WHAT TYPE OF COOPERATIVE LEARNING HAS THE BEST RESULTS
/EDUCATIONAL OUTCOMES?

By: Mary E. Eckley
CERTIFICATION OF PROJECT WORK

We, the undersigned, certify that this project entitled What Type of Cooperative Learning has the Best Results/Educational Outcomes? by Mary E. Eckley, Candidate for the Degree of Master of Science in Education, Curriculum and Instruction in Inclusive Education, is acceptable in form and content and demonstrates a satisfactory knowledge of the field covered by this project.

Master's Project Advisor
EDU 690 Course Instructor Carrie Fitzgerald
Department of Curriculum and Instruction

Date

Department Chair Mira Bezdek
Department of Education

Date

Dean Christine Givner
College of Education
At SUNY Fredonia

Date
Abstract

In researching cooperative learning, examining different types of grouping and group sizes will help teachers prepare to meet the needs of different students. In the classroom learning can happen when students work individually, in pairs, or in groups of three or more students. When choosing what size groups to use in the classroom it is crucial to look at the ability levels of the students in the classroom; this will help in deciding to use heterogeneous grouping or homogeneous grouping. Allowing students to work with others of different abilities levels and/or the same abilities levels can help in learning development. For this particular study the research was done using heterogeneous grouping and homogeneous grouping, with groups of three or more students. This study showed that for this particular groups of students involved in the research they performed best working in heterogeneous groups rather than homogenous groups.
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Introduction/Background

How does cooperative learning improve educational outcomes? There are three general approaches to cooperative learning: Working Independently, Working with a Partner, and Working in Groups. Working in cooperative learning groups of two or more students can be done both homogeneously and heterogeneously. Gifted and talented students along with students with disabilities may have both positive and negative views on cooperative learning due to their past experiences. Cooperative learning needs to be used properly in order to truly know if this form of teaching is effective. The five elements necessary for cooperative learning are: Student Interdependence, Face-to-Face Interaction, Accountability of all group members, Interpersonal Skills and Group Processing.

If cooperative learning is effective for student learning it should be embraced within the classroom; visa-versa if cooperative learning is not effective in student learning then it should not be used within the classroom. Therefore, through research, learning the importance and the benefit of heterogeneous and homogeneous grouping is necessary to increase student learning; along with how these groups influence high ability/gifted and talented students and low ability/students with disabilities. In order to focus in on the research the following questions will direct the research project:

1. Does student learning benefit more from working independently or working in groups?
2. Do gifted and talented students benefit from cooperative learning?
3. Do students with disabilities benefit from cooperative learning?
4. Is the ability level of students important in relation to the ways groups are set up?
Statement of the Problem

In reference to cooperative learning, a problem lies in deciding which approach is best to use in the classroom - homogeneous or heterogeneous groups. Researchers found that “the gain (from cooperative learning) is higher for high ability students than for low ability peers. Conversely, others have maintained that the improvement is more pronounced for the low ability group” (Koh, C., Tan, O., Wang, C.K., Ee, J., Liu, W., 2007, p.91).

High ability gifted and talented students and low ability/students with disabilities working together in a heterogeneous group can make the gifted students feel taken advantage of and students with disabilities feel inadequate. Since students with disabilities struggle in school, putting them in a situation in which they need to use their intelligence in order to interact with peers may cause them to feel uncomfortable and nervous. Due to the fact that some low learning ability students do not understand how to work with their peers when it comes to taking turns group work can be frustrating, and/or their lack of knowledge on some topics may make them feel left out.

If students with disabilities are put into the same group and expected to accomplish a task they may be faced with a situation with which they are uncomfortable. Due to the fact that learning is more difficult for students with disabilities, having the confidence to start, work through, and complete a project in a group with students of the same ability level may cause problems throughout the entire process, even with help from the classroom teacher.

Putting gifted and talented students in a homogeneous group can cause conflict. Having so many students with a high intelligence level trying to complete a task together can be difficult due to the fact that these students are often used to being correct and having the best ideas.
Because of this, when the students work together it can create disagreements on focus point and presentation of the task at hand.

It is important for educators to understand the problems with homogeneous and heterogeneous groups so that all students benefit from learning as much as possible. By knowing the makeup of student within a classroom a teacher can make a choice of grouping based on student ability and personality. Also, when putting students into groups educators should be mindful of those who work well together and need extra help, or whether close supervision is important in keeping the groups running smoothly.

**Review of Literature**

A literature review was completed to review the effectiveness of cooperative learning in the classroom. More specifically, what type of cooperative learning has the best results/educational outcomes? The literature provided information that states the importance of students working with their peers in the school. The research provided was gathered from SUNY Fredonia’s Reed Library in the *ERIC* database under an Educational search. This literature review focuses on three themes: Working Independently, Working with a Partner, and Working in Groups. There are five elements necessary for cooperative learning and this can be done in groups of students that are homogeneously and/or heterogeneously.

*Working Independently*

There are some students who feel more comfortable working individually, this could be because they are embarrassed of a learning disability, they have low self esteem, they like a challenge or simply just enjoy working independently. For students with disabilities or social disorders they “can become confused when working in a group because although their contributions may be accurate, the way in which they are delivered is inappropriate” (Stockall,
Due to the fact that they do not understand how to work with their peers by taking turns, group work can be frustrating, or their lack of knowledge on some topics may make them feel left out.

