

1-1-2010

# The impact of coteaching on regular education eighth grade student achievement on a basic skills algebra assessment

Misty B. Rigdon  
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2010

Abstract

The Impact of Coteaching on Regular Education  
Eighth Grade Student Achievement on a Basic Skills Algebra Assessment

by

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Ed.S., Valdosta State University, 2003  
M.Ed., Valdosta State University, 1998  
B.S., Georgia Southern University, 1996

Doctoral Study Submitted in Fulfillment  
of the Requirements for the Degree of  
Doctor of Education  
Teacher Leadership

Walden University  
June 2010

## ABSTRACT

Coteaching strategies have been implemented in many of the inclusion math classrooms in an attempt to improve the achievement of students. Math achievement continues to be a concern as reported by the National Mathematics Advisory Council in 2007. Educators and previous research reported that coteaching does not improve student achievement. The purpose of this study and the research question was designed to investigate, determine, and examine if coteaching has an impact on regular education students' achievement on an algebra assessment in the eighth grade. This concurrent mixed methods design used test data from a convenience sample of 70 eighth grade students and 6 math coteachers from a small rural middle school in a southern U.S state. The students were divided into a cotaught class (experimental) and a noncotaught class (control group). The teachers' perception and implementation of the coteaching model within the inclusive classroom was determined through interviews using a semi-structured interview guide. Students' achievement was measured based on math scores on a Basic Skills Algebra Assessment given at the beginning and end of 12 weeks. A two-way analysis of variance (ANOVA) was conducted to assess if differences exist on algebra achievement scores by group (control vs. treatment) and time (pretest vs. posttest). The results of the post hoc analysis, consisting of two independent sample  $t$  tests and two dependent sample  $t$  tests, revealed that significant mean differences did in fact exist on algebra achievement scores for only the experimental group suggesting that scores increased from pre to posttest. The interview data indicated that the teachers' perception of student learning was greater in the cotaught classroom. Evidence is provided to coteachers and administrators in support of implementing the coteaching model. It supports a change in students' attitudes and perceptions of other's differences as well as their ability to learn mathematics.



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## DEDICATION

I would like to dedicate this research to my family, whom sacrificed much of their time during the last several years. My children and my husband have been understanding and encouraging throughout this endeavor. My parents have also been supported during this time. Without their help and support, this goal could have never been reached.

## ACKNOWLEDGEMENTS

This research could never have been written without the support and encouragement of Dr. Douglas Eicher and Dr. Sherry Harrison. Their expertise, help and support are greatly appreciated. To the participating co-teachers at Bacon County Middle School, I am forever grateful. Without your willingness to participate, this study could have not been completed. To my husband, I am thankful for your encouragement to fulfill this aspiration. To my children, I appreciate your patience and the time that you sacrificed for me while striving to reach my goal.

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## SECTION 1: INTRODUCTION TO THE STUDY

### Background

With the great demands of PL 94-142 in 1975, that required the placement of a student with a disability into the least restrictive environment (LRE) and the demands of accountability brought about by the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, §115, Stat.1425 (2002), students with disabilities were expected to achieve on grade level with the appropriate accommodations. The Individuals with Disabilities Education Act (IDEA) was reauthorized in 2004 to align with the accountability requirements of NCLB. The NCLB Act included greater accountability for students as well as an emphasis on effective researched-based teaching methods. O’Conner and Williams (2006) wrote a book, *Students with disabilities can make AYP: What every school leader should know*, to provide guidance for school leaders in the challenging position to ensure that students with disabilities increased their academic achievement in order for school systems to meet adequate yearly progress (AYP). School leaders and teachers focused on ensuring that all students with and without disabilities show impressive academic progress as mandated by NCLB. Students with disabilities were being placed in the regular education classrooms with the support of a special education teacher or paraprofessional in order to ensure the exposure to all essential standards. Mainstreaming or including students with disabilities into the regular education classroom required collaboration among regular education teachers and special education teachers. Special education teachers in the inclusion model were no longer used as a support person, but as a coteacher. Many school districts were trained and implemented coteaching strategies in order to meet all students’ needs. Standardized tests continued to

be the instrument used to measure all students' achievement; therefore schools were reforming their inclusion programs in order to meet the demands of all students achieving on grade level. Although special educators continued to move toward cotaught inclusion classrooms, there was still little research to support or refute this model. There were many cotaught classrooms in which students' achievement had increased, but there were also classrooms that the achievement had not improved. Lee, Grigg, and Dion (2007) provided a summary of the Nation's Report Card: Mathematics 2007, which clearly showed that Georgia students with disabilities achievement in mathematics were continuing to fall behind. Only 34% of eighth grade students with disabilities and 66% of eighth grade students without disabilities across the state of Georgia performed at or above the basic level of math literacy. In 2005, the average score for a twelfth grade student with disabilities was 114, while the average score for a twelfth grade student without disabilities was 153. The score to demonstrate at or above the basic level of math literacy on the twelfth grade NAEP assessment in 2005 was 141. This report showed that the achievement gap between students with disabilities and students without disabilities continued to exist with the implementation of the inclusion model. Given this information, many educators were concerned that students without disabilities (regular education students) in the cotaught classroom were not improving at the same rate as those students without disabilities in the noninclusive classroom. Coteaching in the inclusive classroom provided students with access to a lower teacher student ratio, but did it provide opportunity for greater achievement gains.

Many intervention strategies had been implemented, but due to lack of research, training, and teacher support these strategies had been ineffective. Burstein, Sears,

Wilcoxon, and Cabello (2004) reported that professional development was critical in promoting and preparing for inclusion. Collaboration between the special education teacher and the regular education teacher had been used as a means of improving student achievement as well as the students' social skills. Cook and Friend (1995) termed the collaborative teaching as coteaching. The level of implementation and the instructional strategies used in the coteaching, inclusive classroom could be used to determine the impact on student learning. Magiera and Zigmond (2005) stated that both teachers must be active instructors in order to provide more instructional opportunities for students with and without disabilities. Special education teachers must go beyond monitoring and observing within the inclusion classroom. Effective instructional strategies were the key to student achievement (Marzano, Pickering, & Pollock, 2001). Effective classrooms had effective instructional strategies. Luster and Durett (2003) found that there was a positive relationship between greater inclusion and performance scores; however repeated references were made to effective instructional practices. Therefore, special educators must examine and analyze the effective cotaught classrooms to determine the instructional strategies or practices being used.

### Problem Statement

Regular education students and special education students are continuing to struggle in meeting the required score on math assessments; therefore educators are searching for effective instructional and organizational strategies to improve the math achievement. As reflected on the NAEP Assessment in 2007 for the state of Georgia, math was an area that needed improvement for many students.

With the federal mandates of LRE for students with disabilities, the growing trend of inclusion was a concern among many schools; therefore collaboration among regular education and special education teachers had been targeted. Coteaching strategies were being implemented in many of the inclusion math classrooms in an attempt to improve the achievement of all students; however educators are concerned that coteaching may be hindering the achievement of regular education students. Inclusion with coteaching strategies was often implemented with little training or understanding among the teachers; therefore successful coteaching was not occurring in all classrooms. Knowing that all students were expected to meet the required score on standardized tests with the appropriate accommodations, educators must focus on improving the instructional strategies in a cotaught mathematics classroom in order to improve the educational learning for all students.

#### Nature of the Study

This experimental, mixed-methods study interviewed teachers and compared test scores to evaluate the effectiveness of teachers' strategies and their collaborative, coteaching classrooms. It also compared the performance of regular education students in a collaborative coteaching classroom with regular education students who were not in a co-taught classroom.

Test data was collected from eighth grade students on a Basic Skills Algebra Assessment(BSAA). The data was used to compare the achievement of regular education students in a coteaching classroom and a noncoteaching classroom to determine if coteaching had an impact on their achievement. The teacher interviews were used to determine teachers' perceptions about coteaching and their level of implementation.

Previous research on successful coteaching had found such common characteristics, such as involvement in the professional development training, collaborative planning, shared beliefs and responsibilities, and positive teacher relationships (Isherwood & Barger-Anderson, 2008, Leko & Brownell, 2009).

### Purpose Statement

The purpose of this study was to determine if the coteaching model of inclusion had an impact on regular education students' achievement on a BSAA in the eighth grade.

### Research Question

Does inclusion with coteaching have an impact on regular education students' achievement on a BSAA in the eighth grade?

### *Research related questions*

What are the coteachers' perceptions of students' achievement and learning within the cotaught classroom?

### Hypothesis

*Nondirectional Hypothesis:* There is no significant difference in achievement among regular education students on a BSAA in the coteaching classroom and those not in a cotaught classroom.

*Directional Hypothesis:* There is a significant difference in achievement among regular education students on a BSAA in the coteaching classroom and those not in a cotaught classroom.

*Independent variable:* Inclusive cotaught classes and noninclusive regular education classes

*Dependent variable:* Student achievement

### Theoretical Framework

Vygotsky's theory of social interaction was often used as the primary foundation for the collaboration model. Vygotsky believed that students learned from each other; therefore it was important for students to work collaboratively in order to develop their own understanding. The social environment provided the learner with opportunities to share their ideas as well as hear the ideas of others. Vygotsky (1978) reported that students were able to learn at higher levels when asked to work collaboratively rather than independently. The social interaction among students in the collaborative model provided students with disabilities the opportunity to experience and explore ideas with students who did not have a disability. Integrating students with disabilities into the regular education classroom had a much more value than scheduling them merely for socialization skills.

The theoretical framework can be combined with the practical framework of effective instructional strategies. Effective instructional strategies were explained in detail by Marzano, Pickering, and Pollock (2001) in their book *Classroom Instruction that Works*. These strategies were analyzed and identified with their average effect size. These nine strategies included identifying similarities and differences, summarizing, reinforcing effort and providing recognition, homework and practice, nonlinguistic representations, cooperative learning, setting objectives and providing feedback, generating and testing hypotheses, and question, cues, and advanced organizers.

## Definition of Terms

*Regular education students:* Students who have no diagnosed or identified disability

*Coteaching:* Coteaching included a classroom that consisted of students with disabilities and regular education students. The cotaught classroom had two teachers, one a regular education content specialized teacher and a special education teacher. The teachers worked cooperatively in providing the instruction with the classroom.

*Basic Skills Algebra Assessment (BSAA):* An algebra assessment that was designed to be given within a set time limit. The assessment covered basic algebra concepts such as, simplifying variable expressions, solving simple linear equations, simplifying radical expressions, and finding slope and intercepts. The assessment was given using standardized direction and a 7 minute time limit.

## Assumptions

It was assumed that participants in this study represented the general population of eighth grade students including students with specific learning disabilities, other health impaired disabilities, or emotional/behavior disabilities. It was also assumed that all teachers had been properly trained for implementing coteaching strategies in the inclusion classroom.

## Scope

This study provided guidance to administrators and other educators on the placement of students with and without disabilities and strategies that can be used in the coteaching classroom that impacted students' learning and achievement. As students with

disabilities were placed in the regular education classroom, educators were seeking more effective strategies that impacted all students' learning in the math classroom.

#### Delimitations

This study was confined to only using test score data to determine the students' achievement.

#### Limitations

A limitation of this study was it only used participants from small rural middle school in southeast Georgia. The population sample in a small rural middle school may be quite different from a sample from a more urban school. The students in the small rural middle school are often limited on their own personal experiences or prior knowledge. Many rural areas do not have the opportunities within their community that are available in the larger cities, such as programs that are community sponsored to help underprivileged children, for example: Big Brother/Big Sister programs, summer learning programs sponsored by educational organizations like colleges or technical schools.

Another limitation was the implementation of the new Georgia Performance Standards in mathematics. The novelty of the new curriculum implemented impacted teachers' instructional strategies and their ability to differentiate instruction for all learners. They may have hesitated in using coteaching strategies.

#### Significance of the Study

With the demands of accountability for student learning, educators need research-based models and effective teaching strategies to help make decisions regarding the best instructional placement and model for their students. This study enhances research on the

collaboration model using coteaching strategies, especially in middle school mathematics. It expands the research available for supporting or not supporting coteaching at the secondary level. The impact coteaching has on students' achievement is imperative for administrators in an attempt to improve the education of all students

### Implications for Social Change

The findings of this study can assist educators in making decisions about the placement of students with and without disabilities and determining the best instructional environment for improving student achievement. Many of the earlier studies focused on the achievement of students with disabilities achievement, but few studies focused on the achievement of students without disabilities especially at the secondary level. Education was constantly changing with new reform models, but the goal was always the same, to improve the achievement of all learners. Coteaching was one of many models that were used to help all learners by providing an opportunity to receive instruction from two educators within the same classroom. As coteaching models become more effective, students develop socialization skills that demonstrate tolerance of others' differences. The findings can contribute to improving some existing cotaught classrooms with minor changes or modifications.

Coteaching provides students with the opportunity to learn from others and to understand the differences among others. Coteaching can impact the socialization of all students and help to develop learning opportunities that may teach the students tolerance and respect for others.

## Summary

All students were expected to achieve on grade level with necessary accommodations. The use of effective coteaching strategies in the inclusion classroom may have enhanced the achievement of students with disabilities as well as the achievement of regular education students. It was the responsibility of educators to provide students with the appropriate level of instruction in order to improve student learning. Luster and Durrett (2003) stated that greater inclusion leads to greater student achievement. However, without effective instructional strategies, student achievement would not increase. Improving student learning required that all participants bring their knowledge and expertise while working together to educate all students (Beckman, 2001). This study provided evidence of literature related to coteaching and analyzed the strategies used in coteaching to provide support or lack of support on their impact on the achievement of students on standardized basic skills algebra assessments.

Section 2, the literature review, offers support for the research methods used in this study; establishes a foundation for coteaching, the implementation of coteaching, and supports the positive impact coteaching has on student achievement as well as the negative impact or no impact coteaching has on student achievement. In section 3, the experimental mixed method, the process for identifying the convenience sample and the concurrent design of study is explained and clarified. Section 4 presents the data collection process for teacher interviews and student test scores, as well as explaining the process for data analysis. Section 5 will conclude with the summary of findings from the teacher interviews and the test score statistical interpretation. It will also identify further recommendations for study.

