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Examining the Impact of Cooperative Learning Groups on Social Interactions in Inclusive Classrooms

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Abstract

Inclusive classrooms are becoming more prevalent in public schools, with many schools using push-in as a support for inclusion. While there is significant research supporting the benefits of push-in on academics for students, little is known about the social impacts of push-in. This study examined the academic and social benefits of a push-in, inclusive education for students with special needs and their general education peers. Previous research has demonstrated that the use of cooperative learning groups can be an effective strategy for inclusion. The focus of this study was on cooperative learning groups in an inclusive classroom. This strategy was implemented in a third-grade classroom and showed, overall, positive results. The study used a pre- and post- test design to collect data on the effectiveness of cooperative learning groups for students with special needs in the inclusive classroom. Additionally, an anonymous classroom survey was completed to determine additional social implications of cooperative learning groups. Results showed that, with the use of cooperative learning groups, the students with special needs showed an increase in the number of interactions with their peers, and the general education students agreed that the cooperative learning groups helped them work better with their peers.

Introduction

Public schools in the United States are becoming increasingly inclusive, something that was unheard of until only about 25 years ago. The Individuals with Disabilities Education Act (IDEA) of 1990, emphasized the concept of Least Restrictive Environment (LRE) and mandated that schools justify a student's placement outside of a general education setting. With this emphasis, LRE and inclusion of all students with disabilities became a priority in schools and classrooms across the country. Some of the core principles of IDEA, revised in 1997 and 2004, include the provision that all students have the right to free and appropriate public education, meaning students with disabilities have the right to go to public schools and receive all the support they need, at no additional cost to the family. Another provision of IDEA is the LRE which requires all students with special needs to be educated in an environment that best supports their learning and helps them succeed. IDEA also provided provisions on the role of general education teachers, such as their participation in the creation of Individualized Education Plans (IEP) and making accommodations in their classrooms (Friend & Bursuck, 2006).

What does it take, though, to be an inclusive classroom? One organization describes inclusion as an educational practice that allows all students with disabilities to be educated alongside their non-disabled peers in a general education classroom (*Inclusion*, 2016). Inclusion is also explained as a term that describes a commitment to educate every student in the general education classroom. It consists of bringing the services to the child and stipulates that the child benefits from being included in the class (Stout, 2001). Including a special education student in the mainstream classroom falls under the LRE, as defined by IDEA. The LRE is the environment in which a student will succeed the most. In this environment, the child is provided with the necessary support they need to succeed. For most students, this environment is the general

education classroom (Friend & Bursuck, 2006). The provision of LRE is something that benefits all students, which is why successful inclusion practices are so important.

There are several methods schools can use when designing inclusive special education practices that range from an Autism Support classroom where students spend most of their day to a fully-inclusive, co-taught classroom. Each approach comes with its own benefits and drawbacks and it is up to the school and parents to determine the setting that will yield the greatest academic and social gains for the student.

There are many different approaches to inclusion. One approach is full-time inclusion which places all students, regardless of their disability, into the general education classroom for the entire day (Stout, 2001). Some students, however, are best served in a segregated, support classroom that is designed to provide students with individualized, specialized instruction. Some students with Autism Spectrum Disorder require this individualized attention which can only be provided through an Autism Support classroom. In order for this approach to be a positive experience, the classroom environment must provide opportunities for social interaction, such as lessons in socially appropriate approach behavior that would help the child introduce themselves and start conversations. It also must provide opportunities for instruction, whether it be whole-group, small group, or individual (Arentz, 2014). An Emotional Behavioral Support classroom is another setting where students spend the majority of their days. These classrooms are designed to specifically support the social and academic development of the students. Pull-out programs for a student with an Emotional/Behavioral Disorder are also common. In the pull-out program, the student is in the general education classroom, but pulled out at times to go the Emotional Behavioral Support classroom for more intense social/emotional and academic support (*Services*, 2010). A Learning Support classroom is another setting where students can spend most of their

day. In this classroom, special education teachers provide specialized instruction to students for part of their day. This instruction is usually in Math or English/Language Arts and is provided in either a small group or one-on-one setting (Richmond, 2017).