For students who wish to work individually, one option is “intermittent collaboration treatment” which is a “more individual experience in programming” (Lewis, 2011, p.106). Intermittent collaboration treatments, is when students work individually, but still have a partner. This partner is meant to give the student support, and these students can ask each other questions and help each other complete a task without doing the task together. According to Lewis, this partnership allows students to have more control over their own learning (Lewis, 2011). Working independently allows students to “pursue their individual interest […] which may increase enjoyment and reinforce learning” (Lewis, 2011, p.108). This is a great way to help students gain a positive outlook on school because working individually increases motivation by “taking ownership and pride in an accomplishment” (Lewis, 2011, p.108).

Working with a Partner

Working together in pairs allows students to help each other learn. By working with a partner students are able to understand a topic not only the way they view it but they way their partner views it giving both, “self and peer explanations” (Lewis, 2011, p.107). In classrooms there are students who are unsure of themselves and their ideas working together allows both students to provide “support and be supported by learning partner” (Lewis, 2011, p.107). This idea of working together is a “peer-mediated instruction in which students work together to support each other it is an evidence based practice for improving performance in a variety of academic areas” (Marr, Algozzine, Nicholson & Dugan, 2011, p.256). Working in pairs allows students to learn how to share and take turns, when working in a peer-assisted learning
environment the students can be required to complete “sequential learning activities,” these activities have structure that teaches them these social skills (Tsuei, 2009, p.214). According to Tsuei (2009) “the peer-assisted learning strategy, may help students learn more successfully in content areas” therefore it not only prepares students socially but learning together increases their understanding of topics they are learning (p.215).

Another form of working with a partner is using pair programming; this is done on the computer. Students are still completing the work together but in this case one person is in charge of the computer and the other partner is in charge of the navigation, therefore, “pair programming requires a trade-off of hands-on experience for increased collaboration” (Lewis, 2011, p.106). Due to this increase in collaboration there is a positive effect “on the quality and development of reading skills, peer interaction and self-concept in elementary students” (Tsuei, 2009, p.214). The purpose of online peer-assisted learning is so that all students have an equal opportunity to learn, the online system can help all students reading skill equally benefit at any reading level from the learning process (Tsuei, 2009, p.228). With the different levels of abilities pair programming or any partner situation benefits students’ learning because each partner “contributes his/her personal experience, information, perspective, insight, skills and attitudes, which can help, improve the learning efficiency of others” (Klemm, 1994 & Kuppuswami, & Vivekanandan, 2004, p.252).

Working in Groups

According to McManus and Gettingger (2011) when students work in groups “self esteem not only improves but they also gain a positive attitude for school” (p.14). This increase in self esteem and this positive attitude about school will likely affect their education - these students will want to learn. With this new view about school and about themselves both the
student’s academic and social behavior will change. When working in groups “all group members work cooperatively to learn material, solve problems, or find answers to questions” (McManus, & Gettinger, 2011, p.14). When students are introduced to the task being required for cooperative learning less time is required for teacher whole-class instruction, allowing students to be able to take control of their own groups. The teacher is then able to give more one on one feedback and instruction for each group (Dyson, Linehan & Hastie, 2010). By working together, “cooperative learning and communal approaches to fitted education promoted fairness in school and fostered a learning or task orientation” (Feldhusen, Yun Dai and Clinkenbeard, 2000, p. 329). Groups may also “divide the work among them and complete it individually with little or no help from other students of the group” this gives each student the opportunity to do what they are best at for a particular group project (Kuppuswami, & Vivekanandan, 2004, p.252). Allowing students to complete the task they strive doing in the group becomes a positive reinforcement and other group members will give “recognition for his[her] contribution to the conversation and empowers him[her] by giving his[her] voice a valued place in the group” (Stockall, 2011, p.23). “Although the methods are quite specific, the essence of student grouping is to further social interaction, provide opportunities for social/communication engagement, allow for multiple perspectives to be shared while completing a task, offer interactions where students listen and communicate with peers, and generally foster collaborative engagement”(Stockall, 2011, p.18).

Five Elements

Within the topic of cooperative learning it is important to know and use the Five Essential Elements that should be included in this type of learning. “According to Johnson and Ahlgren (1976) and Johnson et al. (2007), group dynamics play an important role in effective
collaboration, and positive interdependence or cooperation is key to a group’s ability to accomplish a common goal” (Tsay, M., Brady, M., 2010, p.80). The first element is Positive Interdependence; this is getting the individual student to work in a team in order for everyone to succeed. Then there is face-to-face, this is the element that required team members to interact with each other verbally by using feedback and sharing research. Face-to-face verbal interaction is meant to create a positive form of group communication which “helps in […] social competence” (Singh, 2010, p.6). Individual and group accountability is the idea that each group member is held responsible for their own part of the work and the group is responsible for the work as a whole. Interpersonal or Collaborative skills are the element in cooperative learning that teaches students to trust and learn leadership. By learning these skills it allows the group to make decisions, deal with conflict and build communication. The last element of cooperative learning teaches students to create group goals, assess whether or not these goals are met and how to reflect on what they have done, this element is group processing. “In a cooperative learning environment, learners are encouraged to be in the center of learning and learn together” (Faryadi, 2007, p.2).