## SECTION 2: REVIEW OF RELATED LITERATURE

Students with disabilities were no longer excluded from a free appropriate education, but were rather included into the general education population. The Individuals with Disabilities Education Act of 1990 (PL 94-142) required that educators focus on the individual rather than a population of students. Many structural reforms and theories were initiated to address the individual learning of all students with a disability. The federal government mandated for students to be placed in the least restrictive environment (LRE), which brought about many concerns and frustrations among educators. Education professionals were in constant search of new effective intervention strategies. Many intervention strategies had been implemented, but due to lack of research, training, and teacher support these strategies had been ineffective.

### Inclusion: History and Trends

In the late 1960s and 1970s, the parents and families of students with disabilities began to push for equal opportunities within the education system (Yell, Rogers, & Rodgers, 1998). The federal government mandated that all students with disabilities be provided with a free, appropriate education within the least restrictive environment as stated in the EAHCA of 1975 (Yell, Rogers, & Rodgers, 1998). Federal funding was provided to schools in order to ensure equal educational opportunities. Schools were required to provide access to the general education setting for students with disabilities (IDEA, 2001, NCLB, 2004). Mainstreaming students with disabilities among students without disabilities was one of many reform models that schools began to implement for

special education. The theory of mainstreaming emphasized the value of peer interaction and socialization skills. It mainly focused on providing students with disabilities access to the general education population. Mainstreaming, however, was one of the trends in special education that many schools implemented without the appropriate research and proper training. This structural change brought about many comments on how to teach and educate all learners with different ability levels. Many regular education teachers were not prepared or equipped to effectively conduct their classrooms in order for all students to learn. Regular education teachers felt inadequate and therefore posed negative attitudes toward the idea of mainstreaming students whose disabilities required additional work or responsibilities on the part of the general education teacher (Kavale & Forness, 2000). Many models and initiatives were developed and implemented, but educators continued to lack the confidence in mainstreaming and therefore lack of support and commitment had been given toward this trend. Mostert and Crockett (2000) stated that the special education world has a history of adapting untried and ineffective interventions. Although, mainstreaming still existed in some form, many structural reforms and instructional changes had been made.

With the increasing emphasis on mainstreaming students with disabilities, special education consultation grew in popularity. Consultation was one intervention strategy that special education teachers used when working with general education teachers (Cook & Friend, 1991). Special education teachers and general education teachers expressed many concerns regarding the mainstreamed students with disabilities, thus promoting an atmosphere of collaboration among the education professionals. The term mainstreaming

was eventually referred to as inclusion. The inclusion theory or model focused not only on the placement or access of students with disabilities into the general education environment, but also on the full inclusion of these students in the instruction or curriculum of regular education. Emphasizing the socialization among all students and not simply the placement of a student with disabilities within the general education classroom become increasingly popular. Once again general education teachers felt inadequate in instructing these students due to lack of knowledge, understanding, and training. Regular classroom teachers pushed to have support personnel physically present to assist in providing instruction to all students (Friend, Reising, & Cook, 1993). Therefore, collaboration became a greater focus and the inclusion of a special education teacher or paraprofessional in the regular classroom had been the latest trend. Inclusion model with cooperative teaching, a term coined by Bauwens, Hourcade, and Friend (1989) had erupted over the last decade. The term cooperative teaching was shortened by Cook & Friend (1995) to coteaching. Coteaching evolved from the practice of team teaching among regular education teachers, where teachers shared the responsibility of educating all students (Friend, Reising, & Cook, 1993). The varying of skills and abilities of students increased the demands on teachers in regards to planning and instructions; therefore co-teachers must work cooperatively to provide instruction to a diverse population within the same environment in order to meet the federal requirements of individualized educational plans. In order for students to be successful academically, educators must focus on individuals' needs and learning styles.

### Inclusion: Key Components for Implementation

The implementation of inclusion was a complex and many times a controversial issue. Implementing coteaching was complex and required careful planning, implementation, and maintenance. General education teachers often reported that they were unprepared to provide the appropriate levels of instructions to students with disabilities (DeSimone & Parmar, 2006, Baker & Zigmond, 1995; Schumm, Vaughn, Gordon, & Rothlein, 1994). Effective professional development must be developed with a clear coherent focus to address the teachers needs for understanding the content as well as their students (Leko & Brownell, 2009). Although special education teachers were confident in their understanding of least restrictive environment, it was reported that regular education teachers were unfamiliar with the provisions of least restrictive environment and benefited from a more thorough understanding of this concept (Ward, Montague, Linton, 2003). The teachers' perceptions and understanding of change promoted the level of effectiveness of a new reform. Edwards, Carr, and Siegel (2006) found that even though many teachers were trained to use differentiated instruction to meet the needs of all learners, only about half were actually implementing the strategies. This provides evidence that teacher's attitude to change is critical in implementing any new model or instructional strategy. Balfanz and Byrnes (2006) stated that whole school reform models often addresses issues at all levels, student, classroom, and school that will be more able to affect the achievement gap. Burstein, Sears, Wilcoxon, and Cabello (2004) reported five key factors that contribute to a successful change: leadership, teacher commitment, staff development, planning time, and classroom support. In many cases,

teachers were not provided opportunity to volunteer for coteaching. Kohler-Evans (2006) reported that the majority of the participants in the study did not voluntarily participate in coteaching, but ninety-seven percent stated that they would participate again if given another opportunity. She reported that teachers believe the following to be the most important feature in the coteaching relationship: common planning, positive working relationship, and shared responsibility. In Idol's (2006) evaluation of inclusion schools, she found that many of the administrators were perceived by the teachers as very supportive. The administrators' attitudes toward change can determine the effectiveness of that change. A shared commitment by administrators and teachers must exist in order for a change to be successful (Burstein, et al., 2004). Administrators must take a proactive role in promoting the understanding of LRE and the concept of inclusion within their schools (Ward, Montague, & Linton, 2003). A structural change requires a change in attitudes and support (Kozik et al, 2009).

Successful inclusion classrooms consisted of two teachers who are committed to student learning as well as cooperatively working together for the success of all students. Before inclusion with coteaching can be effectively implemented much professional development and planning must take place. Burstein, et al. (2004) reported that professional development was critical in promoting and preparing for the implementation of inclusion. Effective professional development is designed to align with the teacher's goals and needs, provide collaborative active classroom settings, and focus on the student data and content being taught (Leko & Brownell, 2009). Ongoing in-service training was necessary in providing teachers with the adequate skills in teaching students in an

inclusive setting (Scruggs & Mastropieri, 1996; Burstein, et al, 2004). Coteaching would not work if the other teachers were not fully dedicated to collaborating and using each others' strengths to implement the model. Keefe, Moore, and Duff (2004) stated that coteachers must "know yourself, know your partner, know your students, and know your 'stuff' in order to be successful" (p. 37). This statement referred to both teachers developing an awareness of each other's strengths and weakness and developing a clear understanding of each other's roles and responsibilities. Murawski & Dieker (2008) provided fifty tips for keeping teachers on the right track for successful coteaching. Some of the tips included: training, collaboration, sharing the materials and workload, communicate with partner, commit to co-planning, and share the students. Magiera & Zigmond (2005) stated that both teachers must be active instructors in order to provide more instructional opportunities for students with disabilities. Special education teachers must go beyond monitoring and observing within the inclusion classroom.

Collaborative planning was a key component to effective inclusion with coteaching strategies. Administrators must ensure that coteachers have a common planning time in order to develop lessons that address the various levels of instruction. It was important that teachers collaboratively plan and differentiate their instruction in order to meet the needs of all learners. DeSimone and Parmar (2006) reported two of the major issues in the inclusive setting were the importance of teacher collaboration and the inadequacy of teacher preparation for inclusion. Without appropriate professional development and collaboration, teachers can not effectively implement coteaching in the inclusion setting. Magiera, Smith, Zigmond, & Gebauer (2005) and Salaza and Nevin

(2005) included coplanning as one of the strategies needed for a more effective coteaching classroom. Coplanning was more than just same time planning. It involved both teachers working together on individual's needs. This was an opportunity for co-teachers to identify the roles and responsibilities of each lesson taught. Co-teachers established these roles and responsibilities in order to ensure that each partner took an active role (Friend, 2007). Improving student learning required that all participants bring their knowledge and expertise while working together to educate all students (Beckman, 2001, Murawski & Hughes, 2009). Coteachers who perceived their relationship as an equal partnership believed that it was an energizing experience (Friend, Reising, & Cook, 1993). With the pressures of accountability on student achievement, collaboration must be more than a "friendly gesture" (Peck & Scarpati, 2004). Coteachers compatibility was a critical component in the success of an inclusion classroom (Mastropieri, Scruggs, Graetz, Norland, Gardizi, & McDuffie, 2005). Bouck (2007) found that coteachers should communicate and share responsibilities regarding not only instructional materials/strategies, but also included issues regarding the physical space within the classroom and handling classroom management and discipline issues. Coteachers must be open to new opportunities and have a clear path of communication to share ideas or concerns.

Effective inclusion schools with coteaching strategies had common practices.

Deiker (2001) reported some common practices found in successful inclusion classrooms: (a) positive learning climate and positive perceptions of coteaching, (b) instructions that focused on active learning, (c) setting high expectations for all students, (d) commitment

to planning time, (e) creative evaluation methods. Before coteaching starts, Magiera, Smith, Zigmond, and Gebauer (2005) stated that (a) coteachers need to attend workshops together as a team, (b) request a common planning time, (c) create a classroom that shows ownership for both teachers, and (d) create an active student learning environment. Strivers (2008) agreed with previous literature that in order to strength your coteaching relationship, the teacher should have common planning to collaborate and communicate with each other to discuss the room layout, new instructional strategies, and time to clarify the understanding of each other's expectations, as well as time to spend analyzing the student's data and providing feedback. Friend (2007) stated that coteachers benefit from visiting a cotaught classroom or participating in peer observations in order to provide feedback and create a professional learning community. McDuffic, Mastropieri, and Scruggs (2009) reported that teacher benefited from the professional development gained through coteaching.

#### Teachers' and Students' Attitudes Toward Inclusion

The teachers' attitudes and expectations determined the climate and success of their classrooms and the extent of their students' learning. This thought referred to all classrooms, inclusion or non-inclusion. Just as research showed the impact a principal's attitude has on the implementation of inclusion (Praisner, 2003; Salaza & Nevin , 2005), there was research available to determine the impact of teacher's attitudes on student learning in an inclusive setting. Bender, Vail, and Scott (1995) reported that teachers with a negative attitude toward mainstreaming students with disabilities utilized effective instructional strategies less often than those teachers with a positive attitude toward

mainstreaming. Effective instructional strategies were the key to student achievement (Marzano, Pickering, & Pollock, 2001). Teachers must create a positive learning environment and an atmosphere that promotes learning for all students. Teachers' perceptions or attitudes toward including students with disabilities determined the level of successful implementation. Kozik, Cooney, Vinciguerra, Gradel, and Black (2009) stated that a need for change in attitudes toward collaborative relationships is one of the first steps in effective inclusion at the secondary level. Hodkinson (2005) found that negative teachers' attitudes were a barrier that stalled the implementation of a thriving inclusive classroom. Nota & Soresi (2009) reported that teachers often viewed the future of SWD as limited, focusing only on what these students can not do. It is important for teachers to focus on strengthening students' abilities by stimulating their interests and self efficacy beliefs.

Coteaching required a commitment from both partners. It would not be successful if the teachers allowed the negative attitude or perception of inclusion to interfere with the creation of a collaborative environment. In a study conducted by Maccini and Gagnon (2002), several issues had been found that must be considered for successful implementation of standards based instruction for students with disabilities. One of these considerations was the teachers' unfamiliarity and confidence in their understanding of the standards based instruction. This was similar to the findings of Ward, Montague, and Linton (2003) regarding teachers lack of knowledge of the least restrictive environment concept. Teachers' lack of confidence and knowledge oftentimes led to negative perceptions. The teacher must gain understanding and develop a positive attitude toward

the implementation in order to create an atmosphere of learning for all levels of students. McDuffie, Mastropieri and Scrugs (2009) reported that teachers had an overall positive perception of coteaching. Teachers shared that coteaching was enjoyable, beneficial to students, improved academic achievement and allowed students to receive more help.

Student's perception toward learning and the environment often impact their achievement. Wilson and Michaels (2006) reported that students within the co-taught classroom reported positive benefits of coteaching. It was found that students were provided more individual support, instructional strategies in the co-taught classroom were more flexible and more diverse, and the students believed that coteaching helped them to develop more skills and better grades. Jang (2006) also reported that more than half of the student participants considered team teaching to be superior over traditional teaching. It was stated that students could learn different methods because of the teachers' methods were not the same. Having two teachers in the same classroom provide greater opportunity for a more diverse learning style and method. Miller (2008) reported that his pre-service teachers completed a project that required them to gain input from students regarding their opinion toward inclusion. Many of the students reported that it was a positive model and believed that it was the students' right to be in the regular classroom. Student and teacher perception of coteaching has a great impact on the effectiveness of the model.

## The Impact of Inclusion on Social Skills

The idea of mainstreaming students with disabilities developed after the passing of federal mandates that required equal opportunity for all students. The focus of mainstreaming students with disabilities was based not only on the academic performance of these students but also on the socialization skills of these students. It had been noted in research that by simply placing a student into the general education classroom, he or she would not automatically be accepted socially. Pavri and Luftig (2000) found that students with learning disabilities were less popular and often described themselves as lonely. Students with disabilities in an inclusive setting often perceived themselves as socially competent (Pavri & Luftig, 2000). Vaughn, Batya, and Schumm (1996) reported similar findings regarding students with disabilities and their self-concept. It had been found that students with disabilities demonstrate self-concepts that were equal to those of other achieving groups.

Although the National Center for Educational Restructuring and Inclusion (1994) stated that inclusion would provide the opportunity for socialization among students with disabilities and without disabilities, it did not ensure social competency for all students. Tapasak and Walther-Thomas (1999) reported that after 1 year of inclusion students with disabilities were often found to be at a social disadvantage because they were perceived as shy or sensitive, therefore having fewer chances to lead among their peers. Inclusion provided students with disabilities the opportunity to socialize with general education students but had not increased the students' social skills or social competency.