Some schools have started using a push-in program of inclusion, or co-teaching. This approach to inclusion gives students access to relevant curriculum throughout the entire school day, but with the individualized support they need to be successful. The push-in/co-teaching model of inclusion is described as "the arrangement in which a general education teacher and a special education teacher or other specialist work together to educate students with special needs" (Friend, 2015, p. 16). 'Work together' is the key phrase in this definition. In order for a push-in model of inclusion to be successful, the special education teacher and the general education teacher must be able to successfully work collaboratively in order to provide the best education to all of their students (a provision outlined in IDEA). Tremblay (2012) describes four essential characteristics of a successful push-in model. The first is the need for two qualified, committed teachers. Second, the teaching should be done by both teachers, not just the general education teacher. Another essential characteristic of push-in inclusion is the need for general and special education students to be working alongside of each other in equal capacity in the same classroom. The fourth characteristic states that the learning must take place in a shared setting – it should not be exclusive to a specific population of students.

When push-in was first introduced as a model of inclusive practices, these characteristics were not always evident. The original goal was to place students with special needs in the general education classroom to learn alongside their peers, essentially meeting the provisions of LRE outlined in IDEA. However, it was not enough to just place the student in the classroom. The students needed individualized support and the general and special education teachers

needed to have a positive and professional relationship in order to help the student as much as possible. With this realization came new goals and an enhanced focus of the push-in model of inclusion: integrate special education strategies and techniques into the daily lessons. This approach helps students reach academic and behavioral IEP goals, while still participating in the general education classroom. The goal is to create an accepting classroom culture that acknowledges the different learning styles and creates lessons that employ differentiated instruction to address these differences (Friend, 2015).

With this overarching goal at the forefront, six different approaches to push-in inclusion have emerged as evidence-based practice (Friend, 2015). The first approach is station teaching in which all students are divided into groups and each group rotates through and number of stations that focus on specific content. For example, if students are learning place value in math, one station would require students to use base-ten blocks. Another would ask students to identify what place an individual number is in. A third station could have students applying this knowledge during an activity or game. One station is led by the general education teacher, while another is led by the special education teacher. In the example above, the general education teacher could lead the identification of place value station and the special education teacher would lead the base-ten blocks station. Both teachers would explain the process, model the thought process, and scaffold students' learning to help them understand. There can be other stations, as well, such as independent or group work. In this approach, both teachers are working with all students (Friend, 2015).

Parallel teaching is another approach to push-in inclusion. When teachers use this strategy, students are split into two groups: one works with the general education teacher, the other group works with the special education teacher. The educators can choose to teach in the

same way or take a varied approach to present the same information in an alternate manner that accommodates the unique learning needs of students (Friend, 2015).

The third method is alternative teaching which occurs when most students stay with the general education teacher and a smaller group works with the special education teacher (Friend, 2015). This approach can be especially helpful if a student is struggling with the lesson content because it provides more opportunity for small-group or individualized instruction.

A fourth method to push-in is teaming. In this approach the students are in one, whole group while both teachers co-instruct the lesson. In the fifth approach one teacher teaches while the other assists. As one teacher is teaching, the other walks around the classroom providing individual assistance to students as needed. The final approach is to have one teacher teach the class while the other observes and gathers data that can be used to improve future instruction (Friend, 2015).

All of these six approaches to push-in inclusion practices in a general education classroom meet the improved and focused goal of push-in – creating an inclusive classroom culture that acknowledges learning differences and plans instruction accordingly. It also meets the provisions of IDEA such as LRE and the general educators' role in the education of students with disabilities. Each of the six approaches involve both teachers and allows educators to plan instruction that incorporates special education strategies in order to provide a supportive classroom environment for all students.

Co-teaching as a method of inclusion is a relatively new approach and up until recently not much research has been done regarding the social benefits of this approach. Academic gains for students with special needs and their general education peers has been researched; however, less is known about social benefits for students in a co-taught, inclusive classroom.

With co-teaching, we are academically including students with special needs into the general education classroom, but what about their social inclusion? It is just as important that students with special needs feel socially connected to their inclusive classroom as they feel academically connected.

Review of the Literature

Academic Skill Development

As an increasing number of schools implemented co-teaching in a push-in model, a number of researchers (Barnes, 2009; Scruggs, Mastropieri, & McDuffie, 2007) investigated the effectiveness of this method on the academics of students with special needs. In a study of 25 elementary and middle schools using the push-in approach, only a few students with special needs did not make significant academic gains (Scruggs, et al., 2007). In 2005, Magiera and Zigmond analyzed co-teaching research and found that seven of thirteen studies looked at the academic achievement of students, finding that the academic achievement of students with special needs increased in the co-taught, inclusive classroom. Furthermore, Lundeen & Lundeen (1993) found that students' overall grades improved within the first semester of co-teaching in an inclusive classroom. When looking closer at time spent specifically on academic instruction in co-taught verses a segregated classroom, researchers found that 72 percent of the day in a co-taught classroom was spent on academic instruction, whereas in a segregated classroom, students were only receiving academic instruction 24 percent of their day. The study also found that peer-to-peer instruction and collaboration was significantly higher in the co-taught classroom – 18 percent verses less than one percent (Barnes, 2009).

