Summer 2007

Difference in Academic Achievement between Students with Disabilities and Students without Disabilities after the Implementation of Collaborative Instruction in Walton County

Suzanne Malloy Carter

THE DIFFERENCE IN ACADEMIC ACHIEVEMENT BETWEEN STUDENTS WITH DISABILITIES AND STUDENT WITHOUT DISABILITIES AFTER THE IMPLEMENTATION OF COLLABORATIVE INSTRUCTION IN WALTON COUNTY

by

SUZANNE MALLOY CARTER

(Under the Direction of Abebayehu Tekleselassie)

ABSTRACT

The purpose of this study was to determine differences in Georgia High School Graduation Test scores between students with and without disabilities after the implementation of collaborative instruction. The sample was taken from a rural northeast Georgia county. For the study 81.6% students were white, 14% were African-American, 2.2% were Asian, 1.8% were Hispanic and .4% were multi-ethnic. 53.3% were female and 46.6% were male. 2% were students with disabilities. The scores from 457 students each year were statistically analyzed using descriptive statistics, t-tests and Chi square.

To determine the differences between Georgia High School Graduation Test scores before the implementation of collaborative instruction data from 2003 were analyzed. Collaborative instruction was implemented in the fall of 2004. Scores from 2005 and 2006 represent “after the implementation of collaborative instruction”. The differences between potential predictors were also analyzed. The researcher found that

the differences between potential predictors were statistically significant for all subtest scores except language arts for 2006. The achievement gap, between students with disabilities and without disabilities that was significant in 2003, was not statistically significant in 2006.

The researcher found statistically significant differences in the mean subtest scores when comparing the two groups in 2003 by disability status. The differences in scores when compared by ethnicity and by disability status were significant for students without disabilities but the differences were not significant for students with disabilities. The differences in scores were statistically significant for both groups when compared by disability status and by gender.

The before and after analysis over time determined that the gap in academic achievement was closing significantly for language arts and social studies and closing slightly on the science subtest. The mean difference for math scores did not reduce from 2003 to 2006. Therefore there was no reduction in the achievement gap on the math subtest scores.

This expost-facto causal comparative study is among few others that address the effect of collaborative instruction on academic achievement. The researcher determined that students achieve higher scores on the GHSGT after they experience a collaborative instruction service delivery model.

INDEX WORDS: Collaborative Instruction, Co-teaching, Collaboration, Collaborative Teaching, Inclusion, Special Education, Exceptional Education, Least Restrictive Environment, LRE, Special Education, Special Education Service Delivery Model, Adequate Yearly Progress, SWD, AYP, GHSGT, IDEA, NCLB, OSEP, Academic Achievement

THE DIFFERENCE IN ACADEMIC ACHIEVEMENT BETWEEN STUDENTS WITH DISABILITIES AND STUDENT WITHOUT DISABILITIES AFTER THE IMPLEMENTATION OF COLLABORATIVE INSTRUCTION IN WALTON COUNTY

by

SUZANNE MALLOY CARTER

B.A. University of South Florida, 1975

M.A. University of South Florida, 1977

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF EDUCATION

STATESBORO, GEORGIA

2007

THE DEGREE TO WHICH STUDENTS WITH AND WITHOUT DISABILITIES DIFFER IN ACADEMIC ACHIEVEMENT ON HIGH STAKES TESTS BEFORE AND AFTER THE IMPLEMENTATION OF COLLABORATIVE INSTRUCTION

by

SUZANNE MALLOY CARTER

Major Professor:	Abebayehu Tekleselassie
Committee:	Linda M. Arthur
	Bettie Pittman

Electronic Version Approved:
July 2007

DEDICATION

This dissertation is dedicated to the loving memory of my mother, Sara Elizabeth Malloy, who encouraged me through the first year of classes, pre-prospectus, and prospectus defense. Unfortunately she passed away two days following my prospectus defense. I remember how she encouraged me to always follow my dreams and make the best of any situation. I know she will be pleased and proud of her little girl.

This project is also dedicated to my loving husband, Garry, my best friend, true sole-mate and partner in life's journey, who carried me through when I couldn't stand alone after I lost my mother. He picked me up and encouraged me to move on and complete this chapter in our life plan. Without his loving encouragement, endless supply of meals beside the computer, and tirelessly taking over all of the household duties I would never have had the will, energy, or desire to see this through to the end. Garry, I love you and thank you for all you did to help me make this happen.

ACKNOWLEDGEMENTS

I would like to acknowledge my children, Jennifer and Ryan, who always made me so proud in all that they did through school and as they became young adults. I thank them for their encouragement, support, and patience as I turned my focus for the past two years to this project and often neglected their needs. I look forward to next spring when my daughter will become Dr. Carter as she finishes her program in veterinary medicine and begins her lifelong dream.

I would also like to thank Dr. Tekleselassie who had faith in me and gave me the support I needed, time to recover, and the encouragement to move on every time I reached one of the major stumbling stones along the pathway toward this degree. I am forever grateful to Dr. Bettie Pittman for the many hours of reading, critiquing and traveling to and from Statesboro to see me through this. I will be eternally grateful for Dr. Arthur's positive encouragement and interest in my topic.

I would also like to thank Dr. Bill Tinkler for his editorial expertise and guidance through the writing process. And, I would be remiss to leave out Bill's wife, Ann Tinkler who was my biggest cheerleader in my professional circle. Ann would not let me get too far off the path, even through the hurdles of pain I faced along the way. She wiped my tears and lifted me back up to move forward again. I am forever grateful for her friendship and support to keep me focused when I often tried to stray. I am very thankful for the expertise of Mr. Michael Rotjan who was my mentor and remedial instructor to help me relearn and navigate SPSS.

Finally, I would like to acknowledge the support of my co-workers in the DEES / Curriculum Office. We are truly an Exceptional Team and I am forever grateful.

TABLE OF CONTENTS

Page

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Is collaborative instruction impacting the achievement gap between students with disabilities and students without disabilities? Educational reform leaders have been searching for an answer to this question for several years (Hourcade & Bauwens, 2001; Murawski & Swanson, 2001; Voltz, 2003; Weiss & Lloyd, 2002). According to Henley (2004), schools practice categorization and separation based on ability to meet individual needs. Henley opines that, "the principle of meeting educational needs is a worthwhile goal that is embedded in federal law, but so is integration of students (with disabilities) with their non-disabled peers." Educational leaders are challenged to include students with disabilities within general education classes and also assure that the academic instruction, supports, or accommodations provided will facilitate their learning.

The Individuals with Disabilities Education Act (IDEA), is federal legislation requiring that students with disabilities have FAPE, a free and appropriate education in public schools (USDOE, 2000). Students with disabilities who are in need of special education services have problems in learning and skill development (Dwyer, 97). The U.S. Department of Education (2004) has defined a student with disabilities as a child with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as emotional disturbance), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities, and who, by reason thereof, needs special education and related services.

Public school education is a quite different experience for some students with special needs because of the widespread separation of students based on their individual disability (Henley, 2004). No Child Left Behind (NCLB) legislation, another federal law, added an accountability measure, which requires states to compare the academic performance of students with disabilities with that of their non-disabled peers (USDOE, 2000). Prior to the enactment of NCLB, the performance of students with disabilities was measured very subjectively by reviewing documented levels of mastery on individual goals and objectives of the student's IEP (Individual Education Program). Every three years a re-evaluation had also been required that included standardized achievement tests. Comparing the performance of students with disabilities with that of their non-disabled, same age peers had not previously been required or even recommended (Prah, 2003; Sternberg, 2002).

Collaboration between general and special educators has become a growing practice since the 1997 amendments to IDEA, which emphasized the need to allow more students with disabilities to participate in the general education curriculum (Arguelles, Hughes, & Schumm, 2000). Baker, Wang, and Walberg (1994) report that students with disabilities perform better academically within the regular classroom than they do in special education classrooms. Many of the students of Wang and Walberg's study said they prefer regular class instruction rather than being pulled out for instruction in separate special education classes (Wang & Walberg, 1994). Adding a special education teacher to assist in the general education classroom, where students with disabilities were assigned, has become known by many educators as collaborative instruction (Gately & Gately, 2001).

Collaborative instruction is also referenced in the literature as collaboration, co-teaching, collaborative consultation, team teaching and cooperative teaching (Muraski & Swanson, 2001; Trent, Driver, Wood, Parrott, Martin, & Smith, 2003; Weiss & Lloyd, 2003; Welch, 2000). Those terms used throughout this work are intended to carry the same meaning as defined by Gately and Gately (2001). Gately and Gately's definition of co-teaching as the collaboration between general and special education teachers for all the teaching responsibilities of all students assigned to a classroom, appears synonymous with the term collaborative instruction. Teachers collaborate to develop differentiated activities that meet the diverse needs of the students. Planning, presentation, evaluation, and classroom management are shared in an effort to enhance the learning environment for all students (Gately & Gately, 2001).

Laws define services

Legislation was enacted as early as 1965 to provide more humane treatment to children who had learning difficulties and who were more difficult to teach. The Elementary and Secondary Education Act (ESEA) signed in 1965 and reauthorized in 1994 provided the single largest source of federal support for K-12 education. Another law significant to children is the Education of the Handicapped Act, also known as P.L. 94-142, which was enacted in 1975 (Morse, 2000). Prior to these legislative acts the children who were difficult to teach were often left in institutions, back rooms or basements of schools, or even at home in closets because they had varying degrees of handicapping conditions or behavioral disorders (Morse, 2000). In the nineteen sixties and early nineteen seventies no state served all its children with disabilities and many states turned children away (Martin, Martin, & Terman, 1996). Early special education

programs brought students with disabilities into separate ESE (Exceptional Student Education) schools for handicapped children. The intent of P.L. 94-142 was to get the handicapped children into schools with their same age peers (ERIC EC, 2003). ESE students were brought into self-contained classrooms or separate wings of buildings at elementary, middle, and high schools.

The change to locate handicapped students in general education schools became known as the mainstreaming movement, which began around 1981 (Martin, Martin, & Terman, 1996). Since students were educated in a location that was closer to their non-disabled peers it was considered a less restrictive environment. However, the children were still separated from their non-disabled peers (Gerber & Popp, 2000). Madeline Will proposed the first regular education initiative (REI) in 1985 as a means to educate students with mild handicaps within the general education classroom (Martin, Martin, & Terman, 1996). Children who were previously excluded from learning with their same age peers were now to be part of the general education class.

When the P.L. 94-142 law was revised in 1990 it was named the Individuals with Disabilities Education Act (IDEA) (Martin, Martin, & Terman, 1996). This revision mandated that students with disabilities be educated in the least restrictive environment (LRE) (Concunan-Lahr, 1991; Martin, Martin, & Terman, 1996). The least restrictive environment could range from the general education classroom to a more restrictive setting such as a separate classroom with a special education teacher with a small group of students who have similar disabilities (Martin, Martin, & Terman, 1996).

Federal court cases challenged LRE and set precedent in support of including students with various handicaps in general education classes and required schools to

justify any decision to exclude a child from the regular class (Martin, Martin, & Terman, 1996). The reauthorization of IDEA in 1997 placed even greater emphasis on compliance with LRE, requiring schools to provide assistance in the general education classrooms in the form of additional personnel, specialized materials, or curricular modifications. This ruling allowed students to be in the general education classrooms to the greatest extent possible (Hourcade & Bauwens, 2001). Not only did this reauthorization of IDEA require that students with disabilities have access to the general education curriculum, it specified that these students were now required to take the state accountability assessments (Gately, 2005).

Legislative initiatives also enabled consistency across states in defining who is eligible for services. Federal regulations specified details that needed to be written into individual plans for service. These service plans were referred to as the IEP (Individual Educational Program). Legislation also provided federal funds based on the type of disability and the level of service needed for eligible students. The federal subsidies offset costs of special education mandates that were previously shouldered by the states. States and local school systems added procedures to find, identify, and provide services to as many students as they could find that met eligibility criteria. Federal court decisions have made clear the states' responsibility to provide a free, appropriate, public education (FAPE) to the increasing number of children regardless of disability and regardless of the availability of funds budgeted for needed services (Martin, Martin, & Terman, 1996).

A common theme throughout the literature beginning in 1999 was the recommendation to look beyond the issues of placement, due process, and compliance and focus instead on an examination of outcomes comparing academic performance of the

students with disabilities to that of their same-age, non-disabled peers (Austin, 2001; Luckner, 1999; Weiss & Lloyd, 2002). The numbers of identified students with disabilities has increased over the years and according to Weiss and Lloyd (2002) collaborative teaching in general education classrooms has been perceived as effective in facilitating the academic development of the students with disabilities within those classes. When not carefully planned, however, a collaborative teaching model can result in difficulties for both teachers and administrators (Arguelles, Hughes, & Schumm, 2000).