The Council for Exceptional Children (CEC) established goals for students to function as active learners and to accept responsibility for their learning within the inclusive environment. These goals were promoted through collaboration, communication, and social experiences with their peers. Cooperative learning environments promoted positive interactions and relationships among students (Spinelli, 1998). With inclusion classrooms, teachers can create the opportunity for peer connections through various groupings (Knesting, Hokanson, Waldron, 2008). Downing and Peckham-Hardin (2007) reported that students without disabilities often benefited socially from having been in the inclusion classroom. This setting often taught students without disabilities a greater awareness and tolerance of differences and enhanced empathy and compassion for others.

### Inclusion and Student Achievement

With the high stakes testing placed on educators, teachers often feared the placement of students with disabilities in the regular education classroom. Research that supported the idea of inclusion increasing student achievement as well as inclusion having no impact or a negative impact on student achievement was limited. Advocates of inclusion tended to believe that by including students with disabilities into the general education classroom, students increased their academic achievement. Students were placed in a setting where equal opportunities were available for student learning. Idol (2006) conducted an evaluation of eight schools and found that seven out of the eight schools made a noticeable improvement on state tests scores. These schools were at various levels of implementation of inclusion. Luster and Durrett (2003) stated that

greater inclusion leads to greater student achievement. Their study showed a positive relationship between inclusion of students with disabilities and higher performance scores. Simply implementing inclusion had not guarantee positive student achievement, but with the support of effective instructional practices inclusion can produce higher levels of achievement among students with disabilities. In a study conducted in the Netherlands, Peetsma, Vergeer, Roeleveld, and Karsten (2001) reported that students with disabilities that were included in the regular education classroom made more progress than their equal counterparts who were educated in a special education setting. Salaza and Nevin (2005) provided evidence in their study of an increase in the students with disabilities test scores in the inclusion classroom, contrary to the teachers' initial beliefs. Farrell, Dyson, Polat, Hutcheson, and Gallannaugh (2007) reported findings that showed a small, insubstantial relationship between inclusion and student achievement. It was difficult to determine the exact impact inclusion had on student learning due to the lack of control over other variables such as instructional strategies or adoptive instructional programs.

The NCLB Act (2000) had forced many schools to include students with disabilities into the general education classrooms, but few schools had effectively done so. This shift had brought about many concerns and unwanted results for educators. Zigmond, et al. (1995) conducted a study among six elementary schools and reported that the achievement gap between students with disabilities and students without disabilities had not narrow after including students with disabilities into the general education setting. The achievement outcomes for students with disabilities in the general education

setting were disappointing considering the amount of time, effort, and financial resources provided for this project. In Manset and Semmel's (1997) investigation of inclusive settings, they found that there was no significant evidence to support transitioning to an inclusion school. It was their recommendation that further research be conducted to determine what attributes are needed in order to develop an effective inclusive classroom. Murawski (2006) stated that there was no significant difference in the outcome of students' achievement in the co-taught classroom. It was reported that the impact of the individual instructor appeared to be a fact regardless of a cotaught or noncotaught classroom. Friend (2007) stated that measuring the success of coteaching based solely on student achievement was misconstrued without establishing the criteria for judging the quality of the coteaching program. When comparing SWD's achievement in the inclusive setting versus their achievement in a resource setting, Fore III, Hagan-Burke, Burke, Boon, & Smith (2008) reported that no statistical difference was found in the achievement of reading or math. It was recommended that more research be conducted focusing on other variables than the setting of the students.

Research for determining the impact on general education students' was found, but was not in abundance. Idol (2006) reported that about half of the secondary education participants stated that the general education students remained unaffected by students with disabilities being included in their classes. Idol also reported that about 58%-68% secondary educators stated that the general education students' test scores remained the same. Many of the studies had not provided specific evidence to prove that inclusion positively or negatively impacted general education students' achievement. Therefore

there was a great need for further research regarding general education students' achievement within the co-taught classroom.

### Effective Teaching Strategies

Inclusion with coteaching strategies when implemented properly produced greater results in the achievement of students with disabilities. Coteaching allowed the opportunities for a wider range of instructional options and greater student participation. Murawski and Hughes (2009) stated that with coteaching, teachers were able to provide more active instruction, use a variety of strategies, and differentiate instruction more easily. Coteaching partnerships brought unique appeal to a classroom with a variety of expertise (Friend, 2007). A meta-analysis conducted by Murawski, Weichel, & Swanson (2001) and Salend, Duhaney, & Garrick (1999) both indicated that coteaching had a positive impact on student learning, but further research was needed. Marzano, Pickering, and Pollock (2001) provided researched based strategies to improve student achievement. When implementing coteaching strategies along with effective instructional strategies, students with disabilities were destined to achieve higher. Douglas, Burton, & Reese-Durham (2008) shared evidence that using multiple intelligence instruction showed increase in student performance academically and behaviorally. The learning style theory considered the fact that all students have strengths and can learn when instruction was provided based on an individuals' learning style. Research had proven that when learning style instruction was implemented students achieved higher and their attitudes toward learning improved (Robert, 1999; Schiering, 1999; Marzano, Pickering, & Pollock, 2001). Banda, Matuszny, & Therrien (2009) provided guidance on implementing the high

preference strategy. The strategy is designed to enhance student motivation by creating task that begin with two or three preferred math tasks before presenting a more difficult or less preferred task. Increasing student motivation is a key to increasing student learning. Ellett (1993) reported that secondary teachers realized the importance of changing their instructional approach in order to meet the needs of students with various learning abilities. Students can learn when instruction was designed for their individual needs. Woodard & Brown (2006) conveyed that students provided with more opportunities to be successful would increase their motivation. They shared that teachers using small group instruction to scaffold information or assist in completing a task can be an effective way to increase student motivation. Some coteaching strategies identified by Friend, Reising, and Cook (1993) that can be used are (a) one lead, one assist, (b) station teaching, (c) parallel teaching, (d) alternative teaching, and (e) team teaching. Dieker (2001) reported that station teaching and alternative teaching strategies were being used in some of the secondary teams as well as all of the teams were using active learning with their students. With the thought of using station teaching or alternative teaching, teachers can easily implement preteaching and reteaching strategies through these models. Lalley and Miller (2006) reported that both of these instructional strategies can enhance student performance in math achievement.

Traditional instructional methods needed to be revised in order to meet the needs of the diverse learners in an inclusive classroom. Spinelli (1998) stated that instructional methods needed to be more innovative and interactive in order to promote the learning of all levels of learners. Witzel (2005) and Magiera, Smith, Zigmond, & Gebaurer (2005)

both reported that increasing student interaction can improve student performance. Effective classroom instruction requires student to participate in active learning. Strivers (2008) shared that coteachers need to try new models of coteaching to determine which model or strategy will best suit the needs of their students. Implementing activities that promoted higher order thinking and encouraged students to construct their own understanding of knowledge was more motivating and exciting to learners. Cooperative learning was one strategy that helped students to maximize their own learning through positive interactions and problem solving skills. Students felt empowered when working with peers toward a common goal. Students with a positive attitude toward learning mathematics often have higher test scores; therefore it is important for educators to consider instructional strategies that emphasize student motivation and self beliefs (House, 2006). Slavin (as reported by Spinelli, 1998) stated that cooperative learning “promotes learning by (a) enabling students to translate the teacher’s language into “kid language” for their group members, (b) reinforcing mastery of skills by having students teach their peers, (c) providing opportunities for students to provide individual attention and assistance to each other, and (d) fostering a “we’re all in this together” attitude in which students are more willing to take risks and make comments or ask questions which they would not attempt in large group, less collaborative settings.” Cooperative learning provides students with the opportunity to gain direct feedback from peers as well as development their interpersonal and intrapersonal skills (Jones, Jones, & Vermette, 2009). Marzano, Pickering, and Pollack (2001) reported that organizing students in cooperative learning groups had a powerful impact on the students learning. They also

provided general guidance for utilizing cooperative learning. Effective teaching occurred when teachers used instructional strategies that were considered to be best practices. Instruction could not be considered as a one size fits all approach. Educators must use a variety of strategies in order to meet the needs of each student. Tomlinson (2003) provided ways and strategies to differentiate instruction. Teachers must increase their knowledge of their learners in order to provide differentiated instruction to meet those needs.

Utilizing strategies to reach all students required that teachers must have a toolbox of strategies. Furner, Yahya, and Duffy (2005) provided twenty best practices that could be used in mathematics. Teaching mathematics and conceptual understanding requires teachers to develop strategies that may not be in their comfort zone or content area. Phillips, Bardsley, Bach, & Gibb-Brown (2009) conducted a project that incorporated literacy strategies in mathematics. It was reported that teacher awareness increased; therefore student awareness increased. Knowing that application of mathematics is an area that many students are not successful, Graeber (2005) reported that math consultants must focus on instructional strategies that emphasize the development of conceptual understanding rather than basic fact recall. Instruction should present students with challenging task that require invention and application. Hodge, Riccomini, Buford, & Herbst (2006) conducted a review of instructional interventions in mathematics. Some of the strategies included peer mediated interventions, teacher direct instruction, cover-copy-correct strategy, and computer assisted instruction. It is evident that teachers must use a variety of teaching strategies to support conceptual awareness for all students.

Marzano, Pickering, and Pollock (2001) identified nine researched based strategies that could benefit learners in all content areas. All students can learn if the teacher was collaboratively planning, developing, and implementing instruction that contained differentiated, interactive, and/or cooperative learning activities that was designed to meet the needs of each individual learner. Witzel and Riccomini (2007) stated that teachers must consider the instructional delivery, prepare efficient sequences of lessons, model and guide students, and monitor their learning in order to provide remediation or enrichment to those in need.

#### Study Methodologies

Many studies have shown that teacher attitudes had an impact on the effectiveness of coteaching (Praisner, 2003, Bender, Vail, and Scott, 1995, Hodkinson, 2005). With this in mind, the researcher reviewed the methodology of these studies to determine the instruments used to measure teacher attitudes as well as instructional strategies being utilized in the coteaching classroom. Teacher interviews provided the researcher with the opportunity to learn what is in or on someone's mind (Hatch, 2002). The researcher must become a good listener and build a trusting relationship with the participants prior to conducting the interview. Idol (2006) used interviews to evaluate an inclusion program at eight different schools. The interviews allowed the researcher to identify the level of inclusion as well as the teachers and administrators attitudes toward the inclusion program. During the interviews, the researcher was better able to gain an understanding and identify some common meanings among special education teachers, regular education teachers, and administrators regarding inclusion of students with disabilities,

attitudes toward accommodating those students, impact on statewide tests, and concerns regarding the implementation of the program. Downing and Peckham-Hardin (2007) used interviews in their study to determine if inclusive education was good for students with moderate or severe disabilities. The interviews allowed the research to obtain a greater depth of understanding by using open ended questions and follow up questions when needed. Interviews provided the researcher with the chance to go deeper into the thoughts and feelings of the participants.

Idol (2006) and Peetsma, Vergeer, Roeleveld, and Karsten (2001) used standardized test data to determine the impact or effectiveness that inclusion has on students' achievement. The standardized test data provided the researcher with a reliable and valid measure of student achievement in regards to grade level assessments and expectations. The methodology for this study included both data collection methods, interviews and test data. Further discussion regarding the methodology can be found in section 3.

### Summary

With the rapid increase of inclusive settings over the last decade, educators were in constant need of professional development that enhanced the implementation of coteaching classrooms with a variety of best teaching practices. Some researchers supported that inclusion classrooms can benefit all students educationally and socially. The need to examine the instructional procedures in the co-taught classroom must be addressed prior to evaluating the success of coteaching based exclusively on student achievement. The federal government continued to mandate inclusive education for

students with disabilities and researching ways to improve the instructional environment in these classrooms was an ongoing task.

Section 3 contains an explanation of data collection and analysis procedures. The methodology was similar to studies mentioned earlier in this section.

## SECTION 3: METHODOLOGY

### Introduction

This section discusses the methodology used to complete this study. Included are descriptions of the research procedures, data collection procedures, and methods of data analysis used to conduct the study. The Internal Review Board provided approval for this study; the approval number is 11-19-09-0331066. This experimental mixed-methods study used the student test data and teacher interviews to determine the impact of coteaching on regular education students' achievement on a Basic Skills Algebra Assessment (BSAA). A quasi-experimental, nonequivalent control group design was used to analyze student achievement. Teacher interviews were used to measure teachers' perceptions of, implementation of, and experience in coteaching.

Teachers' perceptions or attitudes toward including students with disabilities determined the level of successful implementation. Hodkinson (2005) found that negative teachers' attitudes were a barrier that stalled the implementation of a thriving inclusive classroom. The researcher for this study used structured questions during the teacher interviews to gain insight regarding the teachers' perceptions of including students with disabilities in the general education classroom. Some of the questions were directly related to the teachers' perceptions; however many questions were structured to gain insight about the professional learning for implementation of coteaching as well as the partnership between the co-teachers. Before coteaching starts, Magiera, Smith, Zigmund, and Gebauer (2005) stated that (a) co-teachers need to attend workshops together as a team, (b) request a common planning time, (c) create a classroom that shows ownership for both teachers, and (d) create an active student learning environment. Coteaching was

often viewed as simply having two teachers in the same classroom, but true coteaching showed a partnership that was committed to meeting all students' needs. Research had suggested that effective inclusion involved common practices including effective instructional strategies, creating positive learning environments, and promoted learning for all students (see Section 2).

Research that supported the idea of inclusion increasing student achievement as well as inclusion having no impact or a negative impact on student achievement was limited. With limited research available, the researcher for this study included a portion regarding students' achievement on standardized test scores. The improvement in test scores from the pre- test to the post-test was compared among the regular education student participants in the co-taught inclusive classrooms and those regular education students not in a co-taught classroom. In this study it was impossible to compare students with disabilities achievement in the co-taught classroom with students in the resource setting because there were only the severe and intellectually disabled students scheduled into a resource setting. All students with learning disabilities were scheduled into a co-taught classroom. This was a result of NCLB Act and IDEA. The purpose of this study was to determine if inclusion with coteaching had an impact on regular education students' achievement on a Basic Skills Algebra Assessment (BSAA) in the eighth grade.