The majority of studies exploring student academic changes in co-taught classrooms have focused on math and reading. In 2001, Rea, McLaughlin, and Walther-Thomas compared push-

in and pull-out models and found that within the push-in models students made significant gains in math, language, and science. Even more specific improvements were noted in students' reading/language scores. In 2009, Hang and Rabren published a study of students with Learning Disabilities that spanned a two-year period. They concluded that students scored higher in reading and math when they were in the co-taught classroom setting verses the special education, one-teacher setting. Two additional studies by Self (1991) and Klingner (1998) also found that with proper co-teaching, students' reading scores increased. Klingner found that while gains were made in math, they were not significant (Murawski & Swanson, 2001). Klingner's findings relate closely to several other studies in that significant gains are consistently made in reading, and while there were gains in math, they were not as significant as reading (Tremblay, 2012). In Rosman's study of a general education, high school math class, however, math scores increased significantly when co-teaching was done successfully (Murawski & Swanson, 2001).

The majority of studies investigating student academic achievement in co-taught classrooms focused on elementary and secondary school settings with significant exclusion of middle school settings. Scruggs et al.'s (2007) metasynthesis of 32 studies found that no investigations examined co-teaching in middle school classrooms and Murawski & Swanson's (2001) meta-analysis of grade-level studies included three focused on elementary classrooms (Kindergarten through six) and three at the high school level (grades nine to twelve). Tremblay (2012) examined mostly secondary studies, and some early elementary, finding a gap within first and second grade classrooms, in addition to the gap within middle school settings.

Even less is known about outcomes for general education student peer groups in co-taught classrooms. In a meta-analysis study (Murawski & Swanson**,** 2001), only two out of six researchers also examined the effect of inclusive practices on "average" or "high achieving"

students. Klingner (1998) and Vaughn (1998) included high achieving and average students in their studies. Klingner (1998) did not specifically report on general education peers; instead, he compared the students with special needs achievements to the average students in the inclusive classroom (finding gains for the students with special needs in reading). Vaughn (1998) reported specifically on the social outcomes for general and special education students in an inclusive classroom.

Many studies regarding push-in models of inclusion and co-teaching focus on the academic benefits for students. Some researchers (Vaughn, 1998; Carter, 2015; Grenot-Scheyer, Jubala, Bishop, and Coots, 1996) investigated the social gains for both students with special needs and their non-disabled peers in co-taught classrooms. While there is research on both academic and social gains, less is known about the social benefits of a push-in model of inclusion. Findings from the few studies that have been conducted regarding social gains are, overall, positive.

It is important to note that these studies focused on a variety of student populations with special needs. Many studies examined students with learning disabilities; however, some explored outcomes for students diagnosed with Autism Spectrum Disorder and other disabilities. Since not all students respond the same way to the same kind of teaching, the grade level and specific disability of each student should be taken into account when determining the best methods of push-in inclusion. However, for the purpose of this literature review, overall results that focus on social skill development will be analyzed.

Social Skill Development

Grenot-Scheyer, Jubala, Bishop, and Coots conducted a study in 1996 and concluded that there are many social benefits for students with disabilities in an effectively-run, co-taught

classroom. Their findings indicate that there was increased communication and social interactions between students, which lead to an increased opportunity to build a social network and friendships. These students also began to exhibit age-appropriate behavior and were actively participating in the school community. These social and emotional benefits stem from students working together and completing tasks alongside their non-disabled peers (Barnes, 2009).

Studies also examined the social benefits for the general education students in a co-taught classroom, indicating that there are just as many benefits for this population. Stahmer, Carter, Baker, and Miwa (2003) found that the general education students developed advanced social skills. There were less stereotypes, increased awareness, and higher rates of acceptance and responsiveness to others. Students also exhibited fewer disruptive behaviors. Additionally, Grenot-Scheyer, Jubala, Bishop, and Coots (1996) found that students had an improved self-esteem and a more positive attitude toward their peers with disabilities. For the general education student, learning in a co-taught, inclusive classroom also helps promote social responsibility (Mastropieri, Scruggs, & Berkely, 2007). An additional study found that both populations of students exhibited increased independence as a result of being in a co-taught classroom (Barnes, 2009).