Heterogeneous Grouping

Heterogeneous grouping “benefits to low- and middle-ability students are often a motivation for implementing the practice. Indeed, most cooperative learning “teams” suggest a composition of one low- ability student, two medium-ability students, and one high-achieving student” (Huss, 2006, p.20). Gifted and talented students and students with disabilities working together in a heterogeneous group can make the gifted students feel taken advantage of and students with disabilities feel inadequate. With heterogeneous grouping, “the concern is that gifted students who are grouped with nongifted students may, due to a number of factors, have
their opportunities for learning curtailed” (Patrick, Bangel, Jeon & Townsend, 2005, p. 91). “Heterogeneous grouping typically fails to inspire or advance most gifted students, leaving them bored, frustrated, and even anxious” (Huss, 2006, p. 20). Due to the possible lack of inspiration in learning for gifted and talented students, “Educators of the gifted have been cautioned to approach the cooperative learning bandwagon with ‘caution.’ […] Are the goals of cooperative learning inconsistent with the needs of gifted students?” (Huss, 2006, p.19). Not only can gifted and talented students fail to be inspired in heterogeneous groups but, according to Huss (2006) “gifted students […] often feel exploited when cooperative learning is used as a predominate method of instruction and groups are configured heterogeneously.” Although there are some negatives toward high ability students working with low ability students studies show that, “increased social skill behaviors (how to work with others, communicate effectively, form trusting relationships, resolve conflicts, and provide shared leadership in the group) and improve self-esteem, attitudes toward school, and acceptance of differences” (Matthews, 1992, p.48). Working in heterogeneous groups is often useful for the learning process of gifted and talented students because it can help increase their social development and help to increase their communication skills (Rogers, NA). Therefore, “teaching students to learn and work cooperatively in schools prepares them for a multicultural society in which they will live and work with people from whom they have previously been segregated and alienated” (Sapon-Shevin, Schniedewind, 1993, p.62). In a study done with an ESL class, heterogeneous grouping was used in a way that students were put into groups based on their understanding of the English language. This particular cooperative learning configuration helped students who were new to the English language learn from their peers, by assisting each other and correcting each other, in a way that connected language and culture with learning development (Gagne` & Parks, 2013).
According to Marlow, “most educators appear to advocate cooperative learning in the curriculum. Pupils then are to work together harmoniously to achieve objectives in the curriculum […] cooperative learning may truly be heterogeneous with increased diversity in terms of pupil abilities” (Marlow, 2001, p.3).

*Homogeneous Grouping*

Putting gifted and talented students in a homogeneous group can cause conflict. Having so many students with a high intelligence level trying to complete a task together can be difficult due to the fact that these students are used to being correct and having the best ideas. Because of this, when the students work together it can create disagreements on focus point and presentation of the task at hand. “It is important for your children to understand that they are not competing with each other, but that they are combining ideas to help each other” (Grambo, NA, P.2). Although cooperative learning is not meant to create a competition between learners, “gifted students will learn humility and democratic values much better by being places with their intellectual peers” when working in homogeneous groups (Matthews, 1992, p.49). According to Brady and Tsay (2010), “Students who perceived grades as highly important were evaluated by their peers to be more active in cooperative learning.” Therefore gifted and talented student may enjoy working together more because they receive the best grades. Homogeneous grouping for gifted students is a way to help prevent these learners from being held back by their peers who require the class lessons to move at a less intense pace (Nicholson, 1999). However, research does not go into depth with homogeneous grouping. Grouping students based on their ability level is a type of grouping that allows students of the same ability levels to receive the individualized instruction that can focus on the different needs encountered at each ability level (Nicholson, 1999). Gifted and talented students should be in homogeneous groups to help extend
their learning through the curriculum by increasing learning development (Rogers, NA). Details on how well low ability students learn from working with peers at their ability level is not focused on this same issue presents itself with high ability learners working with their peers at the same ability level.

*Tracking*

Tracking gifted learners provides students with a classroom that allows them to think critically, be creative, and increase their academic achievement (Rogers, NA). However, according to Joyce, “tracking is not a good thing” when using it in school it is “increasing segregation by ability and social background” (1991, p.74). Tracking is used in schools to split a grade level between classrooms based on students’ ability level, therefore all low ability students would be in one classroom, all high students in another classroom and the middle/average ability students would again be in a separate classroom. Tracking is the “separation of students by ability and sometimes curriculum” (Ansalone & Ming, 2006, p.4), which is basically separating an entire grade level into homogeneous classrooms. Some Educators, “argue that young adolescents, naturally inclined toward learning from their peers, need to be grouped with individuals who are different from themselves […] they struggle to establish a sense of their own identity; tracking often creates negative perceptions of lower-ability students that affect the students' self-perceptions” (Mills, 1998, p.2). Research has shown that due to this, “elimination of tracking, teachers reported positive social benefits, positive behavioral implications, and less parental competition. The teachers also felt that de-tracking had academic benefits due to the social nature of learning and the strong influence of the adolescent's peer group” (Mills, 1998, p.4).
Conclusion