#### Research Question

Does inclusion with coteaching have an impact on regular education students' achievement on a BSAA in the eighth grade?

### *Research related questions*

What are the coteachers' perceptions of students' achievement and learning within the cotaught classroom?

### Hypothesis

*Nondirectional Hypothesis:* There will be no significant difference among regular education students' achievement on a BSAA in the coteaching classroom and those not in a cotaught classroom.

*Directional Hypothesis:* There will be a significant difference among regular education students' achievement on a BSAA in the coteaching classroom and those not in a cotaught classroom.

*Independent variable:* Inclusive cotaught classes and noninclusive regular education classes

*Dependent variable:* Student achievement

### Research Design/Approach

This study used an experimental mixed methods design used to test the impact of a treatment on an outcome (Creswell, 2003 p. 154). The treatment of coteaching strategies in an inclusive classroom was examined to determine the impact these strategies had on students test scores. Concurrent triangulation strategy was used to collect the quantitative and qualitative data simultaneously. Using the concurrent triangulation strategy, an emphasis was placed on the quantitative data, and the qualitative data was used to clarify and explain the findings of the quantitative phase. The results of each data collection method were integrated during the final interpretation

phase. The quasi-experimental design for the quantitative portion of the study included collecting summary test data from two cotaught classrooms (experimental groups) and one noncotaught (control group) classroom in the eighth grade located at the middle school. This allowed the researcher to compare pretest and posttest results of regular education students from both the control group (noncotaught) and the experimental groups (cotaught). These groups were already designed prior to conducting the study; therefore the researcher could not use a true experiment with randomly assigned groups. Qualitative data was collected through teacher interviews to obtain a more thorough understanding of teachers' perceptions of coteaching. This design allowed the researcher to compare student achievement on standardized testing and the effectiveness of the coteaching classroom. The participants for this study were located in southeast Georgia. The researcher used student and teacher participants from the same middle school. All coteachers in this school had implemented inclusion with coteaching strategies and participated in the same training. The principal was used as the gatekeeper and liaison for collecting and scheduling interviews. Clarification on the purpose of the study provided during visits to the school. After data was collected from each participant, it was analyzed to develop common themes or practices. The data collected from student test scores was requested and the data was used to compare regular education students' achievement in the cotaught classroom with those in the noncotaught classroom.

### Setting and Sample

Selecting the setting of the study was determined by the need of improving students, including students with disabilities and those without disabilities, performance on the math section of standardized test within middle schools in the state of Georgia.

The state of Georgia evaluated schools for AYP based on the performance of students on the standardized test. Each subgroup within a school must meet the required score in order for the school to meet AYP. Student with disabilities was a subgroup that often times caused many schools to not meet AYP. Mathematics had also been an area in the past that had prevented schools from meeting the annual yearly progress. With this challenge in mind, the setting for this study was a rural middle school that contained inclusive, cotaught classrooms. Eighth grade student achievement data and all math coteachers in the middle school were used. This school was used as the participating school based on the geographic location and to help ensure that the curriculum and training for math instruction and coteaching were similar for all participating teachers.

#### *Participants for Test Scores*

A convenience sample was used for collecting test data. Eighth-grade students taught by the same teacher at the middle school were used as participants. These students were only used to guide the selection of testing data that was analyzed for measuring student achievement. The students scheduled in the cotaught classrooms (two classes with the same coteachers) were used as the experimental groups and the one noncotaught class with the same regular education teacher as the cotaught classes was used as the control group (no students with disabilities were in this class). There were approximately 70 eighth-graders requested to participate. These participants included about 10 students with disabilities in the cotaught classrooms, 35 regular education students in the cotaught classrooms (experimental group), and about 25 regular education students in a noncotaught classroom (control group). The students with disabilities consisted of a

mixture of disabilities including specific learning disabilities, other health-impaired, and emotional and behavior disorder.

### *Participants for Qualitative Interviews*

The researcher selected all math coteachers from the middle school to participate in an open ended interview. There were six math coteachers invited to participate and each participant agreed to voluntarily participate. This small number of interview participants was due to the small number of inclusion special education teachers available at the school. This school was selected to participate based on the geographical location; therefore there was a limited number of inclusion coteachers in the math department. Each participant signed a consent form (Appendix A) that explained their participation was strictly voluntary and no one was required to participate. All six math coteachers agreed to participate.

### Quasi-Experimental Mixed Methods Design

Careful analysis of the formal and informal structures of the organization was required in gaining access and entry (Hatch, 2002). Within the formal educational setting, it is required that formal permission be acquired from the principal to conduct the study. The principal served as the gatekeeper to provide access to the students' achievement scores as well as access to the inclusive co-taught classrooms. She also played an important role in gaining access to the inclusive classrooms for teacher interviews. It was important for to develop a collaborative relationship with the principal. Contact was made with the principal to determine if the teachers were willing to participate in such a study. It was important that the inclusion coteachers were willing to participate.

After gaining formal permission from the principal, a visit to the participating school to meet with the principal and each of the participating teachers to provide information regarding the study was completed. An explanation of the purpose of the study, the data collection procedures, the data analysis procedures and how the findings could benefit schools systems with coteaching classrooms was presented to all participants. Hatch (2002) stated that it is important to provide participants and gatekeepers with honest and clear information regarding the study.

In this concurrent triangulation study, the qualitative data and quantitative data was collected and analyzed simultaneously with the emphasis on the quantitative data. The study began with both phases of data collection, the quantitative and qualitative data collection. An analysis of each component was completed separately; then later integrated for interpretation. This strategy provided a straight forward method of design; and allowed all the research to be completed in a shorter time period (Creswell, 2003).

#### *Data Collection: Test Data*

In the quantitative part of the study, a quasi-experimental, control-group design was used to collect data from student test data. This design allowed the researcher to use a control and experimental group where participants were not randomly assigned (Creswell, 2003). This nonequivalent group design was chosen because a pretest and posttest was used with experimental groups (two cotaught classrooms) and a control group (one noncotaught classroom) from three eighth grade classrooms at the middle school. These classrooms were already scheduled and the researcher could not randomly assign participants to the groups (experimental and control group). The test data was a standardized form of gathering data that measures students' achievement. The

Assessment was given at the beginning of the school year and then again at the end of twelve weeks. Students' achievement was measured to determine their progress. The researcher collected student test data, with the student names removed, for all students in the eighth grade mathematics classes.

*Data Collection: Teacher Interviews*

Teacher interviews were selected as the qualitative data collection tool because it allowed the participant to provide historical information. Interviewer was able to control and guide the questioning during interviews. The teacher interviews were set up by the principal in order to schedule times that were during the teacher's planning and to ensure that no other obligations were scheduled. Each participating teacher was interviewed by me. An audio tape was used to record the interview. The time, date, purpose of the study, and the assurance of confidentiality as outlined in the consent form at the beginning of each interview was clearly stated for each interviewee. Guided structured questions that were developed by Vance Austin (2001) were used to ensure that each interview was consistent and increased the ability to compare responses (see Appendix B). The structured questions were written in sets. The initial question was a yes or no question with subsequent probing questions to gain a greater explanation. Austin granted permission to use the interview guide in this study. Each interview lasted approximately 30 minutes. The audio-tapes were transcribed and the transcriptions were later coded and analyzed for common themes.

*Reliability of Test Scores*

A BSAA was used to evaluate the students' achievement and progress of algebra skills. A project named Algebra Assessment and Instruction Meeting Standards (AAIMS) was developed in 2007 by educators at Iowa State University. Within this project, several assessment tools were developed. The BSAA was one assessment tool. The assessment tool consists of 60 items that focus on skills for which some level of automaticity was desired. The problems included solving basic fact equations, applying the distributive property, working with integers, combining like terms, and applying proportional reasoning. The assessment was given with standardized directions and with a five minute time limit. The scoring of this assessment was based on the number of problems solved correctly. Project AAIMS-BSAA tool was developed, tested, revised, and analyzed through a series of four studies. The assessment measures were determined to be reliable and valid through test-retest, equivalent across alternative forms, correlation with performance on other indicators of proficiency, and use of measures as predictive of future performance levels. All correlations were based on a correlation significant at  $p < .05$ . The reliability of the basic skills measures of test-retest using two probes results in a median of 0.83. The reliability of the basic skills measure using alternate forms resulted in medians ranging from 0.71-0.86 among the four studies. The concurrent criterion validity was measured using teacher ratings and Iowa Algebra Aptitude Test (IAAT). The results of teacher ratings range between 0.47 and 0.58 among two studies. The results of concurrent criterion validity using IAAT showed medians of 0.51 and 0.56. The predictive criterion validity results for the IAAT showed medians of 0.56 and 0.59. The results of the predictive criterion validity for the Iowa Test of Education Development-

Mathematics showed medians of 0.36 and 0.45. Much research was devoted to developing reliable and valid instruments for measuring algebra progress of students. The BSAA measure was found to be reliable of time and across forms.

### *Reliability of Teacher Interviews*

The reliability and validity of the interviews was ensured by using the internal validity strategy of member checking. Ongoing dialogue was conducted with the interviewees to ensure that the interpretation was presented correctly. To increase the reliability and the ability to transfer the framework was ensured by providing a detailed account of the focus of the study, the researcher's role, and the basis for the participant's selection. The interviews were conducted in the same form using the same guided questions for each participant in order to ensure consistency and a more reliable response analysis. The interviewer was the same person; therefore the threat of inter-coder reliability would not be present in this study.

The interviews were completed as scheduled by the principal. Electronic mail was used for completing member checks with each participant. The member checks help to ensure that the data findings and analysis was reliable and valid. The member checks included a conclusion and summary of the data collected from each participant. The participating teachers returned feedback via electronic mail, phone, or during a personal visit to the school site. Meeting summaries of each discussion would be kept on file by me. Transcriptions of the interviews were also kept on file. The audio-taped interviews were transcribed verbatim. This data was kept by the researcher in a locking file.

## Data Analysis

Data management was an important skill to maintain in order to ensure that the data was secure, reliable, and properly maintained. A log was kept of each interaction that occurred between the participants as well as the school gatekeeper (principal). Contacts were made by phone, email, or face to face visits.

### *Data Analysis: Test Data*

After the data had been organized, coded and photocopied, the data analysis began by analyzing and organizing the test data in a table form. The student test records did not have any student names listed. It only consisted of scores from students within the eighth grade participating on the BSAA. No individual scores were reported in the study; only summary data was used from the cotaught classrooms in the reporting of this study. The SPSS software was used to analyze the test data and make comparisons among participant groups using ANOVA. It was also used to find relationships among variables. A *t* test was used to establish the variability within the two groups (cotaught and noncotaught classrooms). These scores were analyzed to determine the improvement of regular education students within the cotaught classroom as well as the students not in a cotaught classroom. The data was analyzed using an ANOVA to determine the effect size or percentage of variability as a result of the coteaching model.

### *Data Analysis: Teacher Interviews*

The qualitative data was analyzed first by reading each source of data collected and searching for meanings or identifying small categories or units of meaning. Common meanings were easily identified by using a color coding system. This helped to unitize

the data collected. Charts helped to organize the meanings or common themes. Each piece of data was placed into the chart followed by its source code (C1-1 or coteacher 1-page 1). This helped to quickly identify the source of data.

Once the data had been organized into meanings or categories, a search for reoccurring words or phrases within each source of data began. The data was observed and analyzed to determine if there were common words or phrases among each of the participants. A colleague, who is a former special education director, was used to review and check to make sure each piece of data was placed in the proper category. If there was any disagreement, it was discussed with the colleague, but the final decision for placement was left up to me. Based on the theoretical framework, a refining of the categories was done to determine the meaning.

### Validity

Ensuring the credibility of the study, it was important to build relationships among the participants. The participants developed a trust in order to conduct accurate interviews. It was important to provide quick feedback regarding the components of the study. The use of concurrent triangulation of data from student test data and teacher interviews will strengthen the reliability and internal validity of a study (Merriam, 1998).

Creswell (2003) argued that validity is present when the items in an instrument measure the content they are intended to measure. The algebra assessment instrument used in this study was found valid through test-retest, equivalent across alternative forms, correlations with performance on other indicators of proficiency, and use of measures as predictive of future performance levels. All correlations were based on a correlation significant at  $p < .05$ . Much research was devoted to developing reliable and valid

instruments for measuring algebra progress of students. The BSAA measure was found to be reliable of time and across forms.

One threat to validity that existed and may have affected the interpretation of the results was the fact that data collection only occurred for twelve weeks which may have produced limited results as to the effectiveness or impact of coteaching. An external auditor, a colleague, was also used to review the findings of the study to provide an assessment of the process and the findings. Peer examination was utilized to ensure validity throughout this research. A comparison of the test data and teacher interview results was conducted to determine if any support of coteaching theories or previous literature exists. Colleagues and peers were asked to examine the interpretation and results to determine if it is supported by data.

#### Protection of Participants

The assurance of confidentiality for participants was provided. Consent forms approved by both the university's Internal Review Board and the selected school district's review board were signed by the participating teachers. Confidentiality was guaranteed to each participant and participants were allowed to withdraw from the study at any time. According to Kumar (1999), ethical issues indicated an awareness and recognition of the rights of the individuals involved in the study. The students' names were withheld when test scores were provided; therefore no consent form was needed by the students or their parents. The consent forms provided agreements for confidentiality among the participants and agreement for gathering test data from the participating classrooms. All records and data were destroyed after the study has been approved and verified by the dissertation committee.

The final report used generic names to represent each participant and school; for example: co-teacher 1. Students test data will withhold all names and a number was used to represent each student.

### Role of Researcher

During this study, I had served in many roles within the participating middle school. I had served as the regular education teacher for 13 years and 4 of those years within an inclusive, co-taught middle school classroom. The last two years I have also taught in the high school as a special education math co-teacher. Currently, I serve as a response to intervention coordinator and teacher at the middle school and a high school math coteacher. I am knowledgeable about coteaching and have served in both roles within the cotaught classroom. Working cooperatively, communicating, and learning to listen were skills that I possess. Merriam (2002) stated that the researcher is the primary instrument for data collection. My role for this study included the primary collector of data. Pretest/posttest scores were collected by me from the classroom teacher. It was my role to gain a holistic overview of students' achievement in middle school math classrooms.