Little research has been conducted to determine if disabled students are learning at the same level as their same age non-disabled peers (Welch, Brownell, & Sheridan, 1999; Austin, 2001).

Data were collected by states as early as 1999 to determine how students were being served. However, this data had not been used for any other purpose than reporting the information to data collection representatives at the state department of education, division for exceptional students. Prior to 2002 there were no consequences for school systems that did not include students with disabilities to the greatest extent possible, other than the occasional due process violations filed by individual parents challenging class placements recommended by school teams (Trent, Driver, Wood, Parrott, Martin, & Smith, 2003). Recommendations were not required and sanctions were not imposed on states or systems that ignored the law and continued to exclude students from general education classes (Trent, Driver, Wood, Parrott, Martin, & Smith, 2003).

The passage of the No Child Left Behind (NCLB) legislation on January 8, 2002 changed the landscape of education dramatically. With the inclusion of an accountability component as well as a due date by which states must comply or face monetary and

organizational sanctions, NCLB got educators' attention (NCLB, 2001; & Prah, 2003). Prah (2003) and Sternberg (2002) point out that this legislation has been plagued with controversy, particularly as related to the reasonableness of the expectation that every child will be able to read on grade level by the year 2014. This expectation included those with mild and moderate disabilities and allowed only one percent of the most severely disabled students to be exempt from the standard (Prah, 2003; & Sternberg, 2002). The NCLB legislation had caused much controversy as it added a measure of accountability that was not in the laws that were enacted previously to protect students with disabilities.

The most recent reauthorization of IDEA presented in 2004 is titled the Individuals with Disabilities Education Improvement Act or IDEIA (GADOE, 2005). The reauthorization emphasized academic improvement based on mastery of state standards (CEC, 2004). The reauthorization requires a statement in the IEP indicating how the student is progressing in the general curriculum. The statement of progress is documented in the present level of performance section of the IEP which must include the student's scores on standardized assessments as well as teacher-made tests (CEC, 2004).

Students with disabilities have had the right to earn a general education diploma or stay in school additional years to continue in a special education course of study through their 22nd birthday. The new law requires documentation if a student plans to access additional years to complete the high school program. This component is to recognize the student's planned program and not to penalize the student who does not graduate in the traditional four high school years (CEC, 2004). NCLB has motivated states, systems, schools and individual teachers to comply with the law and provide appropriate services to

students with disabilities to a greater extent than ever before (Mastropieri, Scruggs, & Graetz, 2005).

A review of the changes that have occurred as a result of the many amendments to the original P.L. 94-142 has led researchers to a number of positive conclusions. Gately (2005) has concluded that increasing the diversity of students in schools has highlighted the need for diversity in effective service delivery models. Since the NCLB legislation, several other studies have been conducted to review the effectiveness of various educational initiatives. Much of that research has focused on collaborative instruction service delivery models (Magiera, Smith, Zigmond, & Gebauer, 2005). Studies by Magiera, Smith, Zigmond, & Gebauer (2005), Mastropieri, Scruggs, & Graetz (2005), and Gately (2005) reviewed the collaborative instruction service delivery models and pointed out that the results have varied in success. Gately (2005) has noted that while general studies of collaborative teaching showed varying levels of success, if collaborating teachers were provided with research-based effective strategies and materials, results were positive.

Proponents argue that collaborative instruction is an instructional model that benefits special needs students both academically and emotionally (Austin, 2001). Among all recent studies reviewed, Mastropieri, Scruggs, & Graetz (2005) have found the most positive outcomes for collaborative instruction models. The variables of teacher compatibility, high stakes testing, and academic content seem to have the most bearing on co-teaching success (Austin, 2001).

An additional positive observation from case studies is that both general and special education teachers have experienced a renewed enthusiasm toward their jobs

(Arguelles, Hughes, & Schumm, 2000). Teachers surveyed reported that they had learned a great deal professionally (Austin, 2001). General education teachers indicated that they have learned new techniques from the special education teachers (Welch, 2000). Collaborative instruction allows direct instructional support for the planning and instruction of the lessons. It allows a direct instructional delivery to special education students without the stigma or isolation that often accompanies models where students are pulled-out for instruction in a separate classroom (Luckner, 1999).

The relationship between the collaborative instruction teachers is a critical component influencing the success or failure of the inclusion of students with disabilities (Murawski & Swanson, 2001). Where both teachers utilize effective teaching strategies studies show that increased academic achievement is evident, which in turn leads to a greater degree of effective collaboration between the two teachers.

The right environment and rapport with a prospective collaborative instruction teacher go a long way toward ensuring that a future collaborative instruction teaching relationship is effective (Austin, 2001; Gately, 2005; Fennick, 2001). Through collaborative teaching, students' diverse learning needs can be met in a differentiated and inclusive classroom (Voltz, 2003). Planning together and teaching together go hand-in-hand toward the development of an environment in which students have a greater likelihood to achieve at a higher level than in a classroom with only one teacher (Dieker, 2001; Fennick & Liddy, 2001).

Background literature

Most of the previous research regarding collaborative instruction has been related to the classroom environment and teacher traits rather than to results of student achievement. Results of those research studies have concluded that specific how-to information regarding collaborative instruction is a valuable resource for teachers. Checklists, manuals, rubrics, surveys, and lists included in resources such as this assist collaborative pairs as they prepare for the co-teaching experience (Murawski, 2005).

A rating scale or rubric can be useful to supervisors for identifying a profile of strengths and weaknesses in co-teaching classrooms as a means for evaluating the team (Gately, 2005). Administrators and teachers can use the rubric to set goals for improvement, acknowledging the understanding that development of a collegial relationship takes time and effort to establish. Clear expectations from administrators as well as the administrators' confidence in the teachers' ability to work together are essential to move toward maximum student achievement (Gately, 2005). Additional efficacy research is needed before collaborative instruction can be generally recommended (Mastropieri, Scruggs, & Graetz, 2005). School improvement plans must include research based activities when planning for interventions to meet state expectations. Professional learning opportunities related to collaborative instruction are included in school improvement plans of the county of this study.

The website, of the district where this study is proposed, posts five goals. Goal number one is to have safe and disciplined schools and goal number two is to have high academic performance (WCPS, 2005). The mission of the system is that all students will learn (WCPS, 2005). For these three reasons administrators need staffing options that

contribute to student success and move the system toward the goals. To measure the system's progress toward meeting the goals data are added to the Balanced Score Card, which is organized in outline format based on the five system goals. Data for goal number one is collected through the student information system, SASI. Data for goal number two is collected through the system data management software program, Performance Matters (WCPS, 2006). Additional research is needed, however, to test the relationship between collaborative instruction and student performance. Results of the research will help educational leaders to predict how collaborative instruction as a service delivery model can impact student achievement.

Federal No Child Left Behind legislation mandates that by 2014 all students will be able to demonstrate on-grade-level academic achievement. In order to move toward that goal, systems must begin now to close the achievement gap between students with disabilities and their non-disabled peers. In addition, other federal legislation such as the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA) mandates that students be educated in the least restrictive environment (LRE), and to the greatest extent possible with their non-disabled peers. Collaborative instruction has been the service delivery model proposed not only to meet requirements for service in the least restrictive environment, but also as a means of improving student achievement.

Statement of the problem

The use of the collaborative instruction service delivery model used to meet the requirements of IDEA and NCLB legislation, has increased in recent years. The academic performance of students with disabilities has significantly improved throughout Georgia according to data published in March 2005. IDEA requires students to be included to the

greatest extent possible with their non-disabled peers. The federal NCLB legislation mandates that by 2014 the achievement gap between the performance of students with disabilities and that of their non-disabled peers will be reduced and that all students will perform at or above grade level. Georgia Department of Education's Division for Exceptional Students is addressing this goal through one of their performance goals, which is to improve academic performance. The dilemma for principals in many Georgia schools that did not make adequate yearly progress (AYP), however, is that the sub-groups of students with disabilities (SWD) are the ones failing to earn a passing score. The county's goal number two is aligned with the federal and state goals to improve student performance.

While collaborative instruction is often the service delivery model of choice, research is inconclusive as to what degree it contributes to the academic achievement of students with and without disabilities. Currently, the search is on for effective strategies to teach those students who comprise this at-risk sub-group who are often responsible for schools failing to make adequate yearly progress. As mentioned earlier, No Child Left Behind legislation holds systems accountable for student performance and imposes sanctions when improvement is not evident.

This researcher has found few studies supporting collaborative instruction as a means of improving student performance on the high school graduation test. The proposed study will help determine the effect of collaborative instruction on student performance on the GHSGT. Educators at all levels can be more confident to implement instructional strategies when they have research-based data that shows that those practices will be beneficial to their stakeholders who are the children and parents of our

communities. Therefore, the researcher's purpose is to determine the degree to which students with and without disabilities differ in academic achievement before and after the implementation of collaborative instruction in this rural Georgia school district.

Research questions

1. To what extent do students with disabilities and students without disabilities differ on high stakes tests before the implementation of collaborative instruction?
2. To what extent do students with disabilities and students without disabilities differ by potential predictors on high stakes tests (e.g., socio-demographic factors)?
3. To what extent do students with disabilities and students without disabilities differ on high stakes tests after the implementation of collaborative instruction?

Significance of the study

The service delivery and scheduling decisions that principals make directly impact learning in their schools. Schools are presently being rated by whether or not students make adequate yearly progress (AYP). Principals are required to schedule classes and staff classrooms to include students with disabilities along with their non-disabled peers to comply with local, state, and federal regulations. They are also responsible for the school's overall academic achievement level. Students With Disabilities (SWD) was the sub-category in which the subject county school district failed to make adequate yearly progress for the 2004 – 2005 school year.

In the county of this study high school teachers utilize the collaborative instruction service delivery model in all core content Carnegie credit classes such as language arts, math, science, and social studies. The performance of students on the Georgia High

School Graduation Test in the academic content areas of those classes impacts the overall system AYP status and the school's impending "needs improvement" designation if as a system they do not make adequate yearly progress (AYP).

Much of the literature relates to implications of the current legislation as well as the use of a collaborative instruction method. However, few studies are available that include student achievement. This study will provide a look into student achievement with the collaborative and non-collaborative instructional service delivery method. Results of this study will be useful for principals and central office personnel who make staffing decisions for both general education and special education students, as they strive to be in compliance with the NCLB and IDEA legislation.

This study is limited in that teacher's years of experience was not considered as a potential predictor. The high rate of teacher attrition in the field of special education is a factor that caused the researcher to omit that information.

Procedures

Research design

It is the researcher's purpose to determine the degree to which students with and without disabilities differ in academic achievement before and after the implementation of collaborative instruction in this rural Georgia county. Academic achievement is measured by Georgia High School Graduation Test (GHSGT) scores. The researcher will include analysis of differences in potential predictors of academic achievement such as disability status (students with disabilities and students without disabilities), disability category (specific learning disability, emotional behavior disorder, mild intellectual disability, other health impairment, autism, visual impairment, orthopedic impairment, speech

impairment), ethnicity (African American, White, Other) and poverty status as determined by eligibility for free and reduced priced meals.

The researcher will conduct a quantitative study of existing data. The data that will be analyzed is from high school graduation tests that were taken as required for graduation from a rural Georgia public school. The scores obtained on the various subtests of the Georgia High School Graduation Test (GHSGT) will be referenced from this point forward as indicators of academic performance. The researcher will first assess student academic performance before and after the implementation of collaborative instruction. Next, the study will compare achievement of one group of students who were exposed to collaborative instruction with that of another group of students in the same year who were not. Student scores will also be analyzed based on the disability/non-disability classification. Graduation test scores of students with disabilities who were exposed to collaboration and graduation test scores of students with disabilities who were not exposed to collaboration will be compared to graduation test scores of students without disabilities who were not exposed to collaboration and students without disabilities who were exposed to collaboration.

Data source

The researcher will conduct a quantitative causal-comparative pre-test / post-test study of subject area scores on the Georgia High School Graduation Test of students attending the two high schools in the subject county. Because of the large amount of test data available to the researcher, the study will use large group analysis techniques. All Georgia High School Graduation Test scores of the subject school district' students from

the 2001-2002 school year through the fall administration of 2006 will be utilized. The researcher received a letter of approval from the subject county's research committee.