As research shows, working with classmates helps students improve socially and academically. According to Stevens and Salvin, “Students with learning disabilities, who were in schools with cooperative learning, found more friendships than in traditional schools” (as cited in Zentall, Kuester, & Craig, 2011, p.29). Even when working individually students can still work with their classmates by asking each other questions when they need help. It is crucial to look at the ability levels of the students in the classroom; this will help in deciding to use heterogeneous grouping or homogeneous grouping. Allowing students to work with peers of different abilities levels and/or the same abilities levels can help with social and learning skills. “Working cooperatively involves group members combining efforts to accomplish a task. Students are responsible for ensuring that everyone in the group is involved in the task and understands and learns the material” (Patrick, Bangel, Jeon & Townsend, 2005, p. 94), by combining these efforts, multiple perspectives, abilities, talents, and experiences in reaching a common goal is believed to create learning opportunities for all group members that are less likely in traditional instruction” (Patrick, Bangel, Jeon & Townsend, 2005, p. 91-92). According to the literature, working in groups or with a partner will enhance students’ academic performance because by working together students can receive immediate feedback from their peers. The purpose of cooperative learning is to allow students to gain experience being accountable for themselves and also for their group, depending on the classroom setting and purpose of the task (Dyson, Linehan & Hastie, 2010). The teacher’s responsibility is to monitor student learning, provide groups with feedback, and model appropriate cooperative leaning behavior; it is the students’ job to complete the task, communicate, and cooperate with their peers in their group (Willis, 2007). Cooperative learning allows students to “have the opportunity to give help and receive help”
Researchers found that “the gain (from cooperative learning) is higher for high ability students than for low ability peers. Conversely, others have maintained that the improvement is more pronounced for the low ability group” With this in mind cooperative learning has shown benefits for all types of learners” (Koh, Tan, Wang, Ee & Liu, 2007, p.91). Over all, “cooperative learning is not just a teaching technique or strategy […] It entails learning to respect others’ differences and to interact successfully with people from different racial, ethnic, religious, and socioeconomic groups and whose skills are widely divergent” (Sapon-Shevin, Schniedewind, 1993, p.62). Cooperative learning provides learners with a learning environment that allows students to be active learners, learn at their ability level, work with and support their peers, and create a classroom community (Willis, 2007).

**Methodology:**

**Study Site**

The study location will be in a rural school district. This school is made up of a preschool, elementary, middle and high school combined. The specific level that this study will focus on is the sixth grade. This grade was chosen due to the fact that research in cooperative learning ranges from early childhood all the way to the graduate level; it was also chosen due to its diversity of learning abilities and range of students’ abilities in social studies. More specifically the sixth grade class that will be studied is the Social Studies Section. This class section was chosen due to the fact that the sixth grade Social Studies teacher uses a lot of cooperative learning already within his classroom. The study was done in the social studies section, using heterogeneous grouping for part of the study, and then switching to using homogeneous grouping for the other part of the study. Each cooperative learning grouping will be used over the course of one unit project and test.
Participants

The class size of the entire sixth grade is 91 students; they consist of 43 males and 48 females. The social studies class is broken up into four sections. Section one has 24 students in the room, 13 males and 11 females. Class section two has 14 males and 10 females making up 20 students. There are 23 students in section three with 9 males and 14 females. Then in section four with 20 students there are 9 males and 11 females. The sixth grade tracks their students’ abilities, because of this only one section was used for the study. Section three, 24 students were chosen due to the fact that it is the more heterogeneous class section. After consent forms were sent home to parents, 11 students had permission to participate in the study. The students for which permission to participate was not granted did complete the assignment for a classroom grade; however observations and scores for those students are not included in the findings.

Instruments and Field Trials

In completing this research I will receive assistance from the Social Studies Section classroom teacher. He will help me to split the classes into heterogeneous and homogeneous groups and administer and grade the projects. This will allow my roll to be the observer of how students work and interact together.

During both group project settings students will be observed on how they interact with their group, how involved they are and whether or not working with their peer seems to be a positive or negative experience. To show students achievement using cooperative learning academics will be based on the grades of the projects along with an individual test or quiz that will match the information that was covered through completing the group project. After both cooperative learning projects are completed, the students will fill out a “yes”/ “no” questionnaire and give explanations of their answers based on their cooperative learning experiences. This will
be a quantitative study by using the student’s project and test grades along with the number of yes/no answers from the questionnaires. The two test grades will be compared to one another to determine which group setting increased student learning. Then each of the student’s questionnaire answers will be compared to their individual test grades. Comparing the test grades to the questionnaire answers will be done to research whether or not the students notice which group setting is most beneficial for their individual learning or if student’s questionnaire answers conflict with their test scores.

Due to the timing of the study, the academics that were focused on were just the project scores and not test scores. The unit for the project did not involve two tests or quiz scores that would correlate with the project. The students did a six-part project that was also broken down into 6 grades for each section. The first 4 grade scores for the project were based on students working in heterogeneous groups, and the last two project scores were based on homogeneous group scores. Even though students were working together, each student was completing their own final project and receiving their own grade. Once each section of the project was finished and scored, students completed the survey about what type of group they would prefer.

Specific Issues or Questions to be Investigated

The specific issues of cooperative learning are based on how effective this strategy is with students. This research will focus on answering the following questions:

- Does Student Learning benefit more from working independently or working in groups?
- Do high ability and/or gifted and talented students benefit from Cooperative Learning?
- Do low ability and/or Students with Disabilities benefit from Cooperative Learning?
- Is the ability level of students important in relation to the ways groups are set up?
By using a questionnaire, observations, tests and project grades investigating the specific questions of cooperative learning will be answered in more than one way, giving a more exact outcome.

**Reasonable Alternative**

This research study will be quantitative and data will be collected based on grades and the number of yes/no answered in the questionnaire. A quantitative approach has been chosen for the research in order to try to eliminate as much bias as possible within this research study.