It was important for me to remove any biases that I may possess. I expanded my understanding, process information immediately, clarify or summarize material, and check with participants for accuracy of interpretation (Merriam, 2002). With my experience in coteaching, some biases existed. I had mixed feelings regarding the effectiveness of coteaching and its impact on student achievement. It was my belief that inclusion with coteaching could provide more opportunities for learners, but in reality was it happening. Many times I believed that coteaching was not truly occurring in the

classrooms; however two teachers were present in the class. I agreed that including students with disabilities in the regular classroom had a greater impact on students with disabilities' achievement than a resource or separate classroom; however I had mixed beliefs on the impact of coteaching on regular education students' achievement. Therefore, it was important for me to eliminate those biases by focusing solely on the data presented. The reliability and validity of the instruments being used helped to remove personal biases. The data was used to support the summary and interpretation of the results of the study.

A discussion of the findings and results for this study will be found in section 4.

## SECTION 4: RESULTS

### Introduction

The purpose of this study was to determine if inclusion with coteaching had an impact on regular education students' achievement on a BSAA in the eighth grade. This was an experimental, mixed-methods study used interviews and test scores (a) to evaluate the effectiveness of collaborative, coteaching classrooms and their teachers' strategies and (b) to compare the performance of regular education students in a collaborative, coteaching classroom with regular education students who were not in a cotaught classroom. The interviews will be discussed first.

A convenience sample of six teachers was interviewed based on their schedule of coteaching math to gather data regarding their experience, teaching strategies, and perception of coteaching. An interview guide (Austin, 2001; see Appendix B) helped with their structure and consistency. The interview guide was divided into five sets of questions. The first set focused on coteaching experience and the teacher's perception of that experience. The second set was directed toward the teaching strategies being used. The third set gained information about the teacher's current coteaching situation and the school's support. The fourth set focused on the teacher's perception of student learning, both students with and without disabilities. The final set of questions analyzed the coteacher's responsibilities.

### Interview Data

Six middle school math coteachers were invited and agreed to participate in the interviews. The interviews were recorded and transcribed by myself. Each interview was

conducted using the same interview guide. Common responses or themes were identified. The results of the interviews are shown in Appendix C. Below is a discussion of common responses according to the themes.

### *Coteaching Experience*

The participants in the interview shared that their coteaching was mostly positive. Many appreciated the shared responsibility for grading and planning. According to one participant, “[Coteaching] makes my job a lot easier.” Many participants noted that having another person with whom to collaborate and discuss ideas creates a greater opportunity for students to learn. Two of the participants made similar comments; Coteacher 2 (C2) stated, “It is great to have someone that you can bounce ideas off of and get ideas from” and C6 stated, “It is helpful to have someone to bounce ideas off of about how to reach a specific student.” Another positive aspect of coteaching discussed by the participants was the ability to use a variety of strategies and the ability to reach more students. Coteaching allows the students to receive more attention from the teachers, as well as allows the teachers to implement different strategies. C1 shared that “students get more teacher attention in the co-taught classroom because they can be broken down into smaller groups with the teacher leading the groups rather than working independently.” It was shared by participant, C2, that coteaching provides the content teacher with “assistance in using a variety of teaching methods to reach students with disabilities as well as those who learn using different modalities.” Coteaching was reported to provide an overall positive experience for the participants.

The participants shared a few negative experiences that have occurred with coteaching. Most of the negative experiences were a result of personality conflicts or lack

of experience (first-year teachers). C4 shared that her negative experience was when she and her co-teacher could not agree on student discipline and assistance. She stated that her coteacher would give too much help to students. It was shared that some coteachers were “not allowed to take an active role in the teaching process,” while others shared that it was difficult to trust their coteacher with teaching the content due to lack of content knowledge. Coteacher 1 stated that her coteacher did not always understand her role in modifying assignments. Her comment was “some teachers do not think that assignments should be modified because it is not fair to the other students.” The teachers reported some negative aspects of coteaching, but the overall experience was stated to be positive and have a positive impact on the learning environment.

### *Instructional strategies*

The second set of questions discussed various strategies used in the coteaching experience. The first questions asked for new instructional strategies that were used in coteaching. Many of the participants shared that a variety of strategies are used, such as station teaching, parallel teaching, team teaching, and complementary teaching. One teacher, C5, shared that “complementary teaching is boring.” This method only allows for the coteacher to simply provide support. She did not feel that she was an active part of the instruction. Station teaching was shared by all the participants to be a strategy that is being used. With each of the instructional strategies shared by the co-teachers, a clear common strategy was grouping the students into smaller groups. All of the coteaching experiences have allowed students to have smaller group instruction.

### *Management Strategies*

Some of the coteachers shared that many of the management strategies being used were not necessarily new, but are easier to implement when there were two teachers in the room. Implementing a positive behavior reward system was shared by four of the participants. C4 used a “point system” where students earned points on a chart for appropriate behaviors in class. C2 used a “ticket system” where tickets were given to students for appropriate behaviors and a drawing was done at the end of the week for rewards. Other strategies shared were behavior checklist or contracts for those difficult students, using sticky notes to help students self monitor their behaviors (for example: the number of times out of the seat, the number of questions he/she asks the teachers, etc), and using consistent discipline between both coteachers. Management strategies shared during the interviews were not new strategies but it was stated that with “two pair of eyes in the room it is easier to consistently monitor student behaviors.”

### *Curriculum Adaptation Strategies*

One question was related to curriculum adaptations that were used in the coteaching classroom. Many of the participants shared that there were not sure they had used curriculum adaptations, but they had used modifications for students. As further questioning was done, the participants shared that the curriculum had not been adapted for the students in the coteaching classroom. Some modifications that were used to assistance students with disabilities was computer based support programs, simplifying the assignments based on the level of difficulty or the amount of work to be completed. It was evident that some of the coteachers expected the special education coteachers to be responsible for adjusting the curriculum or assignments for the students with disabilities.

### *Professional Knowledge*

The fourth question in Set 2 asked about the co-teachers professional knowledge and skill and the impact that the collaborative coteaching experience may have had on it. It was shared by all participants that coteaching had contributed to their professional knowledge and skill. Coteachers shared that the collaboration had helped them develop a better understanding of specific student needs as well as provided them with ideas for instruction and management. Coteacher 6 shared that it helped her “understand the struggles that students with disabilities are having.” One coteacher, C2, shared that she had learned various strategies for “breaking down material into simpler formats” that she could use with her regular education students. It was shared by C4 that coteaching “makes me more aware of the need to differentiate instruction to fit all students learning styles.” Open communication and collaborating with co-teachers was shared to be a key factor in a child’s learning.

### *Satisfaction of Coteaching Assignment*

The third set of questions required the participants to reflect upon their current coteaching assignment. Overall the coteachers are satisfied with their current assignment. Many of the coteachers expressed their gratitude for having a partner to collaborate with on assignments, grading, organizing, and providing instruction. One coteacher, C1, shared that the most satisfying aspect of her teaching assignment was “the open communication between my co-teachers and me.” Another shared that the most satisfying part was “having different views on the lessons.” It was clearly stated that the co-teachers were satisfied with their current assignment and the ability to communicate and share the responsibility of teaching.

### *Support Provided*

The second question in Set 3 asked the participant to share their thoughts on the support that had been provided by the school for facilitating coteaching. All of the participants shared that the school was very supportive in providing training, workshops, and other professional development opportunities that allowed the coteachers time to collaboratively plan and organize their instruction. It was shared that the special education director, special education coordinator, and the curriculum director have all played an integral part in implementing coteaching. The school level special education coordinator has been actively involved in many of the coteaching classrooms. Coteacher 2 shared that the special education coordinator has been “excellent with helping with room arrangements, test modifications, coteaching arrangements and strategies.” Scheduling of common planning was completed by the school level coordinator and principal. The participants expressed their appreciation for common planning. It was shared that C1 had a mentor teacher that provided a great deal of support in how to handle various situations that arise with coteaching. C2 shared that the “school is doing all that could be asked.” C5 and C6 reported that outside consultants are used often for followup training and support. The level of support provided to the coteachers was expressed as being adequate and available at many different levels.

### *Teaching Strategies and Students Without Disabilities*

The fourth set of questions focused on the effectiveness of coteaching on students with and without disabilities. The first questions asked the participants to share their thoughts on the coteaching strategies and their effect on students without disabilities. All of the participants shared that the coteaching strategies being used are effective for all

students. Several teachers shared that coteaching strategies provide more support for students. It was shared by a few coteachers, C4 and C6, that it allows “students to see concepts demonstrated in a different way” or “that there is more than one way to do things.” Overall, coteachers feel that students without disabilities can benefit from the coteaching strategies.

#### *Teaching Strategies and Students With Disabilities*

The second question in Set 4 focused on the effectiveness of coteaching strategies and students with disabilities. The participants shared that the coteaching strategies being used were effective for students with disabilities. The strategies provided a variety of ways to teach the various concepts. These strategies provide a small group environment where students receive more attention from the teacher as well as the opportunity to ask questions and actively participate. C5 shared that students with disabilities can “actively participate in the classroom without worrying what others may think of them.” C4 shared that the strategies were effective for students with minor disabilities. She did not agree that they were effective for all students with disabilities. She commented that “student with major problems” may not be able to handle everything, “it is just too much for them and us to deal with.” Overall, teacher reported that the coteaching strategies are effective for all students, those without disabilities and those with disabilities.

#### *Social Development of Students Without Disabilities*

The participants shared their thoughts regarding the social development of students without disabilities in the inclusive classroom. Many of the participants stated that it teaches the regular education students tolerance and patience. The inclusive

classroom provides students with the opportunity to see individual's differences and teaches them to accept others and hopefully respect their differences. C1 shared that "participation in the coteaching classroom prepares them for the real world" where everyone is not the same. C5 shared that for students without disabilities, the coteaching classroom can be "socially frustrating" because they may be slowed down by other individuals. It was also shared that students without disabilities can often become jealous of the extra accommodations and support being provided to students with disabilities. In general, coteachers reported that students without disabilities can benefit socially from the coteaching inclusive classroom.

#### *Social Development of Students with Disabilities*

The participants of this study reported that students with disabilities develop better social skills because of "the opportunity to be in the same place with their non-disabled peers." It was shared by C4 that the SWD are "challenged to fit the mold of socially accepted classroom behaviors." A couple of the coteachers stated that inclusion allows the SWD to interact with all students and feel less isolated and different. Inclusion gives the SWD the opportunity to learn like everyone else. It provides collaboration among peers and the opportunity to have a voice in their learning. C2 shared that inclusion can sometimes be socially detrimental to those students with a more severe disability. She shared that "acceptance by peers in the regular classroom" can contribute greatly to one's self-esteem. If a child is ridiculed by peers, "the damage to the self esteem can cause students to want to give up."

### *Receptive to Coteaching*

The last question in Set 4 asked coteachers to share their thoughts about their students' receptiveness to coteaching. All the participants shared that they believed their students were receptive to coteaching through conversations that have been held with their students, through active participation in the lessons, and the respect and assistance that students have shown to each other. C1 shared that "students have said that they like having two teachers in the classroom and that they are able to get their questions answered better and faster." C4 shared that the students "respond well to the lessons and try to please both teachers."

### *Responsibilities*

The last set of questions asked coteachers to respond to their responsibilities. The teachers provided input on what responsibilities were shared and what was specifically their responsibility. The responsibilities included planning lessons, instruction, modifying curriculum, remedial instruction, administering discipline, classroom management, and assessment/grading. Overall, each of the responsibilities was shared among both coteachers. The participants stated that they work together with their coteacher to meet the needs of all learners and the needs of their classroom. Modifying the curriculum was the one responsibility that a few of the coteachers believed to be primarily the special education teacher's role; however, many times the two teachers would collaborate on how the modifying would occur. A few coteachers stated that grading may be primarily the content teachers' responsibility, but it was a task that was often shared.

### Analysis of Interview Data

After transcription of the interviews was completed, the researcher analyzed the data by the predetermined themes to verify if there were common responses or perceptions given by each participant. The researcher analyzed each theme (set of questions) to gain insight on the overall perception of coteaching by these participants. Teachers' perception often has an impact on the effectiveness of coteaching.

In order to answer the research subquestion, the researcher must analyze the coteachers' perceptions of their coteaching experience. The first set of questions in the interview focused on the participants coteaching experience as being positive or negative. Most of the participants (four out of six) expressed their experience as a positive one. There were only a few (two out of six) that reported their experience as positive and negative with an explanation of both. A few of the participants shared some negative aspects even though their experience was mostly positive. Most of the positive experiences shared were justified by the participants' explanation of shared responsibilities, collaboration of planning, and providing instruction with a variety of strategies. The few negative experiences shared were due to personality conflicts, lack of experience in teaching, and lack of content knowledge of coteachers.

With the response from participants including a variety of strategies, question sets 2 and 3 asked the participants about instructional, management, curriculum, and support strategies. The participants reported that new instructional strategies learned included station teaching, parallel teaching, team teaching, and small group strategies (alternative teaching). Some of the new effective management techniques being used were sticky notes communication, behavior contracts, self-checklist and self-monitoring system, and

reward systems. Curriculum modifications were limited to simple accommodations that were being made to the work being assigned to regular education students. Most of the strategies mentioned did not exactly modify what was being taught, but accommodated for the students' individual needs, such as reduce the amount of work, extend the time allowed to complete the assignment, allow a student to use a calculator, provide a peer tutor, and allow students to have a choice in which assignments they want to complete based on their level or interest. The participating coteachers shared that the school system and administration has been very supportive in implementing coteaching. Professional training and collaborative planning has been provided to help increase the level and effectiveness of coteaching.

The fourth set of questions explored the participants' thoughts and perception of the effect coteaching has on students with disabilities as well as regular education students. The overall perception of the participating coteachers was that coteaching can positively impact all students socially. The students without disabilities often become more tolerant of others and develop a sense of respect for them, while students with disabilities learn and adapt to socially accepted behaviors. Some students, however, may be effective negatively if they are placed in the classroom but not truly included in the instruction and learning environment. The coteaching strategies used in the classroom benefits all learners, both with disabilities and without. The participants shared that the coteaching strategies, such as station teaching, team teaching, and parallel teaching can enhance the learning for all students. It also provided more one on one support to all students.