Vaughn's (1998) study is the only one out of the six included in a meta-analysis that specifically examined social gains, finding an increase in peer acceptance and friendship, as well as collaboration – for both peer groups and students with special needs (Murawski & Swanson, 2001). Additionally, a 1997 study also found that there was an increase in cooperation among typically-developing peers in an inclusive, co-taught classroom (Scruggs et al., 2007).

Despite these noted benefits, a number of researchers, including McGovern (2015) and Mastropieri (2007), identified pitfalls that exist within a co-taught, inclusive classroom. For

students with disabilities, it can sometimes be difficult to keep up with their general education peers, both academically and socially. Additionally, some lose the constant, one-on-one support they need that they would otherwise have in a special education classroom (McGovern, 2015). Another challenge of push-in is that at times, the general education students will try to help, but end up doing everything for the student with special needs. This results in the student with special needs not getting the essential practice (and sometimes even content) that they need (Mastropieri et al., 2007).

As a general education student, there are also some challenges to push-in. McGovern (2015) found that general education teachers often struggle to keep up with the increased demands of teaching in a co-taught classroom, which can sometimes cause their involvement and instruction with students to suffer. Some additional challenges (for both populations) that can occur in an inclusive classroom relates to the use of paraprofessionals. Paraprofessionals' goals are to support the child; however, this can have some unintended costs. One social example of these consequences is that peers might be hesitant to start a conversation when a paraprofessional is there, or if they do, they will ask the paraprofessional rather than talking directly to the other students. This can single out the student with special needs, lessening the positive social benefits that can arise out of a successfully-taught push-in classroom. Some studies even show that the use of minimally-trained paraprofessionals in an inclusive classroom can lead to poor social outcomes and a loss of access to the general education curriculum (Carter, et al., 2015).

Within a fully inclusive, co-taught classroom, there are some evidence-based practices that help promote social inclusion and build social skills. Peer-mediated intervention (PMI) is one method that has proven to work in inclusive classrooms. PMIs are shown to be successfully used in inclusive classrooms as a way to increase the quality and quantity of social interaction

between students with and without special needs. PMIs have been used in classroom routines, like circle time, recess, and transitions. Academically, PMIs can be used across the content areas, but are especially helpful in science (Harris, 2010). In PMIs, peers take on an instructional role with their classmates. The general education students receive training to support the development of a specific skill that they will later use to help their special education peers. There are three methods of PMI that can be used. The first is peer proximity, when the peer models the desired behavior or task close to the student with special needs. The second is peer prompting/reinforcement. In this method, the peer verbally prompts the student and then provides feedback and reinforcement. The third, and most commonly used method, is peer initiation. This method requires the peer to initiate a conversation with the student with special needs such as asking a question, playing a game, giving instructions, etc. Research shows that using peers as role models for other students has the potential to be more beneficial socially than teacher modeling and instruction. The use of peers as mentors gives both students the ability to practice social behaviors in a natural environment, something that is especially beneficial for students with special needs (Webb, Hubbell, & Bedesem, 2012; Watkins, O'Reilly, Kuhn, Gevarter, Lancioni, Sigafoos, & Lang, 2015). Each method of PMI is unique, and it is important to consider the needs of individual students when determining what method to use (Watkins et al., 2015).

A similar approach, used mostly at the secondary level, is peer support arrangement. Peer support arrangements can provide a way for students to reach their social goals in natural settings. Research shows that when this is implemented, levels of social interaction and involvement with content were observed when students with special needs worked with two peers (rather than one). One study examined the social and academic outcomes for students with

severe disabilities when two students were used for peer support arrangement. Curricular contact and interaction with peers were both significantly higher when two students were used verses one or none (Carter, 2005).

Peer tutoring is another research-based approach that helps students develop social skills in an inclusive classroom (Mastropieri et al., 2007). The most common example of peer tutoring is the Peer Assisted Learning Services (PALS) program used in Kindergarten through twelfth grade. The PALS program pairs each student with a partner for a set amount of time, typically 35 minutes, for three days a week. The partner groups consist of one stronger student and one student who is struggling. In a reading class, the time spent in PALS would consist of the stronger reader reading a passage first, using their finger to help both students follow along. Then the developing reader would re-read the same passage. Both readers then have a retelling session, led by the stronger reader, to review key details of the text. Similar methods have been used in secondary classrooms for subjects such as math and history.