**Considerations**

Problems may arise in the completion of this cooperative learning research. Since students will be working in heterogeneous and homogenous groups, students maybe faced with frustration, confusion, and negativity. Frustration, confusion and negativity may come from working with classmates of differing ability levels, and/or working on a topic that is above or below students’ ability levels. Due to the negative emotions students may encounter, grades, teamwork, and overall experience for the entire group could be affected. However, students will be participating in both group settings, which will allow for students and the classroom teacher to learn who works best together and in what type of setting.

**Limitations**

When choosing a group of students to participate in this research, the classroom chosen was due to the fact that cooperative learning was already a part of their everyday learning; therefore, it presented these students with less of a risk. However, the grade level at this school is tracking the student by their ability level; this created a problem with finding a classroom section of students to participate. In order to try to reach valid results students in the study had to be a part of a classroom that consisted of high ability learners, average ability learners, and low
ability learners. In the overall grade level at this particular school, there are 91 students. In the specific class section chosen for the study, the number of potential participates decreased to 24 students. Of those 24 students, only 11 of those students were give parental permission to participate in the study. The tracking of students’ by their ability level became a limitation because in the end in significantly decreased the number of students that were able to be in the study.

Other limitations in the study were how grades were assigned and how the student questionnaire was administered. The project grades became a limitation because at this point in the school year students are working on being responsible for their selves. Personal responsibility is a skill that is being taught in this class by having students complete their work, review the rubric with the classroom teacher and then the student grades their own project. This is a limitation due to the fact that students need to be trusted that they graded their project responsibly and properly calculated the number of points their project earned. Although the students completed the project in a group, the students each received an individual project grade. After scoring themselves individually, students then answered the questionnaire individually, based on their own experiences and opinions. The reliability of the questionnaire was somewhat compromised because students struggled with working individually and not communicating with their group members. Communicating with their group while filling out the questionnaire is a limitation; this is due to the fact that student answers are not guaranteed to be accurate to their individual opinion.

The main limitation with this study was the fact that this particular middle school tracks their students. This is a limitation because with students already being tracked by their academic performance it was difficult to find a class that had a range of ability levels to complete this
study. Since tracking already separates students into a homogeneous getting the teacher chose the class with the widest ability range that he teaches for the study.

Having to choose one class section instead of doing the entire class grade has decreased the amount of data that was able to be collected. This limitation caused the participants in the study to go from the entire sixth grade of 91 students down to just one class section of 24 students to ensure the study was being performed on the most heterogeneous classroom. This limitation took the number of participant and cut it down to ¼ of the original size selected for the study. When consent forms were sent home only 11 of the 24 students received parental permission to have their grades and surveys used for the study. Cutting the participant size down to 11 students ended up being only 1/8 of the original planned participant size of 91 students. The most heterogeneous class section needed to be used in order to gain accurate results in how students work in heterogeneous group verses homogeneous group; if another class section was used the class section would be too homogeneous to be able to collect accurate heterogeneous data from the students.

Students were given a grading rubric with which they would be graded. This rubric broke the project down into 6 different parts/topics, and then each topic was split into subtopics. The subtopics were each given a total number of points that could be earned- each point for a specific piece of information that need to be included in that subtopic. The subtopics totaled up equaled the score of the topic, then the score of the 6 topics or parts of the project equaled the score of the total project. This project scoring was a limitation in the study due to the fact that the teacher was having the students score their own project by following this rubric. This was a limitation because it meant having to trust that students would be honest about the scores they earned.

Another limitation involved the questionnaire. Students were sitting with each other when
filling out their answers for the questions and the classroom teacher reported that some students were discussing their answers. Discussing their answers is a limitation because it makes knowing what students answered questions honestly and not based on another classmate’s opinion difficult to determine.

Findings

The research investigated which type of cooperative learning group configuration had the best results or educational outcomes. This study was completed in a sixth grade social studies class. The results of this study showed that heterogeneous groups were more effective than homogeneous groups for the students in the study. Students were split into four ability group levels based on their Social Studies class performance over the past school year; level “1” was the high ability students, levels “2” and “3” were the average ability students and level “4” was the low ability students; “A”, “B” and “C” were used to label each student individually yet still by their group number. Their for student “A1”, “B1”, “C1” are all high ability students, “A2”, “B2”, “C2”, “A3”, “B3”, “C3” are the average ability students and “A4” and “B4” are the low ability students within the study.

Average Scores

When switching from heterogeneous groups to homogenous groups there was an average percent change of -7.86%. All five students’ mean grades decreased when working in a homogenous group setting rather than a heterogeneous group setting, and four students increased their mean grade while working in the homogenous groups. Out of the four students who increased their grade average in a homogeneous group, two of them were high ability learners, one student was an average ability learner and one student was a low ability learner.
Questionnaire

When viewing the results it was interesting to see that the majority of students did not seem to have a preference about which group they preferred working in. Students who indicated that they enjoyed working with their first group (heterogeneous group) also indicated that they enjoyed working with their second group (homogeneous group). Over all the majority of students also responded that they enjoyed working with other classmates at (63%) or above (88%) their ability level, however six students (55%) responded that they did not like working with students below their ability level.

Discussion

When viewing student average scores over all, most students performed better when working in a heterogeneous group setting. Out of the 11 students who participated in the study 7 students performed best in a mixed ability group, one of these students was a high ability learner and the other students ranged between average and low ability learners. However the range of students who received a higher grade in homogeneous groups also ranged between high ability learners and low ability learners; 2 students were high ability learners, 1 student was an average learner and 1 student was a low ability learner. Even though this data shows that students who are high ability learners are the student would are more likely to perform best in a homogeneous group it still shows that they are not the only learners that work best in this setting.