The interview questions in Set 5 discussed the responsibilities of each coteacher. The responsibilities included in this section were planning lessons, providing instruction, modifying the curriculum, providing remediation for the instruction, administering discipline, implementing classroom management, and assess/grading student work. Most of the coteachers agreed that all of the responsibilities were shared. The only responsibility that was overall considered to be only one of the coteacher's responsibility was the modifying of the curriculum. Most of the participants stated that this job was primarily the special education coteacher's responsibility. The other classroom responsibilities were shared or should be shared equally among the coteachers.

#### Interview Data Analysis Summary

To answer the research related question, What are the coteachers' perceptions of students' achievement and learning within the co-taught classroom?, the interviews were conducted. After reviewing the results of the interviews, the research can concluded that the coteachers possess a positive perception of the effects that coteaching can have on student achievement and learning. It is clear that the participating coteachers believe that the coteaching model provides students with greater opportunities to instructional strategies, more teacher support, and social development toward understanding others' differences.

#### Introduction: Quantitative Data

Fifty-eight students participated in the study. The participants were divided into three groups (classes). Two of the groups (class 1 and 2) were cotaught classes, which consisted of 38 students. Among these two groups were nine students with disabilities (8

males and 1 female). The third group (class 3) was a regular education class with no coteaching with 20 students. There were no students with disabilities in this group. Class 1 and 2 were combined and consisted of 29 students without disabilities, in which 11 (38%) were males and 18 (62%) were females. These two groups served as the experimental group or the cotaught group. Class 3 consists of 12 (60%) males and 8 (40%) females. Class 3, which is the noncotaught class, served as the control group for the study. Frequency of males and females in each group is listed in Table 1. Percent of sample participating in the experimental group and control group is displayed in Table 2.

Table 1

*Gender for each Group*

		Gender		Total
		male	Female	
Group	Experimental	11	18	29
	Control	12	8	20
	Total	23	26	49

Table 2

*Participants in Control/Experimental Group*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Experimental	29	59.2	59.2	59.2
	Control	20	40.8	40.8	100.0
	Total	49	100.0	100.0	

### Pre and Posttest Analysis

Preliminary analysis for research question 1 consisted of four Shapiro Wilk tests, one for each group (control vs. experimental) and one for each time period (pretest vs. posttest) to assess the assumption of normality for algebra achievement scores. The results of the Shapiro Wilk tests are presented in Table 3 and revealed pretest algebra achievement scores for the experimental group was not normally distributed; however, Stevens (2002) states “that non-normality has only a slight effect on the Type I error rate, even for vary skewed distributions...the  $F$  statistic is robust with the respect to the normality assumption”.

Table 3

#### *Shapiro Wilk Test Assessing Normality*

	Pretest		Posttest	
	Statistic	Sig.	Statistic	Sig.
Control	0.99	.999	0.95	.322
Experimental	0.92	.025	0.96	.407

To examine research question 1, a two-way analysis of variance (ANOVA) was conducted to assess if differences exist on algebra achievement scores by group (control vs. treatment) and time (pretest vs. posttest). Box’s test of equality of covariance was not significant ( $p = .065$ ) suggesting that there were equal covariance’s, therefore the assumption was met. The results reveal that significant differences exists by time,  $F(1, 47) = 12.03, p < .001$ , suggesting that scores increased from pretest ( $M = 10.18, SD =$

3.85) to posttest ( $M = 12.45$ ,  $SD = 5.19$ ). The results reveal that no significant group by time interaction exists on algebra achievement scores,  $F(1, 47) = 2.94$ ,  $p = .093$ ; however due to  $p$  approaching 0.05 a post hoc test consisting of two independent sample  $t$  tests and two dependent sample  $t$  tests was conducted. The results of the post hoc analysis revealed that significant mean differences did in fact exist on algebra achievement scores for only the experimental group by time suggesting that scores increased from pretest ( $M = 9.79$ ,  $SD = 3.85$ ) to posttest ( $M = 12.90$ ,  $SD = 5.97$ ). The results of the ANOVA also suggest that no significant between group differences exist,  $F(1, 47) = 0.22$ ,  $p = .641$ , suggesting that overall no differences exist on algebra achievement scores by group (control vs. experimental). The results of the ANOVA are summarized in Table 4, while means and standard deviations are presented in Table 5.

Table 4

*Two-Way ANOVA on Algebra Achievement Scores by Group and Time*

Source	df	$F$	Sig.	Partial $\eta^2$	Power
Within subjects					
Time	1	12.03	.001	0.20	0.93
Time * Group	1	2.94	.093	0.06	0.39
Error	47	(8.49)			
Between subjects					
Group	1	0.00	.954	0.00	0.05
Error	47	(33.61)			

*Note.* Values in parentheses represent mean square errors.

Table 5

*Means and Standard Deviations on Algebra Achievement Scores by Group and Time*

	Pretest		Posttest	
	M	SD	M	SD
Control	10.75	3.88	11.80	3.85
Experimental	9.79	3.85	12.90	5.97
Total	10.18	3.85	12.45	5.19

## Conclusion

This study examined inclusion with coteaching to determine if it has an impact on regular education students' achievement on a BSAA in the eighth grade. Two questions were asked to determine the impact, if any. The research question asked if inclusion with coteaching has an impact on regular education students' achievement on a Basic Skills Algebra assessment in the eighth grade. The other related question asked about the coteachers' perceptions of students' achievement and learning within the cotaught classroom. Based on the data collected and analyzed from coteacher interviews and test scores on the BSAA pre and posttest, the nondirectional hypothesis would be rejected. The directional hypothesis, "there will be a significant difference among regular education students' achievement on a BSAA in the coteaching classroom and those not in a cotaught classroom," would be accepted. The results of the post hoc analysis revealed that significant mean differences did in fact exist on algebra achievement scores for only the experimental group suggesting that scores increased from pretest ( $M = 9.79$ ,  $SD = 3.85$ ) to posttest ( $M = 12.90$ ,  $SD = 5.97$ ). The coteacher interviews provided support that

the coteachers perception of student learning was in fact greater in the cotaught classroom. The test data supported the teachers' perception that coteaching has an impact on the students' achievement and this study showed a positive impact.

### Evidence of Quality

The use of concurrent triangulation of data from student test data and teacher interviews will strengthen the reliability and internal validity of a study (Merriam, 1998). Validity of the algebra assessment was found and the items in the instrument measure the content they are intended to measure. The algebra assessment instrument was found valid through test-retest, equivalent across alternative forms, correlations with performance on other indicators of proficiency, and use of measures as predictive of future performance levels. All correlations were based on a correlation significant at  $p < .05$ . Member checks were made with the participants to ensure that the researcher was reporting the data correctly. An external auditor was asked, as well as, peer examiners to review the study to ensure that the data supported the results reported.

In summary, the findings of this study support a positive impact on student learning in the coteaching classroom. The teachers reported positive perceptions of the implementation procedures and the effectiveness of coteaching on student achievement. The interviews and test data were valid and reliable sources for collecting and reporting the data needed to verify the impact of coteaching on students' math achievement. The following section provides a summary, conclusion, and recommendations for further studies. Section 5 presents the significance of the study and recommendations for further studies that could enhance the research on the impact of coteaching on regular education students achievement in mathematics.

## SECTION 5: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

### Introduction

The purpose of this study was to determine if inclusion with coteaching had an impact on regular education students' achievement on a BSAA in the eighth grade. Math has been a concern for many educators, as reflected on the NAEP in 2007; therefore a greater focus on math achievement has existed over the last several years. With the implementation of coteaching, a need to explore its impact on regular education students in the cotaught math classroom existed.

This study addressed examined the impact that inclusion with coteaching has on regular education students' achievement on a BSAA in the eighth grade. The related question being addressed investigated the coteachers' perceptions of students' achievement and learning within the cotaught classroom. The study was conducted in small rural middle school. The concurrent experimental study included coteacher interviews as well as test data from eighth grade students. The coteachers participated in an interview to provide data regarding the teachers' perception of student learning in the cotaught classroom. The student data was collected on a pre and post test of BSAA. These students were taught by the same regular education teacher. Two of the classes of students used were in a cotaught classroom and one class of students only had the single regular education teacher. The teacher interview data and student test data was triangulated and compared to determine if coteaching had an impact on the regular education students learning.

### Interpretation of Findings

The findings provided support for the hypothesis of coteaching having a positive impact on regular education students learning in a co-taught math classroom. The teachers' perception of coteaching was relatively positive. Most teachers reported that the coteaching strategies were beneficial not only to students with disabilities, but with other struggling students. The interview and test data supported an increase in student learning in the co-taught classroom for regular education students.

This study did reveal that coteaching had a positive impact on the learning of regular education students. The teachers' perception, as reported in section 4, revealed that coteaching strategies enhanced the learning of all students, not just students with disabilities. The social benefits, shared by the participants, for regular education students included the ability to accept and tolerate other's differences. These results were consistent with the findings of Downing and Peckham (2007). The teachers reported that their coteaching experience was positive and allowed them the opportunity to collaborate and share ideas for instruction, grading, and managing student concerns. These findings were consistent with findings of Beckman (2001) and Murawski and Hughes (2009). Both reported that improving student learning required that all participants bring their knowledge and expertise while working together to educate all students. Friend, Reising, and Cook (1993) also stated that co-teachers who consider themselves equal report that coteaching is a positive experience. The coteachers in this study shared that adequate support by the district and school level administrators had been given to effectively implement coteaching. As reported by Murawski & Dieker (2008) keeping teachers on the right track for successful coteaching includes: training, collaboration, sharing the

materials and workload, communicating with their partner, commitment to co-planning, and sharing the students. The teachers reported in this study that sharing the workload and commitment to collaborative planning has been a key to their positive experiences.

While the teachers reported coteaching having a positive impact on regular education students' achievement, the test data collected also supported these results. The test data collected on the BSAA showed that the regular education students in the cotaught classroom had greater improvement than those regular education students in the noncotaught classroom. In section 1, it was hypothesized that there would be significant difference among the regular education students' achievement scores in the cotaught and the noncotaught classroom. The test data did not report a significant difference among the two groups scores. However there was a significant increase in the scores among the cotaught (experimental) group and there was not a significant increase among the noncotaught (control) group. This is reported in Tables 4 and 5. The data reported in Tables 4 and 5 reflect the results of the post hoc analysis. It revealed that significant mean differences did in fact exist on algebra achievement scores for only the experimental group suggesting that scores increased from pretest ( $M = 9.79$ ,  $SD = 3.85$ ) to posttest ( $M = 12.90$ ,  $SD = 5.97$ ). The data revealed in this study was consistent with data reported by previous studies (Idol, 2006; Luster & Durett, 2003).

Based on this study, inclusion with coteaching does have a positive impact on regular education students' achievement in the mathematics classroom. The data from teacher interviews and student test revealed that the coteaching model can enhance the learning of all students, not just students with disabilities. This study can support educational leaders in leading a change to implement coteaching with its various

strategies. The teacher interviews of this study can reveal to other co-teachers the necessary components needed to make their coteaching classroom a more positive partnership. It also reveals various coteaching strategies that have been reported to be successful for the participants in this study. Educational professionals should review the results of this study and use it to enhance their cotaught classrooms or to pursue the implementation of coteaching.

### Implications for Social Change

Much research is available regarding the implementation of coteaching and its impact on students with disabilities, but little research is available regarding the achievement of regular education students in the cotaught classroom. This study has added to the available research that supports the positive impact that coteaching has on regular education students' achievement in mathematics. The test data for this study supported an increase in the achievement of regular education students in the cotaught classroom. Many times educators are concerned for the learning of the regular education students. Math is an area that has been identified as an area of weakness for many students, not just students with disabilities. Professional educators can use this study as a support for scheduling struggling math students into a co-taught classroom. Coteaching in this study has shown to be beneficial to regular education student's learning. This study is available to help clarify their concern or reassure them that the regular education students are not being hindered by the coteaching classroom. Test data continues to be the measure of student achievement; therefore research support reforms, such as coteaching, is needed to support the achievement of students on test scores.

NCLB is a push from the government that is not going to disappear; therefore educators need to be provided with support for implementing the many changes that are mandated. Coteaching is one of those reforms that are often implemented without being asked or discussed by teachers. Administrators often need evidence to support these changes to struggling teachers that are hesitant to implementing coteaching. The results of the teachers' interviews for this study provide other coteachers of the benefits as well as some negatives of coteaching. Overall the data reported from the coteachers in this study provide support toward great strategies for instruction, management, curriculum adaptations, and partnerships. Instructional strategies reported to be successful for coteachers in this study were station teaching, team teaching, and parallel teaching. Management techniques were shared among coteachers that benefited struggling learners with behavior problems, such as staying off task, students who are constantly asking for teachers' assistance before attempting to work the problems on their own, and students struggling to stay in their seat. Coteachers shared their strategies through professional learning sessions and collaboration. School systems everywhere can establish collaborative learning sessions for teachers to share and learn from each other. It was shared that having administrator and system support was key in the effective implementation of the coteaching model. Coteaching provides professional learning opportunities through simple collaboration and communication. Positive experiences in coteaching reflect a collaborative partnership. Many times coteaching may be implemented but it may be lacking the various components of a true co-taught classroom. Through this study, coteachers could analyze their own coteaching classroom to determine what changes or improvements could be made. Educators can share and reflect

with their coteacher the components of their own classroom and the success of their collaborative instruction, management, and student learning. This study promotes a positive change in the perception of other educators in regards to providing coteaching instruction to struggling learners.

This study also revealed that administrative support is needed to continue successful coteaching experiences. Many of the coteachers reported that great support was provided from colleagues, school administration, and central office administration. Administrators often require the implementation of new model or reform, but fail to provide the necessary support to continue the implementation of the change. Educational administrators need to review the data in this study to instill the importance of being the support system for implementing coteaching. Schools can not expect a model or reform to be fully implemented and continue to be fully implemented without the continuous support for professional learning, reflection, evaluation, and collaborative communication among coteachers and administrators.