The Georgia High School Graduation Test, comprised of five sub-tests (English/language arts, mathematics, science, social studies, and writing) is administered to all eleventh-grade students. This study will use student performance scores on each sub-test of the GHSGT. The GHSGT is a high stakes assessment that is administered to all students in public high schools in Georgia. For this reason, it serves as a powerful tool for comparing academic achievement over time and among the various categories of student demographic data.

Population sample

The target population includes all test-takers of the Georgia High School Graduation Test (GHSGT) in a medium size, rural Georgia county, from 2003 – 2006. This group comprises approximately 500 GHSGT scores for each test year. Few students during 2001-2002 or 2002-2003 received collaborative instruction prior to taking the GHSGT. For the 2004-2005 and 2005–2006 years most students with disabilities received collaborative instruction prior to taking the GHSGT. Most students without disabilities did not receive collaborative instruction. In the collaboratively instructed classes there were also approximately two-thirds students without disabilities.

The sample to be used for this study will include all students in the researcher's local school system who took the High School Graduation Test. Demographic information about the school system will be reported for future comparative purposes. Extraneous variables that will be reviewed include; test year, age, gender, ethnicity, socio-economic status and disability status.

Instrumentation

Data will be obtained from SASI, the student information system software program, and Performance Matters, a data warehouse program. High stakes tests such as the GHSGT are inventoried by individual code number and distributed to schools where they are stored in secure areas until test time. The test environment is typically a school classroom. Bulletin boards, chalk boards, white boards and all other visible areas are stripped of instructional material or covered to hide any information related to the academic curriculum.

Each test administration area or classroom is staffed with a certified teacher who administers the test as well as another educational professional who serves as a test proctor. The test proctor is responsible for maintaining security of the test materials as well as maintaining the integrity of the testing process according to the instructions in the manual during the actual test administration. Any irregularities are reported to the director of testing at the central office. Upon completion of the test administration the proctor inventories all the administration documents, assures that identification and demographic information are properly recorded and returns the documents to the building level testing coordinator, who is generally an assistant principal at the testing site.

All school testing materials are returned to the central office, inventoried, packed and sent to be scored by an independent agency. Test results are returned to the central office, disaggregated by the district test coordinator and uploaded to Performance Matters, the system data warehouse software program. Data can be disaggregated in multiple formats for analysis.

Data analysis

Test results, retrieved from the Performance Matters software program will be reviewed for students who completed the GHSGT. Test data for each category group will be entered into the SPSS statistical software program. Socio-graphic information for each student will be entered for test year, age, school, gender, ethnicity, socio-economic status and disability status.

The basic units of comparison include membership in one of four separate groups: 1) students without disabilities in non collaborative classrooms, 2) students without disabilities receiving collaborative instruction, 3) students with disabilities in non collaborative classrooms, and 4) students with disabilities receiving collaborative instruction. Extraneous variables include age, gender, ethnicity, socio-economic status and disability status. All data are available on the system Performance Matters data warehouse software.

However, the purpose of this study is to examine outcomes of two service delivery models that may lead to improved academic performance. Using these outcomes, research-based decisions related to staffing and instructional delivery issues may be valuable to systems with similar demographics as the subject county. This rural, mid-size county in north central Georgia is the 57th fastest growing county in the nation according to the 2000 national census. This Public School District consists of two primary, six elementary, three middle, and two high schools plus one alternative school. A new elementary school is under construction and ground breaking for a third high school is anticipated in the next few months. New school construction in this growing county is an effort to keep pace with the anticipated 50% population growth from 60,000 reported in

the national census of 2000 to a projected 95,000 by 2010. The subject county is a rural bedroom community with few venues for shopping or entertainment. Industry is mostly distribution or service. The ethnic make-up of the subject county is widely diverse. School records identify 26 different languages spoken in the homes. The county is midway between metropolitan Atlanta and Athens, home of the University of Georgia. The mean income of this county is 17,000 and most of those employed are in blue collar service jobs. The public school district is the largest employer in the county.

Definition of terms

- AYP – Adequate Yearly Progress - A statewide accountability system mandated by the No Child Left Behind Act of 2001 which requires each state to ensure that all schools and districts to make adequate yearly progress on standardized tests.
- Collaboration – Two teachers, one general education and one special education assigned to teach together in the same classroom with a mixture of students with disabilities and others students without disabilities.
- ESE – Exceptional Student Education; instructional services provided in accordance with IDEA
- FAPE - Free appropriate public education; special education and related services provided in conformity with an IEP; are without charge; and meets standards of the SEA.
- IDEA – Individuals with Disabilities Education Act of 1997
- IEP – Individual Educational Program: The written document that includes the required components as detailed in the IDEA.

- LRE – Least Restrictive Environment – the educational program that meets the student's needs and is also located close to and is as similar as possible to that of the student's same age peers.
- NCLB – No Child Left Behind – Federal legislation signed in 2001 that promised a quality education to every K-12 student, including students with disabilities, for the first time.
- Non-disabled – general education students who have not been found eligible for special education services.
- Performance Matters – a data warehouse software program.
- SASI – Student information system software
- Special education – Instructional services provided in accordance with IDEA
- Students with disabilities – students who are eligible for services under IDEA and who have a current IEP.
- Testrax – a document warehouse software program.
- USDOE – United States Department of Education

Summary

Educational leaders are challenged to include students who have trouble learning within general education classes and also assure that the academic instruction and supports or accommodations provide to them will facilitate their learning. Legislation from 1965 through 2004 has dictated various forms of special education to address this challenge. With each change in the law educational leaders were required to provide additional opportunities for students with disabilities to participate in school programs along with

their same age peers as close to those as would be available to the students as if they were not disabled.

The most recent NCLB legislation now adds an accountability measure that was not present in previous laws. Students with disabilities must be assessed just as their non-disabled peers and the results must be included in the overall system and school performance data. The NCLB legislation forced schools to include students with disabilities within general education classrooms to comply with the highly qualified teacher component of the law.

A review of the changes that have occurred as a result of the many amendments to the original P.L. 94-142 has caused researchers to conclude that there have been a number of positive outcomes. One researcher noted that while general studies of collaborative teaching showed varying levels of success, if collaborating teachers were provided with research-based effective strategies and materials, results were positive.

While collaborative instruction is often the service delivery model of choice, researchers are inconclusive as to what degree it contributes to the academic achievement of students with and without disabilities. Currently, the search is on for effective strategies to teach those students who comprise this at-risk sub-group who are often responsible for schools failing to make adequate yearly progress. Specific how-to information regarding collaborative instruction is available from several previous studies. However, this researcher found few studies that specifically addressed the effect of instructional methods on the academic achievement of students. This study will show the difference, if any, between the academic performance of students who received collaborative instruction and those who received traditional one teacher instruction.

As mentioned earlier, No Child Left Behind legislation holds systems accountable for student performance and imposes sanctions when improvement is not evident. Educational leaders need research based strategies to share with the teachers in their schools in order to meet the requirements of the current federal mandates.

CHAPTER 2

REVIEW OF RESEARCH AND RELATED LITERATURE

Introduction

The investigator proposes to examine the degree to which students with and without disabilities differ in academic achievement before and after the implementation of collaborative instruction in Walton County, Georgia. Federal regulations and State Board Rules place many mandates on the manner in which students with disabilities are served in public schools (GDOE, 2005). Since the inception of the *No Child Left Behind* legislation, the instructional decisions educational leaders make have required more scientific support, presenting an ongoing challenge and significant change in practice (Britton, 2004; Staples, 2003; USDOE, 2004). To begin this section an overview of the genesis of special education and literature about the legislative history of special education is provided to summarize the laws and clarify some of the terms and concepts referenced in this study such as an individual educational program (IEP) and least restrictive environment (LRE).

The initial research that is reviewed relates to collaborative instruction that focuses on affective factors, such as the perceptions of teachers and principals about collaborative instruction, rather than quantitative factors, such as the impact on students' academic achievement. Collaborative instruction is one instructional delivery option that has become very popular over the past ten years, specifically since the 1997 reauthorization of the Individuals with Disabilities Education Act. It was this federal mandate that paved the way for students with disabilities to be educated to the greatest extent possible in general education classes with their same age peers (Arguelles, Hughes, & Schumm, 2000).

Next, literature that addresses the negative impact of collaborative instruction is reviewed. Concerns identified refer to division of responsibility between teachers, availability of support and resources such as common planning time, utilization of appropriate strategies to meet student needs and parent reservations regarding benefits to their children (CLD, 1993; Gately & Gately, 2001; Gerber & Popp, 2000; Halpin, 2006; NJCLD, 1993; USDOE, 1999; and Vance, 2001).

Finally, a few studies are reviewed that address the academic impact of collaborative instruction. While the literature is abundant with discussion about the general topic of collaborative instruction, few studies are available that provide empirical research regarding the extent to which collaborative instruction impacts student performance on high stakes tests. There is even a wide disparity among the reported claims of academic achievement among students with disabilities. For example, reports indicate that students with disabilities are closing the achievement gap. However, fifty-one percent of the schools in one state did not make adequate yearly progress (AYP) because of the students with disabilities (SWD) subgroup (Cole, 2006).

Higher test scores in middle school and high school mathematics classes employing a collaborative model were reported in recent studies. However, a statistical analysis was not part of the studies (Magiera, Smith, Zigmond & Gebauer, 2005; Mastropieri, Scruggs, & Graetz, 2005, Pearl, 2004 and Staples, 2003). In an earlier study, post test scores were significantly higher than pre test scores on several components of reading achievement. Here again, however, the results must be questioned based on the fact that the sample size was small and the results were not statistically significant (Welch,

2000). The significance of such studies is that they suggest a positive correlation between collaboration and academic achievement, yet they fail to demonstrate it statistically.

History of special education legislation

Over the past thirty years legislation has been a major factor influencing how services were provided to students with disabilities. A review of the historical sequence of changes in the laws and resulting implementation of practices is provided to frame the changes over time. U.S. Secretary of Education, Margaret Spellings sums up the current educational focus with an August 2006 quote, "No Child Left Behind and the Individuals with Disabilities Education Act have put the needs of students with disabilities front and center. We now have a laser-like focus on helping these kids" (USDOE, 2006). This statement of 2006 is very similar to the intent of the law enacted in 1975. On November 29, 1975, President Gerald Ford signed into law the Education for All Handicapped Children Act which is now known as IDEA. This law guaranteed students with disabilities access to a free and appropriate public education (Morse, 2000).

Prior to IDEA only about one in five students with disabilities were educated in American schools (Martin, Martin, & Terman, 1996). School attendance and graduation rates of students with disabilities increased substantially after the law was implemented. The number of students with disabilities completing high school rose 17 percent between 1987 and 2003 (USDOE, 2004).

Although access for students with disabilities was guaranteed by IDEA, academic achievement was not and an achievement gap grew between students with and without disabilities. Students with disabilities were not demonstrating academic achievement at nearly the same rate as students without disabilities. President Bush attributed the

achievement gap to low expectations and initiated the No Child Left Behind legislation committing the nation to ensuring that all students can read and do math at grade-level proficiency by 2014 (USDOE, 2004). Annual assessments to ensure continuous progress and breaking down the results by student groups so that no child falls through the cracks were components of the NCLB law.

According to the US Department of Education 95 percent of students with disabilities participated in state reading assessments during the 2003-2004 school year and reports show that students with disabilities are receiving more general education classroom time and attention (USDOE, 2004). By raising expectations and including students with disabilities in general education classrooms more they have shown real academic gains. Reading scores of 4th grade students with disabilities increased more than 20 points between 2000 and 2005. This increase is four times greater than the increase of students without disabilities according to national data. The achievement gap between students with and without disabilities declined from 50 points to 32 points representing a 33% decline (USDOE, 2006).

On December 3, 2004 President Bush signed into law the Individuals with Disabilities Education Improvement Act of 2004. This law was a reauthorization of IDEA and an alignment of the IDEA law with the goals and purpose of *No Child Left Behind*. The two laws are now working together to ensure that high standards are maintained for students with disabilities and that every child receives a quality education.

Since the signing of the law in 2004, parents, teachers, administrators and advocates have had the opportunity to provide input to help shape the regulations to implement the law. The final regulations which were released on October 13, 2006 are

designed to do what is best for students through a new focus on ensuring that students with disabilities achieve to high standards Four improvements identified in the reauthorization include; 1) flexibility in spending resources to ensure that students with disabilities are identified early and accurately, and that they receive the support that they need, 2) ensure that students with disabilities have highly qualified teachers, 3) reduce the burdensome paperwork for educators, and 4) strengthen parents' involvement in their children's education (USDOE, 2006).