Data for Specific Issues or Questions

The research question: “Does student learning benefit more from working independently or working in groups” was not determined due to the fact that for this particular study an individual project score was not included. Therefore, benefits of working independently were inconclusive for this study.
For this particular study the information on gifted and talented students and students with
disabilities was not presented or released to the researcher, therefore the research questions “Do
gifted and talented students benefit from cooperative learning?” and “Do students with
disabilities benefit from cooperative learning?” cannot be fully resolved. However, this study did
show that both high ability performing students and low ability performing students did have
their scores benefit from working in a cooperative learning group. Two out of the three students
labeled as high ability students benefited more from working a homogenous group than a
heterogeneous group, the third student “A1” in this category was absent for part of the study so
his/her score could not be calculated for this section. With the low ability students, student “A4”
benefited more from working in a homogeneous group and student “B4” benefited most by
working in a heterogeneous group setting.

In relation to the research question: Is the ability level of students important in relation to
the ways groups are set up? The data show that yes, the ability of the students is important when
using cooperative learning. This data is important because it is it important to know what
students work best in what type of group setting. If a homogeneous learner is put into a
heterogeneous group this may affect the outcome of their grade in a negative way, visa versa for
heterogeneous learners in a homogeneous setting. How even the data is also inconclusive for this
question since there was not a randomized group used that was not based on students’ ability
level.

Implications for Future Research

To increase validity and reliability, future studies would benefit from including more
participants. Working with a class of 24 students and only getting permission for 11 students to
actually participate was not ideal for gathering a significant amount of data. Increasing the number of students in the study would help to increase the validity of the study.

Another consideration for future research is to determine whether or not the school is tracking students based on academic grades and abilities. Tracking made the research difficult due to the fact that students were in a homogenous classroom setting; having students in classrooms with mixed ability levels would have likely impacted the outcomes for this study.

Additionally, starting the research with a baseline measurement would show if cooperative learning is truly helping the student improve his/her grades. Having data on the students’ abilities to work independently would allow the researcher to determine whether working with a group was beneficial and effective for the learner. With this in mind, future researchers might also have the teacher grade the students’ work on the project, making the data more accurate rather than risking gathering unreliable data.


Appendix A

Name: [Insert Name]

Questionnaire

1. Did you enjoy working with your first project group/partner? YES/NO  Explain Why?

2. Did you enjoy working with your second project group? YES/NO  Explain Why?

3. Do you prefer to work with classmates that work or learn above your ability level? YES/NO Explain Why?

4. Do you prefer to work with classmates that work or learn at your same ability level? YES/NO Explain Why?

5. Do you prefer to work with classmates that work or learn below your ability level? YES/NO Explain Why?
## Appendix B

<table>
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Appendix C

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**Average Scores**

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<td>81%</td>
<td>91%</td>
<td>12.35%</td>
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<tr>
<td>B2</td>
<td>70.50%</td>
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<td>A3</td>
<td>52.25%</td>
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<td>B3</td>
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<td>43.50%</td>
<td>-47.43%</td>
</tr>
<tr>
<td>C3</td>
<td>58%</td>
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<td>-23.28%</td>
</tr>
<tr>
<td>C1</td>
<td>78%</td>
<td>98.50%</td>
<td>26.28%</td>
</tr>
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<td>2.93%</td>
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<td>C2</td>
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<td>50.50%</td>
<td>-35.26%</td>
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<tr>
<td>B4</td>
<td>65.25%</td>
<td>59%</td>
<td>9.58%</td>
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**Average Percent Change**: -7.86%

5 Students Decreased, 4 Students Increased
### Appendix D

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<td>Question 1 Did you enjoy working with your first project group?</td>
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<td>Question 2 Did you enjoy working with your second project group?</td>
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<td>1</td>
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<td>Question 3 Do you prefer to work with classmates that work or learn above your ability level?</td>
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<td>Question 4 Do you prefer to work with classmates that work or learn at your same ability level?</td>
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<td>3</td>
<td>1</td>
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<tr>
<td>Question 5 Do you prefer to work with classmates that work or learn below your ability level?</td>
<td>3</td>
<td>6</td>
<td>2</td>
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</tbody>
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### Questionnaire Responses

![Questionnaire Responses Graph]

- **Question 1**: Did you enjoy working with your first project group?
  - Yes: 7
  - No: 4
  - No Response: 0

- **Question 2**: Did you enjoy working with your second project group?
  - Yes: 8
  - No: 2
  - No Response: 1

- **Question 3**: Do you prefer to work with classmates that work or learn above your ability level?
  - Yes: 9
  - No: 2
  - No Response: 0

- **Question 4**: Do you prefer to work with classmates that work or learn at your same ability level?
  - Yes: 7
  - No: 3
  - No Response: 1

- **Question 5**: Do you prefer to work with classmates that work or learn below your ability level?
  - Yes: 3
  - No: 6
  - No Response: 2
Appendix E

STATEMENT OF INFORMED CONSENT FOR STUDENTS

This form describes a research study being conducted with students about how cooperative learning/working in groups’ effects student learning. The purpose of this research is to understand if student grades are positively affected by working in groups. The person conducting the research is a Graduate student in the Curriculum and Instruction program at SUNY Fredonia. If you agree to participate in this study, you will be asked to complete a questionnaire about your opinion in the types of groups that you prefer to work with and your unit test grade and project grades will be compared.