The purpose of the many changes in our school systems is to improve the educational opportunity for all learners. The NCLB requires that all children learn and be provided opportunities to learn and achieve on grade level. Coteaching is one of many models that provide a unique learning opportunity for students with disabilities as well as regular education students. The research to support this model in the area of improving student achievement is limited; therefore this study can be used by professional educators to not only analyze their coteaching situation, the administrative support for coteaching, the instructional strategies being used in the co-taught classroom, but also the impact coteaching has on student achievement. This study reveals that coteaching can enhance

the learning of all students in the mathematics classroom. The data in this study support coteaching for all math students, not just students with disabilities; therefore this study is a key resource for administration when scheduling students into the various classrooms. Benefits of coteaching are apparent for struggling math students.

### Recommendations for Action

Administrators and teachers considering implementing coteaching should review this study. It can be used to promote coteaching implementation, but also reinforce what other literature reports regarding the implementation requiring training, support, and collaboration. Administrators need to remember that their continuous ongoing support is needed by coteachers. Administrators need to develop an ongoing evaluation method for coteachers to help ensure that the coteaching is occurring as well as assist coteachers in finding solutions to their problems or concerns. Periodic staff development should be scheduled to provide opportunities for all coteachers to share and collaborate on positive and negative experiences. Educators can benefit and learn from each other. The administrators can schedule peer observations for coteachers to provide each other with feedback on what was learned or could be implemented to enhance the lesson.

Before coteachers are placed in a coteaching situation, much preparation is needed in order to develop a positive and collaborative relationship with their partner. Coteachers need to review research to become more aware of what a true cotaught classroom should be and the benefits that it can possess. As for struggling coteachers, research should be done to determine the root cause for the struggles, such as personality conflicts, lack of training on establishing the cotaught classroom, lack of support from the administrative staff, or lack of confidence on the impact that coteaching can have on

student achievement. Many coteachers are concerned for the learning of the regular education students and lack evidence to support the positive impact that coteaching can have on those students.

Coteaching is an ongoing challenge. Educators must be reminded and provided opportunities to reflect on their coteaching situation and determine how to fine tune the model. This is the administrative staff's responsibility to establish these times of reflection and collaboration among coteachers. The benefits of coteaching are evident in this study, and should be shared with other educators. It is recommended that an evaluation be conducted to determine the effectiveness coteaching has on students' achievement in other subject areas.

The results of this study will be present to the faculty and staff of the participating middle school. Any faculty member wanting a copy of the study and its findings will be made available. The study will be published on the school system's website. A copy of the study will be made available to any other similar school system interested in effective coteaching.

#### Recommendations for further studies

Coteaching has evolved from a history of placing students in the least restrictive environment. Coteaching will continue to be revised and improved as educators reflect, revise, develop, and implement new coteaching strategies or components. Much research is needed to determine how to better implement coteaching in order to reach all learners in all subject areas. The following recommendations could enhance the available research for coteaching.

1. This study was limited to a rural middle school with only a limited number of students and coteachers. Further research is needed that encompasses a greater number of coteachers and students.
2. Math achievement was the focus of this study; therefore more research is need in other subject areas. Coteaching is occurring in many language arts, reading, science, and social studies classroom. Little research is available to support the impact that coteaching has in the various subject areas.
3. This study focused only on middle school students' achievement. Elementary and high school students should be included in a study to determine if coteaching has a positive impact on the regular education students' achievement in mathematics, as well as other subject areas.
4. Future research should extend the time period for collecting test data to be longer than 12 weeks. This study only examined the achievement of students after twelve weeks of coteaching. A study that would extend to a full school year may provide different data, especially if the research used a variety of instruments to measure the students' achievement, for example: state mandated test, classroom grades, pre-posttest, etc.
5. A study comparing the effectiveness of coteaching among two certified teachers or a certified teacher and paraprofessional. Many school systems are using paraprofessionals as the special education support person in the classroom due to budget concerns. However, it is a concern that utilizing a paraprofessional will not have as great an impact as using two certified teachers. School systems may want

to research the effectiveness of paraprofessional in the cotaught classroom prior to implementing this strategy in all classrooms.

6. Future studies need to be conducted to compare the learning and achievement of students with disabilities in the co-taught classroom verses their learning and achievement in the resource math classroom. This type of study may be difficult to conduct due to the federal mandate of NCLB. Most students with disabilities are required to be placed in the least restrictive environment; therefore it may be difficult to find a school system that has both a resource math classroom and cotaught math classrooms available. However that particular study would enhance the available research regarding the impact that coteaching has on student's achievement.

### Conclusion

The teacher interviews and test data in this study support the implementation of coteaching and its impact on students' learning in the math classroom. The results of this study reveal that coteaching increases the achievement of regular education students in the cotaught classroom. Coteaching provides a greater opportunity for learners by not only having two active teachers in the classroom, but allowing opportunity to a variety of strategies that may not be possible in a single taught classroom. Improving student learning requires that all participants bring their knowledge and expertise while working together to educate all students (Beckman, 2001). Coteaching is the perfect set-up for educators to share their knowledge and expertise while collaborating with other teachers in regards to student learning. While Ellett (1993) reported that teachers recognize the need to change their instruction to meet the individual students' needs, but it is often too

difficult to reach all students in a single taught class; therefore coteaching allows a chance for various instructional strategies to reach all learners. Friend, Reising, & Cook (1993) reported several instructional strategies that can be designed to meet individuals' instructional needs. Coteaching has potential to create a learning environment in which all students feel successful and their learning is enhance because individual needs are being met. The results of this study show that coteaching can positively impact students' achievement when implemented with co-teachers who share common beliefs and perceptions of coteaching and it many components.

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## APPENDIX A: CONSENT FORM

You are invited to take part in a research study of coteaching in the middle school math classrooms. You were chosen for the study because of your teaching position as special education co-teacher or regular education co-teacher. Please read this form and ask any questions you have before agreeing to be part of the study.

This study is being conducted by a researcher named Misty Rigdon, who is a doctoral student at Walden University. Misty Rigdon is a special education coordinator at Bacon County Middle School.

### **Background Information:**

The purpose of this study is to determine if inclusion with coteaching has an impact on regular education students' achievement on a Basic Skills Algebra assessment in the 8<sup>th</sup> grade.

### **Procedures:**

If you agree to be in this study, you will be asked to:

- Participate in a 20-30 minute interview with the researcher regarding coteaching
- Provide scores from a pre-test and posttest of Algebra Skills for students in 8<sup>th</sup> grade mathematics (withholding student names)

### **Voluntary Nature of the Study:**

Your participation in this study is voluntary. This means that everyone will respect your decision of whether or not you want to be in the study. No one at your school will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. If you feel stressed during the study you may stop at any time. You may skip any questions that you feel are too personal.

### **Risks and Benefits of Being in the Study:**

There are minimal risks of participating in the study. The risk of revealing disclosed information provided by the participants during interviews will be minimized by the use of a privacy protection agreement as well as using member checking to ensure that the researcher reports only information agreed upon by the participant. Names will not be provided on the testing data; therefore privacy of participants will be kept. The benefits of this research for participants, as well as other educators involved with coteaching, could be used to support the implementation of inclusion or it may also show results that do not back up the implementation of inclusion. Different levels of inclusion may be found and the results may be used to enhance the inclusion model.

### **Compensation:**

There is no compensation for participating in the study. However, it will be greatly appreciated by the researcher.

### **Confidentiality:**

Any information you provide will be kept confidential. The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in any reports of the study.

**Contacts and Questions:**

The researcher's name is Misty Rigdon. The researcher's faculty advisor is Dr. Douglas Eicher. You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone at (912)632-8257 or by email at mrigdon@braidors.com or the advisor at (402)440-1169 or by email at douglas.eicher@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Director of the Research Center at Walden University. Her phone number is 1-800-925-3368, extension 1210.

The researcher will give you a copy of this form to keep.

**Statement of Consent:**

I have read the above information. I have received answers to any questions I have at this time. I am 18 years of age or older, and I consent to participate in the study.

Printed Name of

Participant

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Participant's Written or

Electronic\* Signature

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Researcher's Written or

Electronic\* Signature

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Electronic signatures are regulated by the Uniform Electronic Transactions Act. Legally, an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

APPENDIX B: SEMI-STRUCTURED INTERVIEW: PERCEPTIONS OF  
COTEACHING

**Directions to the Interviewees:**

The following questions are designed to provide additional information about your coteaching experience. You are encouraged to answer these questions as candidly and as completely as possible; the anonymity of your responses is assured. The responses of all those teachers interviewed in the course of this study will be reported as group data according to trends that are identified. The interview normally takes from 15-20 minutes – although you may take as much time as you need to answer the questions. The results of this study will be available to you upon request.

SET 1

1. Would you describe your coteaching experience generally as a positive or negative one? And Describe the positive/negative aspects?

2. Have you and your teaching partner ever disagree about an important aspect of coteaching? what was the disagreement?

Were you able to resolve the disagreement? how was it resolved?

3. Have you ever taught in a regular education classroom with students with disabilities, but without a co-teacher? How does your recollection of that experience compare with your coteaching experience?

## SET 2

1. What, if any, new instructional techniques have you used in your coteaching experience?
  - a. Describe the teaching methods you currently use
  
2. What, if any, new management strategies have you used in your coteaching experience?
  - a. Did you find any of these you consider to be effective? Why?
  
  - b. Describe the management strategies you currently use.
  
3. What, if any, curriculum adaptations have you used in your coteaching?
  - a. which of these you consider least effective? Why?
  
4. Has the collaborative teaching experience contributed to your professional knowledge and skill?

If yes...would you describe these contributions?

If no...would you describe the some of its shortcomings?

## SET 3

1. Are you satisfied with your current collaborative teaching assignment?

If yes...would you describe the most satisfying aspects?

If no...what changes or improvements would you recommend?

2. What types of support are provided by the school?

a. Are you satisfied with the level of support provided by the school to facilitate your collaborative teaching?

If no...what types of support do you think the school should provide?

SET 4

1. Do you think the collaborative teaching strategies that you are using are effective in educating students without disabilities in your classroom?

If yes...why are they effective?

If no...why are they not effective?

2. Do you think the collaborative teaching strategies that you are using are effective in educating students with disabilities in your classroom?

If yes...why are they effective?

If no...why are they not effective?

3. To what extent do you think that participation in an inclusive experience contributes to the social development of some students without disabilities?

In what ways does it contribute?

4. To what extent do you think that participation in an inclusive experience contributes to the social development of students with disabilities?

In what ways does it contribute?

What type of disability?

What level of severity?

5. Are the students in your inclusive classroom generally receptive to collaborative teaching?

If yes...how do you determine this?

If no...how do you determine this?

SET 5:

1. What are your responsibilities in the inclusive classroom? Which of these are exclusively your responsibilities? Which of these is exclusively the responsibility of your partner? Which of these do you share?

The following are suggested areas of teacher responsibility in the classroom:

	My Job	Shared Responsibility	Partner's Job
<input type="checkbox"/> Planning lessons	_____	_____	_____
<input type="checkbox"/> Instruction	_____	_____	_____
<input type="checkbox"/> Modifying curriculum	_____	_____	_____
<input type="checkbox"/> Remedial instruction	_____	_____	_____
<input type="checkbox"/> Administering discipline	_____	_____	_____
<input type="checkbox"/> Classroom management	_____	_____	_____
<input type="checkbox"/> Assessment and grading	_____	_____	_____

## APPENDIX C: RESULTS FROM TEACHER INTERVIEWS

Semi-Structured Interview: Perceptions of Coteaching		
Questions	Responses	Themes
<p>SET 1: Would you describe your coteaching experience generally as a positive or negative one?</p>	<p>T1: My coteaching has been a positive experience. Positive aspects: smaller group, more teacher attention, less behavior problems, more strategies Negative aspects: lack of experience from both co-teachers, differences among co-teachers</p> <p>T2: Generally positive Positive aspects: assistance in sharing teaching methods, collaboration with another teacher Negative Aspects: Weak in content area, difficulty in sharing the lead teacher role</p> <p>T3: Generally positive- I have always been able to work well with all of my co-teachers. One year, however, I felt more like a paraprofessional in one teachers' classroom. She seemed to want to be in control of her classroom.</p> <p>T4: Both positive and negative. Positive: similar personalities and goals for our students Negative: Some co-teachers are too relaxed with their responsibilities</p> <p>T5: Described as both positive and negative— Positive aspects are having 2 teachers in the classroom with equal responsibilities toward student learning. Negative aspects are having a partner that does not allow you to take an active role in the class. Being considered the other teacher with no input or authority.</p> <p>T6: Positive Positive aspects: sharing the load makes my job easier, someone to help plan, teach, and grade papers, collaborating new ideas for instruction Negative: None</p>	<p>Positive: variety of strategies that can be used, shared responsibility, collaboration</p> <p>Negative: lack of experience, weakness in content area, personality conflicts, disagree on student discipline/assistance</p>
Have you and		

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your teaching partner ever disagree about an important aspect of coteaching?

T1:yes, Modifying assignments, use of calculators for SWD, accommodations  
Resolved: through communication between us

T2:Never had a disagreement

T3: No, I expect the SWD to perform their best. I only allow partial assignments, fewer choices, etc. when absolutely necessary. I think the problems other co-teachers have center around “babying” the SWD.

T4:Yes, regarding discipline of students, providing too much assistance to students  
Resolved: by asking for assistance through an inclusion expert, but this did not help. It was mainly a personality conflict

T5: Yes, when the content teacher sees all students the same and has difficulty understanding special ed. students’ needs. The main argument is agreeing on how to handle students and who is responsible for handling punishment, discipline, rewards, etc. The disagreement was resolved through the assistance of the sped coordinator, sped director, and an outside expert. Compromises were made through lots of communication.

T6: None

Have you ever taught in a regular ed. Classroom with students with disabilities, but without a co-teacher? How does it compare to coteaching?

T1: yes, however there were only one or two students with mild disabilities. It is different with my current situation of 7-8 students with severe learning disabilities.

T2: This is my first year teaching, I have not taught without a co-teacher.

T3: Never taught in a regular classroom. I am a special education teacher.

T4: No, my other classes did not have sped students in them.