Collaborative instruction

The literature is abundant with articles about collaborative instruction also referenced as collaboration, co-teaching, collaborative consultation, team teaching and cooperative teaching (Murawski & Swanson, 2001; Trent, Driver, Wood, Parrott, Martin, & Smith, 2003; Weiss & Lloyd, 2003; Welch, 2000). There are few studies, however, that relate directly to the research question, To what extent do students without disabilities and students with disabilities differ on high stakes tests before and after the implementation of collaborative instruction? Vance (2001) reports that collaborative teaching was perceived to be effective in facilitating the academic development of students both with and without disabilities, however the study was based on observations of improved services such as reduced student-teacher ratio, another teacher's expertise and the incentive to reach higher goals, not on quantitative measures of students' test scores or report card grades taken before and after the collaborative experience. This study was conducted before collaborative instruction was implemented in Walton and therefore is the closest match for the first research question.

Much of the literature references benefits such as feeling a sense of renewal by the teachers and collegiality between teachers (Hourcade & Bauwens, 2001). Luckner (1999) stated that everyone involved in his two-classroom study benefited from collaborative instruction. In particular, students in this study indicated that they got more attention. Teachers indicated a collegiality among professional colleagues, and this healthy adult friendship and working relationship was recognized also as beneficial to students.

Luckner (1999) also reflected on a teacher's observation that the stigma associated with students leaving the classroom to receive special education no longer existed and that having students to be 100% part of the classroom was important for them to feel that they are one group socially and academically. In a secondary mathematics classroom students with disabilities became more fully engaged in acquiring mathematical knowledge (Magiera, Smith, Zigmond & Gebauer, 2005). The students had access to the general education teacher and the general education curriculum while receiving required accommodations stated in their IEPs (Magiera, Smith, Zigmond & Gebauer, 2005).

Martin, Martin and Terman (1996) review the legislative history of special education and take special note of IDEA mandates such as Least Restrictive Environment. This legislative initiative states that, whenever appropriate, the disabled child must be educated in the regular classroom. IDEA requires modifications in the regular classroom before moving the child to a more restrictive placement and does not allow the district to plead "lack of qualified staff" as a justification for removing a child from the regular classroom.

Case studies of collaborative instruction in content area conducted by Mastropieri, Scruggs, and Graetz (2005) were compiled from observations and interviews of

collaborating teachers and students with and without disabilities. This study most closely relates to the research question number three, "To what extent do high-stakes test scores differ before and after collaborative instruction?"

High-stakes testing in that 2005 study was supposedly the focus, but upon closer reading, what is revealed is that the study relies on work samples, test reviews, and teacher or student interviews about the testing process and timelines. In fact, the consensus of those interviewed was that emphasis was placed on getting through the content prior to the high stakes test and little time was provided for differentiation of instruction based on need or use of other resources (such as the computer lab or other exploration activities). One must take caution in such studies because appearances can be deceiving--their own review of literature concluded that since the results varied so greatly, little could be concluded.

Murawski and Swanson identified dependent variables such as grades, achievement, attendance, social and attitudinal outcomes and yielded a total mean effect size of .40, indicating a low-to-moderate average outcome effect. Murawski and Swanson concluded from that study that additional efficacy research was needed before collaborative instruction could be generally recommended (2001). In another recent study Murawski concludes that establishing the right environment and working to create rapport with a prospective collaborative teacher goes a long way toward building co-teaching relationships. According to Murawski, "Through co-teaching, the possibility of truly meeting all students' diverse learning needs in a differentiated and inclusive classroom can become a reality."

Tichenor, Heins, and Piechura-Couture (2000) surveyed parents, and the findings of their study suggest that the parents surveyed generally were in favor of collaborative instruction. A recommendation from their study is for pre-service teachers to be exposed to this approach to teaching as part of their preparation program as well as the need for professional learning opportunities for those established teachers who will begin to collaborate. It is readily apparent that the missing link to these studies is the statistical analysis of standardized achievement tests comparing scores against the dependent variable of collaboration.

Cautions regarding collaborative instruction

Advocacy groups such as the Learning Disabilities Association (1993), the Council for Learning Disabilities (CLD; 1993), and the National Joint Committee on Learning Disabilities (NJCLD, 1993) presented position papers citing reservations regarding the movement toward greater inclusion for students with disabilities (US DOE, 1999). When surveyed, both general and special education collaborative teachers responded that the general education teacher did the most in the collaborative classroom and the special education teacher is typically the visitor in the classroom (Vance, 2001).

Although both groups agreed that established and maintained areas of responsibility as well as common planning times were desired, however they reported that they did not use these practices (Vance, 2001). Accommodations and modifications that will be necessary for specific students to be successful need to be planned and discussed between the two teachers. However, not enough planning time or no planning time is a common complaint among collaborative teachers (Gately & Gately, 2001).

Gerber and Popp (2000) conducted an investigation to proffer recommendations to improve collaborative teaching and conclude that there are limits to its effectiveness when resources are overtaxed. Collaborative classrooms should not be dumping grounds for struggling students and limits should be put on the number of students with disabilities in collaborative classes. Researchers have questioned whether the intensity of instruction provided to students with learning disabilities in the general education classroom can adequately incorporate special education strategies (Gerber & Popp, 2000).

In the United Kingdom policy leaders are rethinking collaborative instruction following a 2006 study that concludes mainstream schools cannot manage special needs pupils (Halpin, 2006). The National Union of Teachers suggested that collaborative instruction is harming children and described the practice as a form of abuse. Following interviews at twenty schools Cambridge researchers concluded that collaborative instruction is "far from the world of fine intentions" and there is not positive evidence that learning needs are being met across the whole spectrum of ability (Halpin, 2006).

Generally, parents of children with disabilities are in favor of inclusion (Tichenor, Heins, & Piechura-Couture, 2000). However in a survey of twenty-eight parents (22 parents of general education students and 6 parents of special education students) a few of the parents indicated that students were least pleased with the number of students in the classroom, and three said there were too many students in the classroom. Three of the general education parents said they would not like their child to be in another collaborative classroom the following year. Concerns among parents in other studies indicate that parents sometimes feel general educators lack understanding of learning disabilities (Waggoner & Wilgosh, 1990; Mackey, 1989) or that the self-esteem of their

children is negatively affected or even that inclusion is detrimental in meeting the needs of all students (Shipley, 1995).

According to Tichenor, Heins and Piechura-Couture (2000) parent concerns were as follows: 1) gifted students were not challenged and were bored by the pace of instruction; 2) average students receive a watered down curriculum and resent adaptations made for students with disabilities; 3) regular education students are frustrated when other students do less work and receive the same or better grades; and 4) teachers spend too much time dealing with students misbehaviors or working with slower students. Generally, however, the findings suggest that parents are generally in favor of an inclusive classroom (Tichenor, Heins & Piechura-Couture, 2000).

Impact on academic achievement

Empirical research that addresses the impact of collaborative instruction on academic achievement is sparse. Conducting experimental research in authentic settings is challenging especially to practitioners due to the teachers' practice of adapting their teaching methods from day to day, which makes replication virtually impossible. A descriptive analysis in two elementary classrooms revealed no statistically significant differences between pretest and posttest mean scores. Academic improvement was evidenced by a 14% gain in scores on reading fluency and a 20% gain in student performance in each instructional area (Welch, 2000).

Pre- and post-reading comprehension levels for students with disabilities improved significantly following one collaborative instruction approach with nine students with disabilities in a general education classroom. Fifty-six percent of the students comprehended below the pre-primer level on the pretest while seventy-eight percent of the

students comprehended at the first grade level on the post test and eleven percent improved comprehension to the third grade level (Voltz, 2003).

More data are available to systems since NCLB focused on system accountability for student achievement. Since the introduction of collaborative instruction there has been a thirty-three percent increase in the number of students with learning disabilities who have passed state exams and the exam pass rate for students with disabilities improved by twenty percent in math, twenty seven percent in science and thirty-seven percent in social studies (Kravetz, 2006).

Cole (2006) reports that while students with disabilities have made progress on state assessments schools are not making Adequate Yearly Progress (AYP) because of the overall academic performance of the special education subgroup. Of the 942 Indiana schools that did not make AYP (51% of the total) 76% reported not making AYP in the special education subgroup (Cole, 2006). Students with disabilities in New York City showed improved test scores on the city math test with 76% scoring "not proficient" in 1998-99 and 53% in 2004-05. This was a drop in 23% over a span of six years.

Over the same time period those scoring not proficient in language arts dropped from 62% in 1998-99 to 43% in 2004-05 (Samuels, 2005). In Massachusetts students with disabilities drop out at a rate two to three times greater than their peers without disabilities. Students with emotional behavior disorders were the least likely to earn a regular diploma (Samuels, 2005). Educational leaders have aggressively tackled the problem yielding greatly improved test scores (Samuels, 2005).

Murawski and Swanson's (2001) meta-analysis of collaborative research suggests that collaborative instruction is a moderately effective procedure for influencing student

outcomes. Six articles of the eighty nine articles reviewed provided experimental data that met the selected criteria for their study. Achievement in reading and language arts resulted in the largest effect size of 1.59 and achievement in mathematics and reduction of referrals both received moderate effect sizes of .45 and .43 respectively (Murawski & Swanson, 2001). Similarly, no statistical differences in student performance were found when comparing 9th grade English collaborative and non-collaborative classes (Mastropieri, Scruggs & Graetz, 2005).

While the majority of researchers conclude that there are many benefits of collaborative instruction few provide quantitative data to determine the effect of collaborative instruction on academic achievement of students with or without disabilities. The proposed study will provide additional data to substantiate this academic claim and provide a foundation for further research.

CHAPTER 3

METHODOLOGY

This chapter will outline the methods that will be used to conduct this study. The sections included in this chapter are the introduction, research questions, research design, data source, population, variables and measures, the data analysis procedures, and a summary.

Introduction

It is the researcher's purpose to determine the degree to which students with and without disabilities differ in academic achievement before and after the implementation of collaborative instruction in Walton County, Georgia. Academic achievement will be measured by Georgia High School Graduation Test (GHSGT) scores. The researcher will include differences in potential predictors of academic achievement such as disability status (students with disabilities and students without disabilities) and disability category (specific learning disability, emotional behavior disorder, mild intellectual disability, other health impairment, autism, visual impairment, orthopedic impairment, speech impairment) and ethnicity (African American, White, Other) and poverty status as determined by eligibility for free and reduced priced meals.

Research questions

A quantitative analysis of test data is necessary in order to answer the research following questions:

1. To what extent do students with disabilities and students without disabilities differ on high stakes tests (Georgia High School Graduation Test) before the implementation of collaborative instruction?

2. To what extent do students with disabilities and students without disabilities differ by potential predictors (e.g., socio-demographic factors)on high stakes tests (Georgia High School Graduation Test)?
3. To what extent do students with disabilities and students without disabilities differ on high stakes tests (Georgia High School Graduation Test) after the implementation of collaborative instruction?

Research design

It is interesting to look at these questions in order to demonstrate whether or not there is a relationship between collaborative instruction and scores on objective high-stakes instruments such as the Georgia High School Graduation Test (GHSGT). According to Gall, Gall, and Borg (1996), the relationship that is of greatest interest to educators, for theory development or educational improvement, is that involving cause and effect. Educational research is primarily conducted to describe educational phenomena or to explore relationships between different phenomena (Gall, Gall, and Borg (1996). Gall, Gall, and Borg (1996) suggest that causal-comparative analysis is the simplest quantitative approach to explore cause and affect relationships by analyzing data to detect relationships between variables. This method is also referenced as expost-facto (after the fact) research because existing data are utilized and causes are studied after they have already had a presumed effect on another variable (Gall, Gall, and Borg (1996). The first step in a causal-comparative study is to speculate about the causes of the effect that is of interest. The speculation in this study is framed in the first and third research questions. The next step in this type of study is to determine other factors that may cause the effect of interest. The second research question addresses other factors of interest.

The comparison groups in this study are disability status (disabled or non-disabled) and instruction model (before collaborative instruction or after collaborative instruction). The researcher will use pre-existing numerical data in an attempt to determine if there were differences in academic performance between the groups, disability status (yes or no) and collaborative instruction (before or after).

The first component of the design of this study will be an assessment of the level of student achievement by disability status (disabled versus non-disabled students) before the implementation of collaborative instruction. The second component will be to assess the level of student achievement for disabled and non-disabled groups after the implementation of collaborative instruction. These two components do not, however, account for other factors which are potential predictors of academic achievement. A third component therefore will measure differences in potential predictors of academic achievement for disabled and non-disabled students such race, gender and as a control variable previous achievement score.