The possible benefit from being in this study could be that information will be learned that would allow teachers to better prepare the group work set up within their classrooms.

Your participation in this study is completely voluntary. Being in this study or refusing to be in it, will not affect your grades or class standing. You are free to change your mind or stop being in the study at any time.

I understand that:

1. Your participation is voluntary and you have the right to refuse to answer any questions. You will have a chance to discuss any questions you have about the study with the researcher after completing the questionnaire.

2. Your confidentiality is protected. If any publication results from this research, you will not be identified by name. Results will be given anonymously and in group form only, so that neither you nor your school can be identified. Participation will have no effect on grades status.

3. This study shows no sign of risk to you the student due to the fact that group work is a strategy that your classroom teacher is already using. Your classroom teacher will also be the one putting you and your classmates into groups, this help prevent risk since he is already familiar with the 6th grade class.

4. Your participation involves allowing the researcher to view and use your grade results and you will read a written survey of 5 questions and answering those questions in writing. It is estimated that it will take 15 minutes to complete the survey. And grade will be taken from two unit test.

5. Approximately the entire 6th grade class will take part in this study. The results will be used for the completion of a research project by the primary researcher.

6. Data and consent forms will be kept separately in a locked filing cabinet by the investigator and will be destroyed by shredding when the research has been completed.
You are being asked whether or not you will participate in this study. If you wish to give permission to participate, and you agree with the statement below, please sign in the space provided. Remember, you may change your mind at any point and withdraw from the study. You child can refuse to participate even if you have been given permission by your parents to participate.

I understand the information provided in this form and agree to participate as a participant in this project. I have read and understand the above statements. All my questions about my participation in this study have been answered to my satisfaction.

If you have any questions you may contact:

<table>
<thead>
<tr>
<th>Primary researcher</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary E. Eckley</td>
<td>Dr. Carrie Fitzgerald</td>
</tr>
<tr>
<td>Phone Number N/A</td>
<td>(716) 673-4652</td>
</tr>
<tr>
<td><a href="mailto:EckI1505@fredonia.edu">EckI1505@fredonia.edu</a></td>
<td><a href="mailto:Carrie.Fitzgerald@fredonia.edu">Carrie.Fitzgerald@fredonia.edu</a></td>
</tr>
</tbody>
</table>

Child’s Name ___________________________

Child's signature and date ___________________________  __________
STATEMENT OF INFORMED CONSENT FOR PARENTS

This form describes a research study being conducted with students about how cooperative learning/working in groups’ effects student learning. The purpose of this research is to understand if student grades are positively affected by working in groups. The person conducting the research is a Graduate student in the Curriculum and Instruction program at SUNY Fredonia. If you agree to have your child participate in this study, s/he will be asked to complete a questionnaire about her/his opinion in the types of groups they prefer to work with and their unit test grade and project grades will be compared.

The possible benefit from being in this study could be that information will be learned that would allow teachers to better prepare the group work set up within their classrooms.

Your child's participation in this study is completely voluntary. Being in this study or refusing to be in it, will not affect your child's grades or class standing. S/he is free to change her/his mind or stop being in the study at any time.

I understand that:

1. My child's participation is voluntary and s/he has the right to refuse to answer any questions. S/he will have a chance to discuss any questions s/he has about the study with the researcher after completing the questionnaire.

2. My child's confidentiality is protected. If any publication results from this research, s/he would not be identified by name. Results will be given anonymously and in group form only, so that neither the participants nor their schools can be identified. Participation will have no effect on grades status.

3. This study shows no sign of risk to your child due to the fact that group work is a strategy that the classroom teacher is already using. The classroom teacher will also be the one putting students into groups, this will help prevent risk since he is already familiar with the students.

4. My child's participation involves allowing the researcher to view and use their grades and they will be reading a written survey of 5 questions and answering those questions in writing. It is estimated that it will take 15 minutes to complete the survey.

5. Approximately the entire 6th grade class will take part in this study. The results will be used for the completion of a research project by the primary researcher.

6. Data and consent forms will be kept separately in a locked filing cabinet by the investigator and will be destroyed by shredding when the research has been completed.

You are being asked whether or not you will permit your child to participate in this study. If you wish to give permission to participate, and you agree with the statement below, please sign in the
space provided. Remember, you may change your mind at any point and withdraw from the study. Your child can refuse to participate even if you have given permission for her/him to participate.

I understand the information provided in this form and agree to allow my child to participate as a participant in this project. I am 18 years of age or older. I have read and understand the above statements. All my questions about my child's participation in this study have been answered to my satisfaction.

If you have any questions you may contact:

<table>
<thead>
<tr>
<th>Primary researcher</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary E. Eckley</td>
<td>Dr. Carrie Fitzgerald</td>
</tr>
<tr>
<td>Phone Number N/A</td>
<td>(716) 673-4652</td>
</tr>
<tr>
<td><a href="mailto:Eck11505@fredonia.edu">Eck11505@fredonia.edu</a></td>
<td><a href="mailto:Carrie.Fitzgerald@fredonia.edu">Carrie.Fitzgerald@fredonia.edu</a></td>
</tr>
</tbody>
</table>

___________________________________________ ______________________
Signature of Parent /Date

Child's name ________________________________
Appendix G

STATEMENT OF INFORMED CONSENT FOR TEACHER

This form describes a research study being conducted with students about how cooperative learning effects student learning. The purpose of this research is to understand if student grades are more positively affected by working in homogeneous groups or heterogeneous groups. The person conducting the research is a Graduate student in the Curriculum and Instruction program at SUNY Fredonia. If you agree to have the 6th grade class participate in this study, they will be asked to complete a questionnaire about their opinion in the types of groups they prefer to work with and their unit test grades and project grades will be compared.