T5: No experience in teaching a reg. ed class with no co-teacher

T6: Yes, I would much rather have a co-teacher. The students need that support, I am not able to give them all the support they need without a co-teacher.

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<p>SET 2: What new instructional strategies have you used in your coteaching experience?</p> <p>Describe the teaching method.</p>	<p>T1:Open communication and team teaching, visual signs or timers for transition, pre-printed notes for students Current teaching methods: repeating directions one on one, check for understanding by having students repeat directions back, small groups of mixed abilities, large group instruction, re-teach/remediation time T2:Station teaching, small group/whole group instruction, modeling with manipulatives Currently using the above strategies T3: Station teaching--One teach/ one observe or assist-- team teaching—alternative teaching, I enjoy team teaching or stations the most T4:parallel teaching/station teaching/team teaching—currently we use lead and support most of the time. We have used team teaching and parallel teaching T5: I have experienced complementary (lead and support), but did not like this method. I have also used station teaching, parallel teaching, and alternative teaching. My favorite is station teaching. T6:New strategy is Station teaching- Currently we mostly use the team teaching approach. We pick up where the other one leaves off.</p>	<p>Strategies: Instructional-station teaching, small group strategies, parallel teaching, team teaching</p> <p>Management strategies-rewards systems (ticket, bonus points, etc), sticky note communication, behavior self checks/contracts</p>
<p>What new management strategies have you used?</p>	<p>T1:Individual behavior contracts, Self behavior checklist, Reward system T2: Ticket system for good behavior, Conduct charts—Various methods are effective when used consistently among both co-teachers-Rotate to new strategies to find what works best with each class. T3: Behavior charts, pulling cards—I thought that pulling cards would be too elementary for middle school students, but it was very effective. T4:Sticky notes with questions to help eliminate an abundance of hands being</p>	<p>Curriculum adaptations-mostly accommodations used such as use</p>

<p>What curriculum adaptations have you used?</p> <p>Has the collaborative teaching experience contributed to</p>	<p>raised, Reward/Bonus point system for good behaviors—Consistent discipline and sticky note communication is currently being used daily</p> <p>T5: No new management strategies. The co-teacher was mainly in charge of discipline and did not ask for much input.</p> <p>T6: no new strategies for management- Currently, I just explain my expectation clearly and expect the students to follow. Warnings are given, detention, and then office referral. Individual conferencing and parent contacts are most effective for me.</p> <p>T1: The curriculum has not been adapted only the assignments have been changed to meet the students' needs. Use of a calculator, simplify the assignment into small steps, or shorten the assignment.</p> <p>T2:I have not adapted the curriculum, I have made some accommodations such as shorten assignments, assignments completed with a peer tutor, extra time for assignments.</p> <p>T3: Only extended time, number of items reduced, level of support or prompts, calculator use for some students—If the extra time or number of items reduced is used regularly, it either can encourage some students to be lazy or always expect less work.</p> <p>T4:Menu items-allows students to select their own assignment, computer stations to modify materials being taught, stations allow teachers to adapt the curriculum to the individual students' needs</p> <p>T5: Most adaptations that I have seen or used revolve around the quantity of work given, time allotted for the assignments, the level of support given, how instructional is delivered, the level of difficulty, how the students respond to instruction, and the way in which students participate. I think all of these strategies must work together to effectively teach each student.</p> <p>T6: none</p>	<p>of calculator, shortened assignments, peer tutors, computer stations, menu selections where students select their own assignments</p> <p>Professional growth-communication and focus on student needs, Learning new strategies for struggling learners</p>
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<p>your professional knowledge and skill?</p>	<p>T1:It has most definitely contributed to my professional knowledge and skills. Taught me communication is the key to a child's learning, not all students learn the same and the key is to discover what each student needs to be successful inside and outside the classroom. Difficulties of coteaching is that it requires a good relationship with the teacher and time consuming to prepare the modifications needed for individual assignments</p> <p>T2: Yes, it has contributed. My co-teacher does a great job breaking down material in simpler format that I can use in my other classes with reg. ed students.</p> <p>T3: Yes, provided me the opportunity to work with student without disabilities.</p> <p>T4: Yes, it makes me more aware of the need to differentiate instruction to fit all students' learning styles.</p> <p>T5: YES, the collaborative teaching experience has definitely contributed to my professional knowledge and skills. The two co-teachers I have worked with are very strong in math and have helped me become a much better math teacher. They were both strong in behavior management, how to manage time, better organizational skills, lesson planning, and things that make a "great" lesson.</p> <p>T6: Yes, I have a better understanding of the students with disabilities and the struggles that they have.</p>	
<p>SET 3: Are you satisfied with your current collaborative teaching assignment?</p>	<p>T1: Yes, the most satisfying and rewarding part has been the communication shared between me and my co-teacher. At the beginning, it was difficult, but through the open communication we are able to do what is best for our students</p> <p>T2: Yes &amp; No-My co-teacher does an exceptional job at simplifying or breaking down the material, but she is weak in content. Although she recognizes that weakness, she does not take the initiative to make sure she understands the steps involved in a specific skill and makes instructional mistakes.</p>	<p>Most are satisfied with their coteaching assignments. One is concerned about the content weakness of her co-teacher.</p>

<p>What types of support are provided by the school?</p>	<p>T3: Yes, I am treated as an equal by coteaching, shown respect and asked for advice regarding my area of expertise. I am included in statements to students and parents.</p> <p>T4: Yes, collaborating on assignments, different views on lessons and testing, use of various resources</p> <p>T5: My last collaborative teaching environment was very difficult. Sometimes teachers don't really want other teachers interrupting their setups. We were very different people with different personalities. More training on coteaching would be a great idea to help everyone involved know what the other teacher should be doing or what should be expected from everyone involved.</p> <p>T6: Yes, It is great to have someone that can pick-up in the lesson and continue without any problems. It is wonderful to have someone support you, help you plan, help you teach, and organize materials.</p> <p>T1: Assistance with modifying the curriculum, strategies for specific student needs, parental involvement, Mentor teachers provide additional support, tools, and information needed for me to be successful</p> <p>T2: School Sped coordinator-helps to plan room arrangements, test modifications, suggestions for struggling learners, coteaching strategies, tasks for learning, and classroom management</p> <p>T3: Co-teachers have training and meetings. Yes, I am satisfied, if I have any problems I voice them and receive assistance if needed. I worry that new teachers do not receive enough support and training.</p> <p>T4: training, sped. coordinator, administration is supportive of needs</p> <p>T5: Our school has numerous supports. The special education coordinator and sped. director are involved when necessary. The curriculum director is often used, the principals, assistant principals, and even outside help (consultants) are used.</p>	<p>School supports the coteaching model through administration, workshops, mentor teachers, and sped coordinators</p>
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	T6: workshops, consultants, and additional planning time	
<p>SET 4: Do you think the collaborative teaching strategies that you are using are effective in educating students <b>without</b> disabilities?</p>	<p>T1: Current strategies can be used for all students. T2: Absolutely, Variety of teaching modalities can help any student to excel. Student learning is a shade of grey-there is no black and white plan for learning. Individual students learn in different ways regardless if they have a disability or not. The broad range of learning abilities does make it difficult and can be a drawback. T3: Yes, all students remain on-task, seem eager to learn, and perform as well as expected, generally. T4:yes, Gives students more support, shows more than one way to do things T5: Collaborative teaching strategies must be effective. Test scores are increasing each year in the collaborative classroom. I think they are effective because the students enjoy the different teaching styles and they have adapted to more than one educator in the classroom. T6: I feel that they are because they may see the concept demonstrated in a different way and may actually understand it a little more.</p>	<p>Stud. Without disabilities: Teaching strategies benefit all students learning and are provided more support Socially students without disabilities become more tolerant of others' differences and teaches them to respect others.</p> <p>SWD: Various strategies provided to assist in their learning, but some SWD are not capable of achieving on that level in the inclusion classroom.</p>
<p>Do you think the collaborative teaching strategies that you are using are effective in educating students <b>with</b> disabilities?</p>	<p>T1: They are research proven strategies. I have seen them work in my own classroom setting. T2: The same as my answer for students without disabilities. Variety of strategies and techniques are needed to reach all students. T3: Yes, same comments as previous question T4: Yes and No—They are effective with some students who have minor disabilities. I don't think they are always effective with students with major problems. There is just too much for some students and too much for us (teachers) to deal with. T5: I think that the strategies used in co-taught classrooms are definitely effective for students with disabilities. These students are</p>	

<p>Do you think that participation in an inclusive experience contributes to the social development of some students <b>without</b> disabilities?</p> <p>Do you think that participation in an inclusive experience</p>	<p>getting more attention by the teachers and are allowed to hear instruction in more than one way. They are also able to more actively participate in the classroom without worrying what others may think of them.</p> <p>T6: It gives the students a chance to see more than one point of view on a concept. They get to see different teaching strategies and they have more time to grasp the concept.</p> <p>T1: It prepares the students for the real world and it teaches them to accept them (students with disabilities) as another person and not as someone that should be isolated. It teaches them that everyone is different.</p> <p>T2: They learn to be more tolerant of others who are different from them. I do see some jealous tendencies among some students when accommodations, such as the use of a calculator, is provided. It also helps students without disabilities when they are used as peer tutors to reinforce their own learning by teach another student what they have learned.</p> <p>T3: SWD are greatly impacted by the inclusive experience. SWD are provided positive role models from which to emulate behaviors. In resource rooms, particularly for students with behavior issues. Bad behaviors can escalate.</p> <p>T4:It teaches reg. ed students tolerance and patience for others.</p> <p>T5:I feel that some students are neglected when they have to be in the same classroom with students with disabilities. It can be socially frustrating to be slowed down by other individuals. On the other hand, it does teach patience and kindness!</p> <p>T6:It think that they get to see the struggles and frustrations that students with disabilities may have. And maybe, respect that type of learner more.</p> <p>T1: It has a great impact on students with disabilities. It teaches them that they are not different and can learn like everyone else.</p>	<p>Socially inclusion can either benefit them greatly or be detrimental to their self esteem. Students with severe disabilities do not benefit as much socially due to frustration and recognition that they can not achieve on the same level as their peers.</p>
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<p>contributes to the social development of some students <b>with</b> disabilities?</p>	<p>T2: I think for the majority of students with disabilities it is beneficial, but for those with severe or profound deficits it can actually be detrimental socially. If a student is truly incapable of reaching the same level of comprehension as others, I believe it is more beneficial to be in a classroom where he or she can truly excel. For milder disabilities, inclusion can benefit them socially to not be segregated from the reg. ed students. Damage to a person's self esteem can cause a student to give up.</p> <p>T3: Participation in an inclusive setting has a great impact on social development. I don't think that students with severe and profound disabilities benefit from inclusive settings other than for some social interactions. Their needs are better met in the resource setting.</p> <p>T4: I believe inclusion challenges these students to fit the mold of socially accepted classroom behaviors and rules. My experience is mostly with learning disabled students, not severe disabled students.</p> <p>T5: I think that students with disabilities in the inclusive classroom develop much better social skills because of the opportunity to be in the same place as their non-disabled peers. They are able to model after other students when trying to figure out what is socially acceptable or not.</p> <p>T6: I believe it can contribute to their social development. It allows them to interact with all students and hopefully feel less isolated and different.</p>	
<p>Are the students in you inclusive classroom generally receptive to collaborative teaching?</p>	<p>T1: Yes, They have voiced this to me. Before now, I have questions my students about working in small groups, with peer tutors, etc. and they have shared that they like having 2 teachers in the room. They are able to get their questions answered better and faster.</p> <p>T2: yes and no, They are receptive to the collaborative teaching, but some have become leery of my co-teacher's instruction. She often asks me for help and has on</p>	

	<p>occasion taught students methods that were incorrect.</p> <p>T3: yes, They are attentive to either instructor and will seek answers to questions from both teachers.</p> <p>T4: Yes, They respond well to lessons, both teachers, and their work. They try to improve and please both teachers.</p> <p>T5: Students become receptive to anything that they learn is good. If we are teaching collaboratively on a daily basis, the students won't be able to tell the difference.</p> <p>T6: yes, by the respect shown for their classmates.</p>	
<p>SET 5: What are your responsibilities in the inclusive classroom?</p> <p>Planning lessons</p> <p>Instruction Modifying the curriculum</p> <p>Remedial instruction</p> <p>Administering discipline</p> <p>Classroom Management</p> <p>Assessment &amp; Grading</p>	<p>Teachers selected either, My job or shared responsibility or partner's job</p> <p>5 out of 6 selected shared—One commented that it should be shared, but is primarily my responsibility</p> <p>6 out of 6 selected shared</p> <p>3 selected my job, 1 selected shared, and 2 selected partner's job (Those that selected partner's job were regular ed. co-teachers. The one selected my job is a sped. education co-teacher.)</p> <p>6 out of 6 selected shared</p> <p>6 out of 6 selected shared</p> <p>6 out of 6 selected shared</p> <p>5 out of 6 selected shared, 1 out of 6 selected my job</p>	<p>Most are shared (planning lessons, instruction, remediation, discipline, classroom management, grading)</p> <p>Modifying the curriculum is somewhat shared, but mostly falls on the sped co-teacher</p>

## CURRICULUM VITAE

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**Education**


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***Walden University***

Educational Doctorate

2010

Teacher Leadership

Dissertation: "The Impact Coteaching has on Regular Education Students'  
Achievement"

***Valdosta State University, Valdosta, Georgia***

Educational Specialist

2002

Educational Leadership

***Valdosta State University, Valdosta, Georgia***

Masters of Arts and Sciences

1999

Middle Grades Education

***Georgia Southern University, Statesboro, Georgia***

Bachelor of Arts and Sciences

1996

Middle Grades Education

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**Teaching Experience**


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***Bacon County School District***

High School Special Ed. Teacher/  
Intervention Specialist

2007-Present

Inclusion coteacher for Mathematics, Coordinate interventions for struggling  
students, Monitor students progress and determine needed interventions

7<sup>th</sup> Grade Teacher

2000-2007

Mathematics

6<sup>th</sup> grade Teacher

1996 - 2000

Mathematics, Science

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**Memberships**


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- Professional Association of Georgia Educators (PAGE)