According to Gall, Gall, and Borg (2003), educational research has a strong inclination toward causal inference and toward the testing of new instructional methods and programs. The researcher used causal-comparative research design to analyze existing Georgia High School Graduation Test results to determine if there were differences in academic achievement before or after the implementation of collaborative instruction for two groups of students, students with disabilities and students without disabilities. The independent variable is the instructional model, collaborative or traditional. The dependent variable is academic achievement as measured by scores on the various subtests of the Georgia High School Graduation Test. Additional variables that

will be analyzed include socio-demographic information about the students such as ethnicity, gender, and age. Since the researcher will be using existing data and no manipulation of the independent variables will be done for this study, the quantitative causal-comparative design seems most appropriate for this purpose.

Variables and measures

Independent variable

The independent variable in this study is the instruction model. The categories of the instructional model include collaborative instruction or traditional instruction. The instructional model is further disaggregated into sub-categories of disability status, ethnicity, age, and gender. Disability status is identified by eligibility category as defined by Georgia State Board Rules (GDOE, 2006). A child or youth is considered to have a disability if eligibility criteria is met in one of the following areas: autism, deaf/blind, deaf/hard of hearing, emotional behavioral disorder, intellectual disability, orthopedic impairment, other health impairment, significant developmental delay, specific learning disability, speech-language impairment, traumatic brain injury, or visual impairment. Please refer to Appendix A for the definitions of each eligibility category as cited in Georgia's State Board Rules 160-4-7-.00 (GDOE, 2006). For this study, eligibility categories will be omitted if they are not identified in the data reviewed.

In the rural county of this study, all general education core content classes are now offered through both traditional and collaborative formats in middle and high schools. At the elementary level, collaborative classes are limited to those required through student IEPs. Each collaborative class is staffed with two teachers. One teacher is highly qualified in the core academic content knowledge and the other teacher is highly qualified

in special education with general studies curriculum certification. Some classes, although few, have both teachers certified in core academic content knowledge.

Collaborative instruction does not look the same in each school or in each classroom within the same school. The level of collaboration of instruction varies from both teachers fully teaching differentiated groups within the classroom to one teacher providing instruction and the other circulating and assisting similar to a paraprofessional / teacher aide. The current study does not account for other factors that may influence the effectiveness of collaboration other than the inclusion of SWD with students without disabilities and what is described above. The assumption made is that collaboration models throughout the school system are more similar to each other than they are to traditional classroom groupings and strategies. Should significant differences emerge between test scores of both SWD and non-disabled students in collaboration versus both groups of students in traditional classroom settings, then further research can determine the impact of factors such as teacher compatibility or principal attitude.

Dependent variable

The dependent variable in this study refers to test data from 2002 through 2006 associated with the Georgia High School Graduation Test (GHSGT). The hypothesis is that scores on this high-stakes, criterion-reference assessment will be higher for both SWD and non-disabled students receiving collaborative instruction than for both groups of students in traditional classroom settings. Collaborative instruction was introduced in English / Language Arts classes initially therefore students taking this GHSGT subtest have a high likelihood of exposure to more years of collaborative instruction. Mathematics classes were the next area where collaborative instruction was added at the

high school level. The two other subtests of the GHSGT are social studies and science. Most of the high school social studies and science classes have had a collaborative instruction service delivery model for the past two years.

Students with a disability category of specific learning disability have a greater likelihood of more years of exposure to collaborative instruction in that they by definition have average cognitive ability and also have an area of academic strength. Students with a disability category of emotional behavioral disorders have the next highest likelihood of more years of exposure to collaborative instruction also by definition in that they generally have average cognitive ability but are impaired by emotional or social factors. Extreme behaviors, however, often prevent students with emotional behavior disorders from sustained participation in general education classes at the high school level. Students who have an eligibility category of intellectual disabilities were for the most part, only included in collaborative instruction classes for the past year.

Data source

Existing data will be collected for high school students who took the Georgia High School Graduation Test in one rural, mid-state, public school district's two high schools. The groups to compare within this set of data are those who received collaborative and those who received traditional instruction. It is possible that the two groups differ significantly on extraneous variables. One way to solve this problem, according to Gall, Gall, and Borg (1996) is to use a matching procedure. Two groups are matched on one or more extraneous variables so that the extraneous variables do not confound the study of causal relationships between the primary variable, instruction type. The sample includes all student GHSGT test scores for 2003 before collaborative instruction was implemented

and for 2005 and 2006 after collaborative instruction was implemented. The researcher obtained approval from Walton County Public Schools' research committee to conduct the research (Appendix B).

Data collection

The GHSGT scores for both system high schools were collected for this study. Scores from 1371 students for all four subtests are included. SASI and Performance Matters software programs store the data that was used for this study. SASI is a student information system software program that houses all socio-demographic information about the students. Performance Matters is a data warehouse software program that houses assessment data from all system wide, and grade level group assessments administered to Walton County students. Data included in the Performance Matters software program is uploaded from data disks that are provided to the system assessment and research coordinator from the test scoring vendors. System protocols are in place to protect the integrity of the testing process.

The test environment is void of academic print material related to test content. Technology devices including cell phones or ipods are collected from students before they enter the testing area. Each test group has a test administrator and a proctor. All individuals involved in the test process are required to participate in a training session provided by their building test coordinator. Building test coordinators are required to participate in a training session provided by the system assessment and research coordinator.

All test materials are handled in a secure manner. They are inventoried when they are received at the central office and separated based on school needs. A school

administrator picks up the materials, counts all items and signs an itemized receipt for the school's tests, answer sheets, and administration manuals. At the building level each proctor counts and signs for the materials for the specific class for which he/she is proctoring. Upon the completion of the day's assessment, materials are counted again and signed back into the building coordinator who locks them into a secure closet or cabinet.

At the end of the testing session materials are inventoried by item number and packaged in a specified manner and carried to the central office by the school testing coordinator who is usually an assistant principal (AP). The assessment and research coordinator receives the items and does a visual inventory while the AP is still there and signs a receipt for the items returned. When all items are collected from the schools they are packaged to be sent to the scoring agency for processing of the results. Any irregularities in any part of the testing process are reported to the state department. Detailed information regarding all irregularities are reviewed with the assistant superintendent and superintendent and included on the agenda for the next training session in an effort that mistakes are not repeated. The entire testing protocol is conducted in a very professional manner by all staff.

Analysis and procedures

Data for each testing year will be received from the assessment and research coordinator in an excel format on a CD ROM. The data from the excel spreadsheet will be loaded into the SPSS software program for analysis. Gall, Gall, and Borg (2003) suggest the first step in an analysis of causal-comparative data is to compute descriptive statistics for each comparison group. Frequency distributions will be run for each variable category. Since the data to be analyzed is before and after the introduction of

collaborative instruction, the analysis methods appropriate for pre-test/post-test comparisons are used.

Matching will be used in an attempt to obtain matched pairs for each year of the data sets. T-tests for correlated means are appropriate when the samples to be compared are matched on some other characteristic. In the case of this study, it could be a characteristic such as ethnicity, disability status, or gender (Gall, Gall, and Borg, 1996). T-tests provide accurate estimates of statistical significance even when you can not assume that the scores in the population are normally distributed or that the score variances are equal (Gall, Gall, and Borg, 1996).

To answer research questions number one and number three, to what extent do students with and without disabilities differ on high stakes tests before and after the implementation of collaborative instruction, the researcher will use a two sample t-test analysis for correlated means after matching procedures have been completed.

In research question number two, to what extent do students with and without disabilities differ by potential predictors on high stakes tests, the independent variables age, gender, ethnicity, and disability status are categorical, therefore the statistical method to be used is Chi square. Chi square is a nonparametric statistical test to determine whether research data frequencies are distributed differently for different samples. Gall, Gall, and Borg (2003) point out that when the frequency data are grouped into more than four cells a more complex chi square test can be done. The researcher has identified more than four categories of the independent variable.

Summary

The purpose of this quantitative study is to determine if there are differences between the GHSGT scores of students who participated in collaborative instruction and those who participated in traditionally taught classes. Existing data are to be analyzed from 2003 through 2006 for all students with and without disabilities who participated in the GHSGT at both of Walton County's high schools. The researcher will use a causal-comparative design with statistical two sample t-test and Chi square analysis procedures. The independent variable is the instructional method, either collaborative or traditional instruction, and the dependent variable is academic performance on the GHSGT.

CHAPTER 4

REPORT OF DATA AND DATA ANALYSIS

The purpose of this study was to determine if there were differences between the GHSGT scores of students before the implementation of collaborative instruction and the GHSGT scores of students after the implementation of collaborative instruction. The researcher also determined if there were differences in test scores between socio-demographic groups of ethnicity, disability status, and gender. Georgia High School Graduation Test scores from two high schools were used in this study. Both high schools were located in the same northeast rural Georgia county.

Research questions

It was the researcher's intention to determine the degree to which students with and without disabilities differ in academic achievement before and after the implementation of collaborative instruction. The researcher also intended to determine if there were differences in academic achievement when compared by disability status (students with disabilities and students without disabilities), disability category, gender and ethnicity. The researcher focused on the following research questions to achieve the purpose of the study:

1. To what extent do students with disabilities and students without disabilities differ on high stakes tests (Georgia High School Graduation Test) before the implementation of collaborative instruction?
2. To what extent do students with disabilities and students without disabilities differ by potential predictors (e.g., socio-demographic factors)on high stakes tests (Georgia High School Graduation Test)?

3. To what extent do students with disabilities and students without disabilities differ on high stakes tests (Georgia High School Graduation Test) after the implementation of collaborative instruction?

Research design

Causal-comparative analysis, also referenced as expost-facto (after the fact) research design was used in this study to explore cause and effect relationships between variables. Existing data were analyzed to determine if there were differences in academic achievement between the groups. The groups were GSHGT scores for the years 2003, 2005, and 2006. 2003, which was before the implementation of collaborative instruction, was the baseline, or pre-test year. 2005 and 2006 were after the implementation of collaborative instruction and considered the post-test years. The groups were matched by ethnicity, gender, and disability status.

The dependent variable was academic achievement as determined by scores on the Georgia High School Graduation Test. The independent variable was instructional program before and after the implementation of collaborative instruction. Other independent variables analyzed to determine if there were differences in the test scores were ethnicity, gender, and disability status.

Sample population

Data from Georgia High School Graduation Tests of first time test takers were gathered from the annual administration in the spring of 2003, the spring of 2005 and the spring of 2006 for two schools in a rural county in northeast Georgia. The total number of student scores included in the study was 1371. Matching was conducted to obtain three

groups with the same representation by ethnicity and gender. Descriptive statistics were performed to determine the demographic make-up of the sample.

Frequency distribution

Tables 1-5 display the frequency distributions for year, school, gender, ethnicity, and disability status. In Table 1 frequency data are broken out by year as follows: 457 in 2003, 457 in 2005 and 457 in 2006. Student scores were selected and matched each year based on gender, ethnicity and disability status. In the sample fifty-six percent of the students (864) were from one high school and forty-four percent of the students (722) were from another high school in the same county. Frequency data for gender indicates the sample was fifty-four percent female (850) and forty-six percent (736) male. Frequency data indicate the sample's ethnic makeup is as follows: 82% or 1119 students were white, 14% or 192 students were African-American, just over 2% or 30 students were Asian, just under 2% or 24 students were Hispanic, and less than 1% or 6 students were multi-ethnic. Frequency distribution for disability status indicated that of the 1371 students twelve in the sample 91% or 1248 were not disabled. The remaining 123, or 9%, were students with disabilities.

Disability status was disaggregated further into six categories of special education eligibility. Forty-six students had a specific learning disability (3.4 %), forty-four students had an emotional behavior disability (3.2 %), twelve students were identified as other health impaired (0.9 %), nine students had a mild intellectual disability (0.7 %), ten students has a speech / language impairment (0.7 %), and two students had a visual impairment (0.1 %).

Table 1

Frequency distribution for year

Variable	n	Valid %	Cumulative %
2003	457	33.33	33.33%
2005	457	33.33	66.67%
2006	457	33.33	100%
Total	1371		

Data were matched for the school years 2002-03, 2004-05 and 2005-06. 2003 was the baseline year. The 457 students in each group were evenly matched each year by ethnicity and gender.

Table 2

Frequency distribution for school

Variable	n	Valid %	Cumulative %
High School #1	599	43.7 %	43.7 %
High School #2	772	56.3 %	100 %
Total	1371	100	

43.7% of student scored from School #1 and 56.3% of student scores were from High School #2.