The possible benefit from being in this study could be that information will be learned that would allow teachers to better prepare cooperative learning within their classrooms.

Student’s participation in this study is completely voluntary. Being in this study or refusing to be in it, will not affect student’s grades or class standing. Students are free to change their mind or stop being in the study at any time.

I understand that:

1. Student participation is voluntary and they have the right to refuse to answer any questions. Students will have a chance to discuss any questions they have about the study with the researcher after completing the questionnaire.

2. Student’s confidentiality is protected. If any publication results from this research, students would not be identified by name. Results will be given anonymously and in group form only, so that neither the participants nor the school can be identified. Participation will have no effect on grades status.

3. This study posed no sign of risk to the subjects due to the fact that cooperative learning is a strategy that the classroom teacher is already using. The classroom teacher will also be the one putting students into groups, this help prevent risk since he is already familiar with the students.

4. Student’s participation involves allowing the researcher to view and use their grades and they will be reading a written survey of 5 questions and answering those questions in writing. It is estimated that it will take 15 minutes to complete the survey.

5. Approximately the entire 6th grade class will take part in this study. The results will be used for the completion of a research project by the primary researcher.

6. Data and consent forms will be kept separately in a locked filing cabinet by the investigator and will be destroyed by shredding when the research has been completed.

You are being asked whether or not you will permit the 6th grade class to participate in this study. If you wish to give permission to participate, and you agree with the statement below, please sign
in the space provided. Remember, you may change your mind at any point and withdraw from the study. Students can refuse to participate even if you have given permission for them to participate.

I understand the information provided in this form and agree to allow my child students to participate as a participant in this project. I have read and understand the above statements. All my questions about student participation in this study have been answered to my satisfaction.

If you have any questions you may contact:

<table>
<thead>
<tr>
<th>Primary researcher</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary E. Eckley</td>
<td>Dr. Carrie Fitzgerald</td>
</tr>
<tr>
<td>Phone Number N/A</td>
<td>Department and phone number</td>
</tr>
<tr>
<td><a href="mailto:Eckl1505@fredonia.edu">Eckl1505@fredonia.edu</a></td>
<td>Email address</td>
</tr>
</tbody>
</table>

___________________________________________ ______________________
Signature of Teacher /Date
Appendix H

**STATEMENT OF INFORMED CONSENT FOR PRINCIPAL**

This form describes a research study being conducted with students about how cooperative learning effects student learning. The purpose of this research is to understand if student grades are more positively affected by working in homogeneous groups or heterogeneous groups. The person conducting the research is a Graduate student in the Curriculum and Instruction program at SUNY Fredonia. If you agree to have the 6th grade class participate in this study, they will be asked to complete a questionnaire about their opinion in the types of groups they prefer to work with and their unit test grades and project grades will be compared.

The possible benefit from being in this study could be that information will be learned that would allow teachers to better prepare cooperative learning within their classrooms.

Student’s participation in this study is completely voluntary. Being in this study or refusing to be in it, will not affect student’s grades or class standing. Students are free to change their mind or stop being in the study at any time.

I understand that:

1. Student participation is voluntary and they have the right to refuse to answer any questions. Students will have a chance to discuss any questions they have about the study with the researcher after completing the questionnaire.

2. Student’s confidentiality is protected. If any publication results from this research, students would not be identified by name. Results will be given anonymously and in group form only, so that neither the participants nor the school can be identified. Participation will have no effect on grades status.

3. This study posed no sign of risk to the subjects due to the fact that cooperative learning is a strategy that the classroom teacher is already using. The classroom teacher will also be the one putting students into groups, this help prevent risk since he is already familiar with the students.

4. Student’s participation involves allowing the researcher to view and use their grades and they will be reading a written survey of 5 questions and answering those questions in writing. It is estimated that it will take 15 minutes to complete the survey.

5. Approximately the entire 6th grade class will take part in this study. The results will be used for the completion of a research project by the primary researcher.

6. Data and consent forms will be kept separately in a locked filing cabinet by the investigator and will be destroyed by shredding when the research has been completed.
You are being asked whether or not you will permit the 6th grade class to participate in this study. If you wish to give permission to participate, and you agree with the statement below, please sign in the space provided. Remember, you may change your mind at any point and withdraw from the study. Students can refuse to participate even if you have given permission for them to participate.

I understand the information provided in this form and agree to allow my child students to participate as a participant in this project. I have read and understand the above statements. All my questions about student participation in this study have been answered to my satisfaction.

If you have any questions you may contact:

<table>
<thead>
<tr>
<th>Primary researcher</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary E. Eckley</td>
<td>Dr. Carrie Fitzgerald</td>
</tr>
<tr>
<td>Phone Number N/A</td>
<td>Department and phone number</td>
</tr>
<tr>
<td><a href="mailto:Eckl1505@fredonia.edu">Eckl1505@fredonia.edu</a></td>
<td>Email address</td>
</tr>
</tbody>
</table>

___________________________________________ ______________________
Signature of Principal /Date