A third strategy that has demonstrated effectiveness for developing social (and academic) skills is cooperative learning groups (Mastropieri, 2007). This strategy consists of small groups of students, typically four to six people, working on various activities such as solving math problems, conducting science experiments, and even working out social conflicts. In order for cooperative learning groups to be effective, teachers need to specify the content objectives and interpersonal skills necessary for each specific activity. They must define the group roles (which should be based on student skill sets) to ensure that every student participates and gains something from the content/activity. Teachers also need to provide closure for all students at the end of the activity.

Mastropieri (2007) investigated cooperative learning groups in a fourth-grade science classroom and significant, positive results were analyzed. Two classrooms were teaching the same unit on ecosystems. In one inclusive classroom, cooperative learning groups were not used. In the other, cooperative learning groups were used. In this classroom of twenty-five students, there were five special education students (two with learning disabilities, one with an intellectual disability, and one with emotional behavioral disorder). Each group of three had two general education students and one special education student. Based on pre- and post- test data between the two classrooms, students in the cooperative learning groups significantly outperformed the students who did not participate in cooperative learning groups. When researchers analyzed the results further, they found that the students with disabilities performed average within their own class and above the average scores of those in the classroom that did not use cooperative learning groups (Mastropieri et al., 2007).

The three strategies mentioned within this literature review not only allow students to practice and develop social skills, but they also help students develop academically. Knowing the success of these methods, it is important to consider what works best. Perhaps a combination of two of these methods would be the best for both general and special education students. This is a question that is still relatively unknown to researchers. Additionally, many studies focused on special education students with a defined disability such as Autism Spectrum Disorder or mild cognitive impairment and we do not know how this plays out with all special education students or peer groups. Furthermore, the majority of these studies were performed in an early childhood/elementary setting and we, therefore, cannot assume that the results will be the same in a middle or high school classroom.

In summary, the majority of research has focused on academic outcomes for students in co-taught classrooms with particular attention given to reading and math gains for students with disabilities. Less is known about the social gains for this student population as well as their non-disabled classmates. A few studies investigated specific methods such as PMI, PALS, and cooperative learning groups as promising approaches that promote social gains for students with disabilities and their general education peer groups. However, this line of research is in its earliest stages and cannot be generalized for all students with disabilities and their peer group classmates or across all grade level settings. Further research is needed to determine which approaches yield the greatest social benefits for students in an inclusive classroom. This study will specifically look at cooperative learning groups and investigate the question: can cooperative learning groups enhance the social development of students with special needs in the inclusive classroom?

Procedure

This study examined the effectiveness of cooperative learning groups on social interactions between students with special needs and their general education peers in an inclusive classroom. The study included pre- and post-test data collection on the frequency of positive and negative interactions, anecdotal notes collected during implementation, and a survey with the students. A private notebook and locked computer account were used to collect and record data and survey responses.

Participants

In order to determine the effectiveness of cooperative learning groups on social interactions in an inclusive classroom, a study was conducted in a third-grade classroom. Participants were a convenience sample of students with identified disabilities and typically

developing students in an assigned placement classroom. There were 23 students: 11 boys and 12 girls. Three students had identified disabilities and IEPs. The three students with special needs were included in the pre- and post- test data collection, while every student was included in the survey component. Students in this sample were ages 8-9.

Strategy

The *how* of cooperative learning groups is an important part of its effectiveness. For this particular study, students were split into five assigned groups, each with four to five students. Unlike math and reading groups which change with the content and pace of learning, the cooperative learning groups, which were called 'think teams' stayed the same throughout the semester. To start, students worked in these groups for team building activities and science experiments. After they had been given some time to work together, specific roles were assigned to students. These roles were: Team Leader, Material Manager, Helper, Time Keeper, and Encourager. The roles rotated each week and were used to help students practice particular team skills. Students practiced these skills, among others, as they worked with their think teams for science experiments, team building exercises, and other STEM activities.

While the think teams were not used every day in this study, they were used at least once every week. The skills learned and focused on in cooperative learning groups were often carried into other group work settings, helping to strengthen the effects of cooperative learning groups for students.

Data Collection

Data collection included pre and post measures that examined the number of positive and negative social interactions between students with special needs and their general education peers.

Pre-implementation data was collected for two fifteen-minute time samples a day for one week on the amount of positive and negative social interactions between students with special needs and their general education peers. Data was recorded with tallies on a t-chart (positive interactions on one side, negative interactions on the other). Observations were taken at different times of the day depending on the type of activities happening in the classroom. For example, if there was a test, there would be no social interactions to record, so data was not collected at this time. The difference in observation times resulted in data being collected during several different activities. Some activities included math groups, science experiments, partner reading, and editing/revising. Verbal and nonverbal interactions between students were recorded during this study. Some positive interactions included encouraging speech and asking for help. Negative interactions included disrespectful statements or sitting away from the group (See Appendix A).