Table 3

Frequency distribution for gender

Variable	n	Valid %	Cumulative %
Female	732	53.4	53.4
Male	639	46.6	100
Total	1371	100	

Of the 1371 scores 53.4% were from females and 46.6% were from males.

Table 4

Frequency distribution for ethnicity

Variable	n	Valid %	Cumulative %
Asian	30	2.2 %	2.2 %
African-American	192	14 %	16.2 %
Hispanic	24	1.8 %	17.9 %
White	1119	81.6 %	99.6 %
Multi-ethnic	6	.4 %	100 %
Total	1371	100 %	

82 percent of students were white, 14 percent were African-American, 2 percent were Asian, less than 2 percent were Hispanic and less than 1 percent were multi-ethnic.

Table 5

Frequency distribution for disability status

Variable	n	Valid %	Cumulative %
Student with disabilities	30	2%	2%
Student without disabilities	1341	98%	100%
Total	1371		

Research findings

The researcher intended to determine if there were differences in GHSGT scores before and after the implementation of collaboration instruction. Three research questions were answered after an analysis of the data. This section presents the findings obtained related to the research questions.

Research question one

To answer the first research question, to what extent do students with disabilities and students without disabilities differ on high stakes tests (Georgia High School Graduation Test) before the implementation of collaborative instruction. An Independent samples t-test and chi-square statistical analysis was used to answer this research question. Chi-square statistical analysis was used to determine if there were differences in the percentages of students who failed, passed, or scored pass plus between the two groups, students with disabilities and students without disabilities. Independent samples t-test was used to compare the mean scores of students with disabilities and the students without disabilities. There were scores in each of the four subtests analyzed for 457 students from 2003 which was before the implementation of collaborative instruction.

The mean scores of students without disabilities and students with disabilities were statistically different on all four subtests. The mean difference of 30.30 was statistically significant on the language arts subtest between students without disabilities (M = 517.63, SD = 33.94, n = 390) and students with disabilities (M = 487.32, SD = 53.75, n = 67). On the math subtest the mean difference of 36.80 was also statistically significant between the students without disabilities (M = 510.83, SD = 34.12, n = 390) and students with disabilities (M = 474.02, SD = 55.65, n = 67).

The mean difference of 36.79 on the social studies subtest was statistically significant between students without disabilities (M = 479.40, SD = 47.27, n = 390) and those without (M = 442.61, F = 52.82, n = 67). The science subtest mean difference of 27.06 was also statistically significant between students without disabilities (M = 486.56, SD = 45.88, n = 390) and students with disabilities (M = 459.49, SD = 54.70, n – 67). Table 6a indicates the statistically significant differences among all four subtests between the students without disabilities and those with disabilities in 2003.

Table 6

Results of t-test for 2003 GHSGT scores before collaborative instruction

		Before Collaborative Instruction								
		Students Without Disabilities			Students With Disabilities			95% CI for Mean Difference	t	df
		M	SD	n	M	SD	n			
L Arts	03	517.63	33.94	390	487.32	53.75	67	20.56-40.04	6.11*	455
Math	03	510.83	34.12	390	474.02	55.65	67	26.92-46.68	7.32*	455
Science	03	479.40	47.27	390	442.61	52.82	67	24.28-49.29	5.78*	455
Soc St	03	486.56	45.88	390	459.49	54.70	67	14.77-39.36	4.23*	455

*$p<.05$

The difference in test scores between students with disabilities and students without disabilities was statistically significant for each of the subtests, language arts, math, science and social studies before the implementation of collaborative instruction. Chi-square was used to analyze the data into performance levels of fail, pass and pass plus. Table 7 shows the Chi-square value ($\chi^2 = 35.99$) indicating statistically significant differences on the language arts subtest between students with disabilities and students without disabilities.

Tables 8, 9 and 10 show the Chi-square values indicating statistically significant differences ($p = .001$) on the math ($\chi^2 = 49.28$), science ($\chi^2 = 32.43$), and social studies

(χ^2 =18.15) subtests between students with disabilities and students without disabilities before the implementation of collaborative instruction.

Table 7

Results of Chi-square for disability status and language arts

	Disability Status	
	Students Without Disabilities	Students With Disabilities
Language Arts		
Fail	5.9%	25.4%
Pass	30.5%	40.3%
Pass Plus	63.6%	34.3%
	n = 390	n = 67

χ^2 = 35.99, df = 2, p = 0.5

Table 8

Results of Chi-square for disability status and math

	Disability Status	
	Students Without Disabilities	Students With Disabilities
Math		
Fail	6.7%	34.3%
Pass	43.3%	41.8%
Pass Plus	50%	23.9%
	n = 390	n = 67

χ^2 = 49.28, df = 2, p = .05

Table 9

Results of Chi-square for disability status and science

	Disability Status	
	Students Without Disabilities	Students With Disabilities
Fail	25.2 %	59.7 %
Pass	60.3 %	32.8 %
Pass Plus	14.6 %	7.5 %
	n = 390	n = 67

χ^2= 32.43, df = 2, p = 0.5

Table 10

Results of Chi-square for disability status and social studies

	Disability Status	
	Students Without Disabilities	Students With Disabilities
Social Studies		
Fail	25.1 %	59.7 %
Pass	60.3 %	32.8 %
Pass Plus	14.6 %	7.5 %
	n = 390	n = 67

χ^2 =18.15, df = 2, p = 0.5

Research question two

The second research question asked to what extent did students with disabilities and students without disabilities differ on the Georgia High School Graduation Test (GHSGT) by potential predictors such as ethnicity and gender. Chi-square statistics were used to answer this question.

The difference in language arts scores were statistically significant p=.001 df 8 for students without disabilities based on ethnicity. Of the other academic subtests the differences were not statistically significant for students with or without disabilities p = .05. Table 11 represents the academic performance categorized by ethnicity and disability status. White students (1119) comprised the largest ethnic group representing 81.6% of the total sample. African-American students (192) comprised the next largest group representing 14% of the sample followed by Asian (30) representing 2.2%, Hispanic (24) representing 1.8% and multi-racial (6) representing 0.4% completing the total sample of 1371 students.

When subtest scores were analyzed based on gender the differences were statistically significant for students without disabilities on all subtests p=.01 df 2. The differences were not statistically different for students with disabilities on any subtest p=.05 df 2. Table 12 shows the Chi-square statistical analysis for gender.

Table 11

Results of Chi-square for disability status and ethnicity

Ethnicity	Disability Status							
	Students without disabilities				Students with disabilities			
	n	Fail	Pass	Pass Plus	n	Fail	Pass	Pass Plus
GHSGT		<500	500-536	>536		<500	500-536	>536
Language Arts								
Asian	9	0	55.6%	44.4%	1	0	0	100%
African-American	62	4.8%	41.9%	53.2%	2	0	50%	50%
Hispanic	8	0%	25%	75%	0	0	0	
White	357	.3%	23.5%	76.2%	16	6.3%	43.8%	50%
Multi-racial	2	0	0	100%	0	0	0	0
	χ^2 =40.85 df 8				χ^2 =10.80 df 6			
Math								
Asian	9	0	44.4%	55.6%	1	0	100%	0
African-American	62	4.8%	48.4%	46.8%	2	0	100%	0%
Hispanic	8	0%	25%	75%	0	0	0	0
White	357	.6%	34.2%	65.3%	16	31.3%	56.3%	12.5%
Multi-racial	2	0	50%	50%	0	0	0	0
	χ^2 =43.63 df 8				χ^2 =10.24 df 6			
Science								
Asian	9	22.2%	55.6%	22.2%	1	0	100%	0
African-American	62	30.6%	48.4%	21%	2	50%	50%	0
Hispanic	8	12.5%	62.5%	25%	0	0	0	0
White	357	14.8%	60.8%	24.4%	16	43.8%	56.3%	0
Multi-racial	2	0	0	100%	0	0	0	0
	χ^2 =40.16 df 8				χ^2 =6.79 df 6			
Social Studies								
Asian	9	11.1%	44.4%	44.4%	1	0	100%	0
African-American	62	6.5%	48.4%	45.2%	2	0	100%	0
Hispanic	8	0	37.5%	62.5%	0	0	0	
White	357	6.2%	45.9%	47.9%	16	18.8%	62.5%	18.8%
Multi-racial	2	0	100%	0	0	0	0	0
	χ^2 =37.21 df 8				χ^2 =9.40 df 64			

Table 12

Results of Chi-square Test for disability status and gender

	Gender							
	Students Without Disabilities				Students With Disabilities			
	n	Female	n	Male	n	Female	n	Male
Language Arts								
Fail <500	11	1.6%	21	3.7%	9	18.8%	15	20%
Pass 500-536	197	28.8%	179	31.7%	19	39.6%	38	50.7%
Pass Plus >536	475	69.5%	364	64.5%	20	41.7%	22	29.3%
	χ^2 =7.38, df 2, p=.01				χ^2 =2.10, df 2, p=.05			
Math								
Fail <500	11	1.6%	21	3.7%	9	18.8%	15	20%
Pass 500-536	197	28.8%	179	31.7%	19	39.6%	38	50.7%
Pass Plus >536	475	69.5%	364	64.5%	20	41.7%	22	29.3%
	χ^2 =12.41, df 2, p=.01				χ^2 =7.38, df 2, p=.05			
Social Studies								
Fail <500	11	1.6%	21	3.7%	9	18.8%	15	20%
Pass 500-536	197	28.8%	179	31.7%	19	39.6%	38	50.7%
Pass Plus >536	475	69.5%	364	64.5%	20	41.7%	22	29.3%
	χ^2 =13.23, df 2, p=.01				χ^2 =7.38, df 2, p=.05			
Science								
Fail <500	11	1.6%	21	3.7%	9	18.8%	15	20%
Pass 500-536	197	28.8%	179	31.7%	19	39.6%	38	50.7%
Pass Plus >536	475	69.5%	364	64.5%	20	41.7%	22	29.3%
	χ^2 =14.30, df 2, p=.01				χ^2 =7.38, df 2, p=.05			

Research question three

The third research question asked to what extent did students with disabilities and students without disabilities differ on high stakes tests after the implementation of collaborative instruction. This research question will be answered in two ways. The first analysis will look at the subtest scores for the years after collaborative instruction was implemented. The second analysis will look at a comparison of the test scores before and after the implementation of collaborative instruction for each subtest.

Data from the 2005 and 2006 Georgia High School Graduation Test administrations was used to answer the first part of this research question since collaborative instruction was implemented in 2004. The statistical analysis used to answer this part of the question is the independent samples t-test to compare the means of the subtest scores for students with disabilities and students without disabilities for the two years (2005 and 2006) after collaboration instruction was implemented.

The data from the 2005 administration of the GHSGT was analyzed to compare the mean score of each subtest for students without disabilities and students with disabilities. Results of the independent samples t-test indicate that the differences between the two groups are statistically significant for all four subtests in 2005.

The data from the 2006 administration was analyzed in the same manner with similar results for math, science and social studies. The language arts subtest however did not show statistically significant differences between the subtest scores between students without disabilities and students with disabilities.

The mean difference of 29.92 between the language arts subtest scores for 2005 for students without disabilities ($M = 522.70$, $SD = 22.83$, $n = 420$) and the language arts

subtest scores for students with disabilities (M = 492.78, SD = 44.21, n = 37) was statistically significant. Data from the following year however did not show differences as statistically significant. The mean difference of 11.65 between the language arts subtest scores for 2006 for students without disabilities (M = 525.87, SD = 20.35, n = 438) was not statistically significant from the language arts subtest scores of students with disabilities (M = 514.21, SD = 33.21, n = 19).

The mean difference of 31.62 between the math subtest scores for 2005 for students without disabilities (M = 518.38, SD = 20.85, n = 420) was statistically significant from the math subtest scores of students with disabilities (M = 486.75, SD = 44.36, n = 37). The mean difference of 43.38 between the math subtest scores for 2006 for students without disabilities (M = 520.75, SD = 21.23, n = 438) was statistically significant from the math subtest scores of students with disabilities (M = 477.36, SD = 48.71, n = 19).

The mean difference of 36.45 between the science subtest scores for 2005 for students without disabilities (M = 477.82, SD = 46.84, n = 420) was statistically significant from the science subtest scores of students with disabilities (M = 441.37, SD = 51.04, n = 37). The mean difference of 32.34 between the science subtest scores for 2006 for students without disabilities (M = 490.34, SD = 43.00, n = 438) was statistically significant from the science subtest scores of students with disabilities (M = 457.89, SD = 50.72, n = 19).

