some things you need to remember to do when you work with someone else?
Student: Be nice.
Student: Don’t argue.
Student: Be good.
Student: Don’t ignore your partner…and don’t drive them nuts.
Student: Don’t disturb them when they’re trying to do their work.
Student: Don’t say mean words.
Student: It’s important to not hurt your friends and your group, cause they might really get hurt.
Student: Don’t hurt them on the outside or the inside.
Student: Don’t even ignore the teacher.
Student: Don’t push.
Teacher: If you have a problem in your group what do you think you can do?
Student: You should always tell the teacher and not hurt other people.
Student: You can work it out.
Teacher: How?
Student: Like saying that wasn’t good.
Student: You can try and share.
Student: Talk about how you’re feeling.
Student: Talk about your feelings.
Appendix E: Student Work Samples

Partner Addition Worksheet (Partner 1):

Work together to solve these addition problems. Use the math manipulatives to help you. Good Luck!
Partner Addition Worksheet (Partner 2):

Name:______

5 + 3 = __ 8 __

3 + 2 = __ 5 __

4 + 3 = __ 9 __

5 + 4 = __ 8 __

7 + 2 = __ 9 __

1 + 6 = __ 7 __

3 + 5 = __ 8 __

Work together to solve these addition problems. Use the math manipulatives to help you. Good Luck!
Shape Hunt (Partner 1):

<table>
<thead>
<tr>
<th>Chalk</th>
<th>Piedra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omas</td>
<td>Páez</td>
</tr>
<tr>
<td>Box</td>
<td>Pasraj</td>
</tr>
<tr>
<td>Box</td>
<td>Ice cream cone</td>
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<td></td>
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</table>

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Investigation 3
Making Shapes and Building Blocks
Shape Hunt (Partner 2):

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Chalk</td>
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<tr>
<td>Cone</td>
<td>Chalk</td>
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<td>Globe</td>
<td>Ice</td>
</tr>
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<td>Rect</td>
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<tr>
<td>Top</td>
<td>Ang</td>
</tr>
<tr>
<td>Prism</td>
<td>Tri</td>
</tr>
<tr>
<td>Cube</td>
<td>Pyramid</td>
</tr>
</tbody>
</table>
Appendix F: Inquiry Calendar

**Week 1: February 19-23**
- Introduce and explain the role of group leaders for morning centers
- Research literature on cooperative learning and child development
- Revise and share inquiry brief
- Observe group math games
- Observe group choice games
- Partner addition worksheet, collect work samples
- Design a lesson for computer lab with students working in pairs

**Week 2: February 26 – March 2**
- Observe group math game during centers
- Administer an initial survey

**Week 3: March 5 – 9**
- Research additional literature
- Background/Context, Annotated Bibliography, Wonderings, and Inquiry vs. Project Paragraph (due March 7th)
- Students create shape murals in groups of four

**Week 4: March 19-22**
- Introduce group sticker chart
- Observe partners during shape hunt

**Week 5: March 26 - 30**
- Continue to use group sticker chart
- Second phase of partner shape hunt, collect work samples
- Begin to analyze data

**Week 6: April 2 – 6**
- Continue to use group sticker chart
- Observe partner math game
- Videotape interviews with individual students
- Videotape class discussion based on interview questions
- Administer the final survey
- Finish analyzing data

**Week 7: April 9 – 13**
- Compose first draft (due April 14th)
Week 8: April 16 – 20
- Finalize paper
- Prepare presentation

Week 9: April 23 – 27
- Finalize Paper (due April 25th)
- Prepare for conference (April 28th)
Works Cited