As cooperative learning groups were implemented, the researcher took anecdotal notes for about four weeks. After this time, post-implementation data was collected regarding the number of positive and negative social interactions between students. The pre- and post-test data was compared in order to determine the effectiveness of cooperative learning groups in an inclusive classroom. Results were analyzed based on percent increase data.

In addition to the data mentioned above, the students in both the general and special education classes completed a voluntary paper and pencil survey regarding their opinions of cooperative learning groups (See Appendix B).

Results

When cooperative learning groups were implemented in the third-grade, inclusive classroom, positive results were seen. Results were collected regarding three individual students'

progress and overall class opinions on the groups. All the names used in this study are pseudonyms.

Pre-Implementation Data

The first individual student, Victor, was a student with an IEP for Emotional Disturbances (ED). Victor spent the majority of the day in the general education class and entered third grade with several records of social and academic challenges in second grade. Before the cooperative learning groups were implemented, he had a total of 26 social interactions with peers in the selected time samples; 50% of these interactions were positive (See Table 1).

Table 1: Victor:
Over a period of 8 days. Before implementation of cooperative learning groups vs. after 3 weeks of cooperative learning groups.

	Before: #/%	**After: #/%**	**Percent Increase:**	**Percent Decrease:**
Positive Interactions:	13/50%	75/82%	477%	--
Negative Interactions:	13/50%	16/18%	--	23%
Total Interactions:	26	91	250%	--

The second individual student, Samantha, was a student with an IEP for a Specific Learning Disability (SLD). Samantha spent most of the day in the general education class and was pulled out for two 30-minute periods of time. Samantha was rather quiet and rarely interacted with her peers during second grade and this was also seen at the beginning of third grade. Before the cooperative learning groups were implemented, she had a total of five social interactions with peers during the selected time samples. Of these interactions, 60% were positive (See Table 2).

Table 2: Samantha:
Over a period of 5 days. Before implementation of cooperative learning groups vs. after 3 weeks of cooperative learning groups.

	Before: #/%	After: #/%	Percent Increase:	Percent Decrease:
Positive Interactions:	3/60%	38/97%	1,167%	--
Negative Interactions:	2/40%	1/3%	--	50%
Total Interactions:	5	39	680%	--

Finally, the third individual student, Alex, also had an IEP for SLD. He spent approximately 1.5 hours in the general education classroom, the rest of the time was spent in the learning support classroom. During the selected time samples before the cooperative learning groups were implemented, Alex had a total of ten social interactions with peers; 70% of these were positive (See Table 3).

Table 3: Alex:
Over a period of 6 days. Before implementation of cooperative learning groups vs. after 3 weeks of cooperative learning groups.

	Before: #/%	After: #/%	Percent Increase:	Percent Decrease:
Positive Interactions:	7/70%	38/84%	57%	--
Negative Interactions:	3/30%	7/16%	--	133%
Total Interactions:	10	45	350%	--

As the cooperative learning groups were implemented, anecdotal notes gradually showed these students becoming more comfortable with their peers and taking a greater involvement in both social and academic activities.

Post-Implementation Data

Post-implementation data showed that every student had an increase in positive interactions and a decrease in negative interactions (See Tables 1, 2, and 3 above and Figures 1 and 2, Appendix C).

Class Survey Results

Class survey results showed an overall positive opinion of the cooperative learning groups (See Table 4, Appendix C). Out of 19 students answering 7 questions, 56% of students were completely satisfied with their groups, 33% were mostly satisfied, with only 8% of students reporting some level of dissatisfaction with the groups. Only one student reported not enjoying the cooperative learning groups. Every student reported a strong or relatively strong increase in their groups ability to work together as a result of working in the cooperative learning groups. 84% of students responded that they believe they personally developed their skills in working with teams as a result of these groups. Additionally, all but three students reported that their groups helped them get to know their classmates better. When asked for additional comments on think teams, the largest concern (63%) regarded the focus of the groups - very few students expressed concern regarding getting along with peers or problem solving.

While this data is overall positive, there is still research to be done regarding the social impacts of cooperative learning groups for students with special needs in the inclusive classroom across grade levels and school settings.

Discussion

The results obtained from this study supported the initial hypothesis - cooperative learning groups can be a successful catalyst for positive social interactions among students with disabilities and their general education peers. These results are encouraging and are a step toward

finding successful ways to include students with disabilities both socially and academically in the general education classroom.