The mean difference of 36.17 between the social studies subtest scores for 2005 for students without disabilities (M = 501.85, SD = 31.73, n = 420) was also statistically significant from the social studies subtest scores of students with disabilities (M = 465.67,

SD = 52.64, n = 37). The mean difference of 17.86 between the social studies subtest scores for 2006 for students without disabilities (M = 506.18, SD = 30.02, n = 438) was also statistically significant from the social studies subtest scores of students with disabilities (M = 477.36, SD = 40.43, n = 19).

Table 13 shows the independent samples t-test statistical analysis to answer the first part of this research question. The results indicate that there is no statistical difference between students without disabilities and students with disabilities on the language arts subtest of the GHSGT after the implementation of collaborative instruction. The difference is statistically different between the two groups on the other three GHSGT subtest, math, science and social studies.

Table 13

Results of t-test for GHSGT subtests after collaborative instruction for SWD and non-SWD

After Collaborative Instruction

		Students Without Disabilities			Students With Disabilities			95% CI for Mean Difference	t	df
		M	SD	n	M	SD	n			
L Arts	2005	522.70	22.83	420	492.78	44.21	37	21.43-38.41	6.92*	455
	2006	525.87	20.35	438	514.21	33.21	19	1.98-21.32	2.36	455
Math	2005	518.38	20.85	420	486.75	44.36	37	23.67-39.57	7.81*	455
	2006	520.75	21.32	438	477.36	48.71	19	32.81-53.95	8.06*	455
Science	2005	477.82	46.84	420	441.37	51.04	37	20.54-52.35	4.50*	455
	2006	490.23	43.00	438	457.89	50.72	19	12.38-52.30	3.18*	455
Soc St	2005	501.85	31.73	420	465.67	52.64	37	24.76-47.58	6.23*	455
	2006	506.18	30.02	438	488.31	40.43	19	3.82-31.91	2.5*	455

p<.05*

The second part of this research question compared the subtest scores from 2003 which was before the implementation of collaborative instruction with the subtest scores of 2006 which was the most recent administration after the implementation of collaborative instruction. This analysis provided information related to the impact of collaborative instruction over time and determined if the gap in academic achievement was closing between students without disabilities and students with disabilities. Table 14 shows that the gap is closing significantly for language arts, and social studies and slightly for science. The mean difference for math subtest scores did not reduce from 2003 to 2006. There was no reduction in the achievement gap for math.

Table 14

Mean differences of subtest scores before and after collaborative instruction

	Academic Achievement			
	Lang Arts	Math	Science	Social Studies
Before collaborative instruction				
2003	30.30	36.80	36.79	27.06
After collaborative instruction				
2005	29.92	31.62	36.45	36.17
2006	11.65	43.38	32.34	17.86
	r = -.767	r =.391		r =-.330

Summary

This study was to determine if there were differences in the Georgia High School Graduation Test subtest scores before and after the implementation of collaborative instruction for two groups of students, those without disabilities and those with disabilities. Three research questions were developed which framed the study into three components. An analysis of data from the year before collaborative instruction was implemented answered research question number one. An analysis of the socio-demographic factors of the sample population answered research question number two. An analysis of the data from the two most recent years of the implementation of collaborative instruction answered research question number three.

Existing data were used in this study from two high schools which administered the Georgia High School Graduation Test. The data were matched to have the same number of student scores each year with matching for ethnicity and gender. Cases were eliminated by random selection were a year had more samples by ethnicity and gender. The resulting sample size was 1371 cases with 457 cases for each of the three years 2003, 2005 and 2006.

In answer to question number one an analysis of the data showed that there were statistically significant differences in subtest scores between students without disabilities and students with disabilities in 2003 which was before the implementation of collaborative instruction. On each of the four subtest areas, language arts, math, science and social studies the results were statistically different between the two groups.

The data were analyzed further to determine if there were differences in the subtest scores when compared by ethnicity or gender for the two groups students without

disabilities and students with disabilities. Differences in test scores between the two groups when analyzed by ethnicity were not statistically significant for either students without disabilities of students with disabilities on the math, science, or social studies subtests. Language arts subtest scores were statistically significant for the students without disabilities when analyzed by ethnicity. Differences were not significant on this subtest for students with disabilities.

When the analysis was completed by gender the results were quite different between students without disabilities and students with disabilities. There were statistically significant differences on each of the subtests for students without disabilities when compared by gender. The differences were not statistically significant, however, for students with disabilities on any of the four subtests when compared by gender.

The final component of this study analyzed the results of the GHSGT scores after collaborative instruction had been implemented. An analysis of the test scores from the 2005 and 2006 administrations showed that differences in scores between students without disabilities and students with disabilities were statistically significant for both years for the subtests of math, science, and social studies. However, differences in language art subtest scores were not statistically significant for the 2006 administration. A closer look at the mean differences of each subtest score for each year showed that the mean differences had decreased from the 2003 administration for the language arts, science and social studies subtests. Since the sample was matched each year for ethnicity and gender the differences are not attributed to socio-demographic factors. The results indicate that GHSGT subtest scores of language arts, science and social studies improved after the implementation of collaborative instruction.

The findings presented in this chapter will be reviewed further in Chapter 5 along with a discussion of the study as related to administrative staffing decisions. Implications for the field of education administration and recommendations for further research will also be discussed in Chapter 5.

CHAPTER 5

RESULTS, CONCLUSION, AND IMPLICATIONS

Results

Educational leaders strive to assure that the academic instruction, supports, or accommodations provided will facilitate the learning of all students. They are challenged in this endeavor by two federal laws, No Child Left Behind (NCLB) and Individuals with Disabilities Education Act (IDEA). No Child Left Behind legislation includes an accountability measure which requires states to compare the academic performance of students with disabilities with that of students without disabilities (USDOE, 2000). The Individuals with Disabilities Education Act mandates that students with disabilities are included within general education classes with appropriate supports and accommodations in compliance with the least restrictive environment component of the law. Prior to the NCLB legislation comparing the performance of students with disabilities with students without disabilities had not been required and often students with disabilities were excluded from statewide assessments (Prah, 2003, Sternberg, 2002).

NCLB legislation is holding states and school systems accountable to raise academic achievement toward the goal that all students will read and do math on grade level by 2014. When a school fails to make adequate yearly progress (AYP) in each sub-group the school is labeled as a failing school and could be in jeopardy of loosing federal funds. Students with disabilities (SWD) is one of the sub-groups in which academic performance is measured by state assessments. It is also the sub-group that has prevented many schools from achieving AYP status. Much focus has been on initiatives to help schools make adequate yearly progress. Although originally implemented following the

reauthorization of IDEA in 1997 to comply with the Least Restrictive Environment mandate, collaborative instruction is one of the initiatives growing in popularity to help schools and systems make AYP (Arguelles, Hughes, & Schumm, 2000).

Researchers have reported that students with disabilities perform better academically within the regular education classroom than they do in special education classrooms (Baker, Wang, & Walberg, 1994). This researcher found few studies which had been conducted to determine if students with disabilities were learning at the same level as their same age non-disabled peers (Welch, Brownell, & Sheridan, 1999; Austin, 2001). Most of the research that has been conducted regarding collaborative instruction addresses classroom environment, teacher traits, how-to suggestions or administrative attitude and did not include a measurement of academic performance (Austin, 2001; Dieker, 2001; Fennick, 2001; Gately, 2005; Mastropieri, Scruggs, & Graetz, 2005).

While collaborative instruction has been the service delivery model of choice to include students with disabilities in general education classes with their non-disabled peers researchers have not addressed whether or not this service delivery model had an effect on academic performance. Studies which address academic performance focus on observations of improved services such as reduced student – teacher ratio, the incentive to reach higher goals, or the benefits of exposure to another teacher's area of expertise (Vance, 2001).

Researchers have also reported on the social and emotional effects of collaborative instruction for both teachers and students. A feeling of renewal and sense of collegiality was reported by Hourcade and Bauwens (2001). Students reported that they got more attention in a collaborative classroom and that the stigma of having to leave the classroom

to receive special education no longer existed (Luckner, 1999). Students with disabilities in the general education classrooms, is was reported, became more fully engaged in acquiring mathematical knowledge. This was attributed to the fact that they had access to the general education teacher and the general education curriculum while receiving required accommodations and supportive assistance as stated in their IEPs (Magiera, Smith, Zigmond & Gebauer, 2005). While many studies referenced positive conclusions regarding collaborative instruction there were also cautions presented.

Adequate resources for implementation, time for the collaborative teachers to plan together, staff development prior to implementation, and inequality of instructional responsibilities were often referenced as challenges to collaborative instruction (Gerber and Popp, 2000; Vance, 2001; Halpin, 2006). Following a study in the United Kingdom researchers concluded that there was not positive evidence that learning needs were being met for all students with disabilities (Halpin, 2006). The teachers union responded that the results of that study indicated collaborative instruction was harming students and described as a form of abuse (Halpin, 2006).

Few recent studies were found that included parent's perceptions regarding collaborative instruction. Of those studies reviewed parents generally responded favorably. The concerns that were raised related to the number of students in the general education classes, watered down curriculum, unfairness of modified grades for students with disabilities or the lack of specialized training of the general education teacher about the specific disabilities of their children (Wagoner & Wilgosh, 1990; Shipley, 1995; Tichenor, Heins, Y Piechura-Couture, 2000).

Since NCLB focused on system accountability for student achievement more data has been available to systems to use for planning and decision making by the educational leaders. Recent articles in professional journals referenced data indicating trends of improved scores for students with disabilities on state achievement tests (Kravetz, 2006). Cole (2006) reported, however, that while students with disabilities have made progress on state assessment tests schools were not making adequate yearly progress because of the students with disabilities (SWD) sub-group. In Indiana, 76% of the schools that did not make AYP were due to the SWD sub-group.

A meta-analysis conducted by Murawski and Swanson in 2001 reviewed eighty-nine articles to find only six that provided experimental data related to academic achievement. In each of the studies reviewed researchers agreed that more research was needed which addresses academic achievement. The lack of research on academic achievement and the range of variability of the result of the studies reviewed emphasizes the need for specific studies to help educational leaders make informed decisions for service delivery and instructional programs. For this reason, the purpose of this study was to determine the effect of collaborative instruction on the academic achievement as measured by the Georgia High School Graduation Test subtest scores.

Research questions

Three research questions were formed to determine if there were differences in achievement scores on the Georgia High School Graduation Test on any of the four subtests between the two groups, students without disabilities and students with disabilities before and after the implementation of collaborative instruction. Research question number one establishes the baseline for the study and analyzes the subtest scores

of 2003 which was before the implementation of collaborative instruction. Research question number two address two potential predictors, ethnicity and gender, that may impact academic achievement. The third research question determined if there were differences in academic achievement after the implementation of collaborative instruction. Data from 2005 and 2006 were analyzed to compare the subtest scores between the two groups. An analysis was also conducted to compare the subtest scores of 2003 with the subtest scores of 2006.

In this expost-facto study a causal-comparative research method was used to determine if the differences in subtest scores were statistically significant between the two groups, students without disabilities and students with disabilities, before and after the implementation of collaborative instruction. The sample was from 1371 students from two high schools who were first time test takers of the Georgia High School Graduation Test. Matching was conducted by ethnicity and gender to form three groups of 457 students for each year. Data were collected for the three groups to include GHSGT subtest scores for language arts, math, science and social studies.

Three types of analysis were used to determine if any differences between the groups were statistically significant. Since the sample was large it was assumed the socio-demographic differences would be evenly distributed however matching of the groups for each year further eliminates ethnicity or gender as causal factors. Descriptive statistics were used to describe the characteristics of the sample. Chi-square analysis was used to determine if the differences between the groups were statistically significant. Independent-samples t-test was used to determine if the results of the two groups represented a single population.

Analysis of research findings

The findings of this study present interesting information related to the differences in Georgia High School Graduation (GHSGT) test score before and after the implementation of collaborative instruction for students with and without disabilities. Chi-square analysis determined that when the test scores were disaggregated by ethnicity the differences were statistically significant for students without disabilities on the language arts subtest. Test score differences for all other subtests were not significant for students with or without disabilities.

It was also interesting to note the statistically significant differences in subtest scores when disaggregated by gender for students without disabilities. The differences were not statistically significant based on gender for students with disabilities.

Another interesting finding was that the mean test scores improved on all subtests except math after the implementation of collaboration as determined when comparing GHSGT subtest scores from 2003 to 2006 for both groups, students without disabilities and students with disabilities. An even greater improvement after the implementation of collaborative instruction was indicated on the language arts subtest by the t-test analysis of scores from 2006. The mean difference in language arts subtest scores reduced from 30.30 in 2003 to 11.65. This finding indicates a major closing of the achievement gap between students with and without disabilities in the area of language arts. The gap is also closing in the area of social studies according to an analysis of mean differences.