It is believed that this method was successful because students were always working together – with the same students. They were collaborating to complete science labs, create robots, and solve problems. Not only did this help them learn essential collaboration skills, but it helped them develop stronger relationships with their peers, which later translated into other parts of the school day, as well.

This particular research supports a recent study by Kim, Koegel, & Koegel (2017) in that the use of cooperative learning groups does not just show positive results when students are working in the groups, but during other class time as well. The study by Kim, Koegel, & Koegel (2017) found that when cooperative learning groups are not used, the number of reciprocal social interactions are significantly lower. Their findings, as well as the findings of this paper, strengthen the idea that the use of cooperative learning groups in classrooms not only benefit students just while working in the groups, but in other social scenarios as well.

Implications

This particular study, along with the research by Kim, Koegel, & Koegel, implies that cooperative learning groups are a successful way to help students with disabilities become more confident and involved with their general education peers. Cooperative learning groups help students develop collaboration and problem-solving skills as well as communication skills that can be used in more colloquial social situations.

Limitations

It is important to consider the limitations of this study alongside the successes. First, looking at the challenges that can (and will) arise with the use of cooperative learning groups.

Management of these groups proved to be difficult at times during this study, especially early on. As seen in Table 4, it was not always because students were not getting along, but rather because the focus and on-task behavior was lacking. Additionally, cooperative learning groups can be noisy; it is important to distinguish early on the difference between appropriate productive noise and noise that is not acceptable in the setting/situation.

This study was limited in that it took place in only one classroom with one group of students. Additionally, the study took place at the beginning of the school year when students are naturally going to have less interactions with their new peers. In order to obtain deeper, more confirming evidence on the effectiveness of cooperative learning groups, more studies will need to take place. These studies should be at different times in the school year and take place in different school settings and multiple classrooms with more than one group of students. The studies should also consider using the strategy with different ages of students. Additionally, it would be interesting to evaluate the results of cooperative learning groups on a broader selection of students with disabilities (have a greater representation of different disabilities).

Conclusion

Despite these limitations, this was overall a successful study. For this particular classroom and group of students, cooperative learning groups proved to increase the number of positive social interactions for students with special needs and their peers in the inclusive classroom. Inclusive classrooms are becoming more prevalent in public schools and it is more important than ever that we find ways to genuinely include students with disabilities in authentic social and academic activities in the inclusive classroom. As a result of this research (among others), cooperative learning groups can be seen as more than just a method to enhance

academics - they can have a profound impact on the positive, authentic inclusion of students with special needs in the inclusive classroom.

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Appendix A: Criteria for Interactions

Below is a list of the criteria used to determine what behaviors/interactions resulted in a positive tally and what behaviors/interactions resulted in a negative tally.

Examples of Positive Interactions:

• Sitting next to partner
• Listening to peers
• Offering to help a peer
• Contributing ideas to peer discussions
• Volunteering to be a partner/Agreeing to partner work
• Engaging in conversations with peers
• Exhibiting problem solving skills
• Making encouraging comments to peers

Examples of Negative Interactions:

• Sitting away from partner or group
• Ignoring peers
• Not contributing to peer discussions
• Refusing to read with groups
• Shouting at peers
• Missing social cues (continuing talking when people have moved onto other topics)
• Saying mean things to peers
• Rolling eyes/Negative body language

Appendix B: Student Survey

What Do YOU Think About Our Think Teams???

Directions: Circle the answer you agree with for each question. If you have comments, you can write them on the line below the question. If you want to skip any answers or stop the survey, you can just turn it in. Nothing will happen if you don't answer some (or all) of the questions.

1. Do you like working with your think team?


Yes


Sort Of


No

_____

2. Do you think you all work well as a team?


Yes


Sort Of


No

_____

3. Do you think you all have gotten better at working as a team?


Yes


Sort Of


No

_____

4. Do you think **YOU** have gotten better at working with a team?


Yes


Sort Of


No

_____

5. Do you think your think team helped you get to know your classmates better?


Yes


Sort Of


No

---

6. Do you think your think team helped you get along better with your classmates? (For example: Can you solve problems better now?)


Yes


Sort Of


No

---

7. Do you think you learned more when you were working with your think team?


Yes


Sort Of


No

Is there anything else you want to tell me about your think team?

Thank You! 

Appendix C: Additional Data

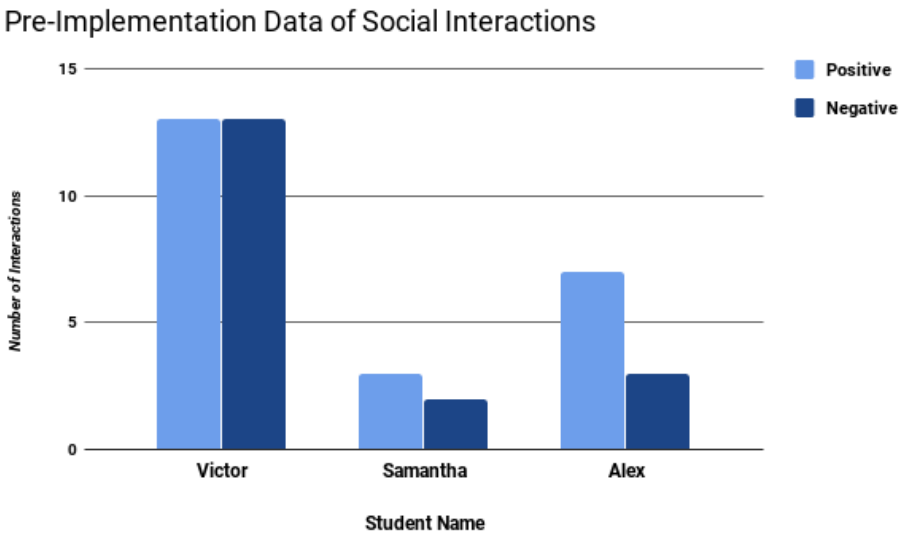

Figure 1: Total number of positive and negative interactions for the three students before cooperative learning groups were implemented.

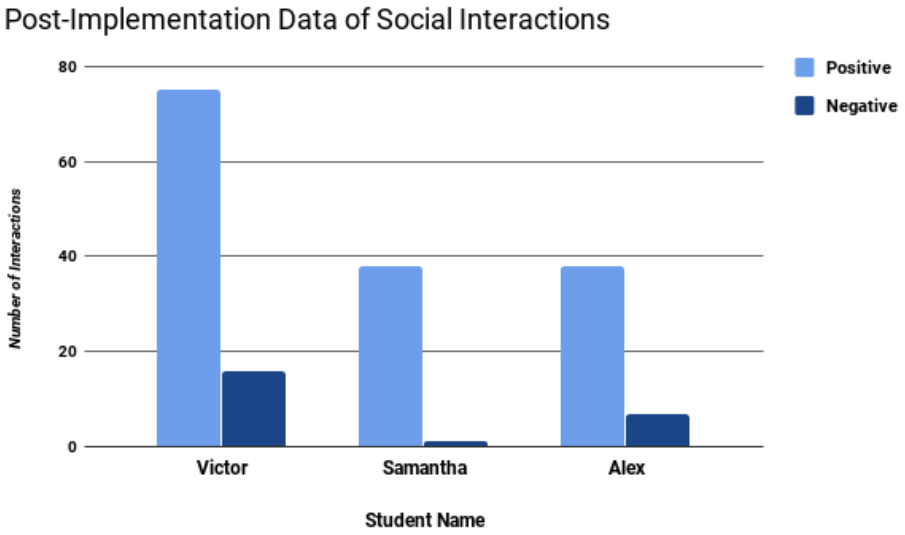

Figure 2: Total number of positive and negative interactions for the three students after cooperative learning groups were implemented.

Table 4: Student Survey Results: Question-by-question results from the paper-and-pencil student survey.

Question:	**Yes:**	**Sort Of:**	**No:**	**No Response:**
1. Do you like working with your think team?	7	11	1	0
2. Do you think you all work well as a team?	6	9	4	0
3. Do you think you all have gotten better at working as a team?	13	6	0	0
4. Do you think YOU have gotten better at working with a team?	16	3	0	0
5. Do you think your think team helped you get to know your classmates better?	13	2	3	1
6. Do you think your think team helped you get along better with your classmates (problem solving)?	10	7	1	1
7. Do you think you learned more when you were working with your think team?	10	6	2	1
Additional Comments:	• My think team was okay because sometimes they argued. • People aren't participating with the group a lot. • I love working in think teams! • Some people did not help other people learn because they did not listen. • We can do better. • Sometimes two people talk, but the other people try to keep them focused. • It was okay. Everybody was loud in our group and we argued a little. • Sometimes we messed around.			
Total:	75	44	11	3
Total Responses:	19/Question → 133 Total Collected Responses			