Discussion of research findings

The purpose of this study was to determine the differences in academic achievement between students with disabilities and students without disabilities before

and after the implementation of collaborative instruction. Research question one was created to determine the differences in academic achievement between the two groups before the implementation of collaborative instruction. Data from 2003 was analyzed to answer this question since the 2003 administration of the GHSGT was before the implementation of collaborative instruction. The researcher found that the differences between the mean scores on all four GHSGT subtests were statistically significant between the two groups. This finding is consistent with the 2001 study by Vance who reported an evident disparity in academic achievement of students with disabilities when compared with their general education peers. The finding is also consistent with reported data on GHSGTs from previous years. The largest gap between the two groups was in the science subtest in 1996 when 70% of general education teachers passed the assessment and only 12% of students with disabilities passed.

Socio-demographic factors were addressed in question two. The findings indicate that the differences based on gender were not significant for students with disabilities but the differences were statistically significant for students without disabilities. These findings are consistent with those found in 2003 which reported that girls in collaboratively taught classes performed better than boys (Staples, 2003). When compared by ethnicity the difference in language arts cores were statistically significant for students without disabilities. The researcher found that the differences were not significant for any other subtest for students with or without disabilities.

The researcher's intention with question two was to determine the differences in academic achievement after the implementation of collaborative instruction. The researcher found that the differences between the two groups were less significant in 2006,

after the implementation of collaborative instruction than they were in 2003 before the implementation of collaborative instruction for three of the four GHSGT subtests.

The math subtest was the only area where the achievement gap was larger in 2006 than it was in 2003. In 2005, the gap between students with disabilities and students without disabilities was significantly reduced on the GHSGT math subtest only to be widened again in 2006. On the other subtests the mean scores were higher in 2006 than they were in 2003 and even higher than in 2005.

The researcher discovered the most significant closing of the achievement gap was noted in language arts. This was followed closely by the gap closing in social studies. Since NCLB and the focus on school system accountability for student achievement there has been a 33% increase in the number of students with learning disabilities who have passed state exams. The researcher concludes that the findings of this study concur with Kravetz (2006) who reported that since the implementation of collaborative instruction the state exam pass rate for students with disabilities improved by 20% in math, 27% in science, and 37% in social studies.

Gerber and Popp (2000) questioned whether the intensity of instruction provided to students with disabilities in the general education classroom can adequately incorporate special education strategies. This researcher concurs with Gerber and Popp and attributes the inconsistency of improvement in the area of math to other possible factors since the drop in math scores was noted across the system in several grade levels.

Conclusion

The researcher intended to determine the extent to which students with and without disabilities differ on high stakes tests before and after the implementation of collaborative

instruction. The high stakes tests of reference in this study were the four subtests of the Georgia High School Graduation Test which are administered to students for the first time in the spring of their eleventh grade year. Three research questions were created to make a determination for this topic. The first research question established the baseline for the study as the data reviewed was from Georgia High School Graduation Tests administered before the implementation of the collaborative instruction service delivery model. The question read; To what extent do students with disabilities and students without disabilities differ on high stakes tests before the implementation of collaborative instruction? The results showed that there were statistically significant differences between the subtest scores of students with disabilities and students without disabilities on all four subtests. When comparisons were made by potential predictors of academic achievement such as ethnicity and gender the results were varied.

Murawski and Dieker (2004) suggest that through co-teaching, and with appropriate training, materials and support, educators can meet the needs of students with and without disabilities who are struggling in a secondary classroom. Much of the previous research regarding collaborative instruction addressed factors other than academic achievement. The factors that were addressed in the previous research are important, however to the results of this study as well. Staples (2003) specifies roles, relationships, and practices that impact the effectiveness of collaborative instruction in high school math classes. The drop in math scores in the current study are consistent with similar findings in Staples research. This drop in math scores was noted across the school system in several grade levels after the roll out of the Georgia Performance Standards which was a major change from the previous Quality Core Curriculum. Magiera, Smith,

Zigmond, and Gebauer (2005) report that of 49 observations in secondary co-taught mathematics classes, little co-teaching occurred and neither teacher provided differentiated support to students to meet their individual needs. In that 2005 study, the manner in which collaborative instruction was implemented had an effect on student performance.

Implications

The findings of this research study are important to educational leaders who share responsibility for high school students with and without disabilities. Since the results indicate that academic achievement improves after the implementation of collaborative instruction teachers and administrators can focus on improving the mechanics of this instructional strategy to maximize the level of student achievement. System level central office personnel and state level educational administrators will also find the results of this study helpful as they prepare for and plan service delivery options and hire personnel to meet the diverse needs of all students, those without disabilities and those with disabilities at each of the schools within each system throughout the state.

Recommendations

Educational leaders are much more focused on the academic achievement of students within their schools than ever before since the No Child Left Behind legislation which penalizes systems who do not achieve. The results of this study can be used for professional learning to reassure high school teachers that the collaborative instructional model can have a positive influence on students' academic performance. Parents should also be made award of the results of this study so they can encourage their children to participate fully in the collaborative instructions classes as scheduled.

It is also recommended that this study is followed up with an analysis of differences in collaborative instruction math classes and other content area classes where collaborative instruction is utilized to determine the reason behind the lack of academic improvement in that content area. Further research is also needed to address the collaborative instruction at other educational levels. There are distinct differences between academic instruction in a collaborative classroom in a middle school as compared to and elementary school. More studies are recommended to address these two academic levels as well as in kindergarten.

Dissemination

The results of this study will be disseminated several ways. First, the findings will be presented at the annual international conference of the Council for Exceptional Children in Louisville, Kentucky. Second, a presentation will be prepared for the superintendent's leadership cabinet for the Walton County School District. Next, results will be summarized in the quarterly newsletter that is sent to the parents of all special education students as well as posted on the Department of Education for Exceptional Children (DEES) website for Walton County. Fourth, an article will be submitted for publication in three peer reviewed journals, *Exceptional Children, The Special Educator and Educational Leadership.* The fifth method will be to submit the study for inclusion in *Dissertation Abstracts International.*

Concluding remarks

Collaborative instruction provided a means for educational leaders to comply with the Individuals with Disabilities Education Act mandate that students with disabilities were to be educated in the least restrictive environment, which meant they were to be in

classrooms with their same age peers who did not have handicapping conditions. Educational leaders as well as teachers, both special education and general education were concerned about the effect this would have after so many years of specialized services that separated the two groups. As a program director responsible for oversight and facilitation of appropriate services for students eligible for special education, this researcher was interested in the academic impact of this collaborative instruction initiative. The research was abundant about collaborative instruction but the results varied and few researchers utilized student academic performance as a variable in their study. This topic was chosen by the researcher to determine the effect collaborative instruction has on academic performance in order to make program recommendations which are supported by research. This study has shown that since the implementation of collaboration the achievement gap is closing. Additionally, the results showed that students without disabilities improved their overall academic performance as well. The language arts subtest scores indicated the highest percentage of gap closure followed closely by social studies. Scores in science indicated a trend toward gap closure also. Math scores showed a significant gap closure from 2003 to 2005, however the gap widened again in 2006.

It can be concluded from this study that students do better when two teachers are utilizing the collaborative instruction service delivery model in the classroom. The results of this study will be used by this researcher to review practices in the two subject schools and analyze instructional practices, especially in math to determine if other factors may be prohibiting the same degree of academic improvement as was evident in language arts, social studies, and science. Additional research is needed to determine the differences in the improvement rate between the subtests for this high school assessment. Additional

research is also needed to determine if similar results can be postulated for elementary and middle school high stakes tests.

The importance of this study related to the duties and responsibilities as special education director of the researcher are succinctly summarized by O'Conner and Williams (2006) as they remind us of the shift in our role from one of paperwork compliance to one of ensuring that students with and without disabilities show impressive educational growth. The way to ensure that reality is through best practices. This study has shown dramatic improvement in the academic achievement of both students with disabilities and students without disabilities since the implementation of collaborative instruction. The results of this study are substantiated by the data that is available on the Georgia Department of Education website. Results of the 2007 administration of the Georgia High School Graduation Test were recently posted. The data indicates continued improvement in achievement of both student with disabilities as well as students without disabilities. The gap between the two groups continues to close. Collaborative instruction should be considered a "best practice" based on the results of the study by this researcher as well as the supporting data from the DOE website. Additional research on this topic will strengthen this researcher's conviction that collaborative instruction should be included with other research based "best practices".

REFERENCES

Arguelles, M. E., Hughes, M. T., & Schumm, J. S. (2000). Co-teaching: A different approach to inclusion. *Principal,* Vol. 79, No. 4, 48-51.

Austin, V. L. (2001). Teachers' beliefs about co-teaching. *Remedial and Special Education,* Vol. 22, No. 4. 245-256.

Baker, E. T., Wang, M. C., & Walberg, H. J. (1994). The effects of inclusion on learning. *Educational Leadership,* Vol. 69, No 1, 33-35.

Batsche, G.M. (2006). Problem-Solving and Response to Intervention: Implications for Policy and Practice. Problem Solving / Statewide Project, University of South Florida. Presentation GCASE, November 9, 2006

Britton, C.R. (2004). A multicase study of elementary school grade level team collaboration and student achievement. Retrieved June 6, 2005 from http://wwwlib.umi.com/dissertations/82/02/818202/1/00001.gif

Buckley, F. J. (2000). Team Teaching: What, why, and how? California, Sage Publications.

CEC Council for Exceptional Children. Response to Intervention – The promise and the Peril. Retrieved January 4, 2007, from http://www.cec.sped.org/AM/PrinterTemplate.cfm?Section=Home&TEMPLATE=/CM/Co..

Colby, C. & Ruberg, C. (2006). Secretary Spellings announces new special education regulations. Ed.gov. Retrieved August 4, 2006 from http://www.ed.gov/print/news/presrelease/2006/08/08032006b.html

Concunan-Lahr, R. (1991). The Americans with Disabilities Act: Educational Implications and Policy Considerations. Paper presented at the Annual Conference of the Council for Exceptional Children. Retrieved November 1, 2005, from http://ericec.org/faq/spedlegl.html

Dieker, L. (2001). What are the characteristics of effective middle and high school co-taught teams for students with disabilities? *Preventing School Failure,* Vol. 46, No. 1, 14-23.

Fennick, E. (2001). Co-teaching: An inclusive curriculum for transition. *Teaching Exceptional Children,* Vol. 33, No. 6, 60-66.

Fennick, E., & Liddy, D. (2001). Responsibilities and preparation for collaborative teaching: Co-teachers' perspectives. *Teacher Education and Special Education,* Vol. 24, No. 3, 229-240.

Friend, M. & Hurley, D. (2006). Is Co-Teaching Effective? Retrieved January 4, 2006 from http://www.cec.sped.org/AM?ProntерTemplant.cfm?Section=Honm&TEMPLATE=/Co...

Gall, M., Borg, W., & Gall, J. (1996). Educational research: An introduction, 6th edition. New York: Longman Publishers USA.

Gately, S. E. (2005). Two are better than one. *Principal Leadership,* Vol. 5, No. 9, 36-41.

Gately, S.E., & Gately, F.J. (2001). Understanding co-teaching components. *Teaching Exceptional Children*, Vol. 33, No. 4, 40-47.

Georgia Department of Education (2005). IDEA Guidance (Public Law 108-446). Memorandum from Kathy Cox, State Superintendent of Schools.

Georgia Department of Education. No Child Left Behind act of 2001. Retrieved December 15, 2005 from http://www.doe.k12.ga.us/support/plan/nclb.asp

Georgia Department of Education. 160-4-7-.02 Categories of Eligibility. Retrieved December 15, 2005 from http://public.doe.k12.ga.us/_documents/doe/legalservices/160-4-7-.02.pdf

Gerber, P.J. & Popp, P.P. (2000). Making collaborative teaching more effective for academically able students: recommendations for implementation and training. *Learning Disabilities Quarterly*, Vol. 23, No. 3, 229-236.

Henley, M. (2004). Creating successful inclusion programs: Guidelines for teachers and administrators.

Hourcade, J.J., & Bauwens, J. (2001). Cooperative Teaching: The renewal of teachers. *The Clearing House,* Vol. 74, No. 5, 242-247.

Kraft, C.N. (2006) IDEA Regs language for your review. E-mail received August 3, 2006.

Luckner, J.L. (1999). An examination of two co-teaching classrooms. *American Annals of the Deaf,* Vol. 144, Issue 1, 24-34.

Magiera, K., Smith, C., Zigmond, N., & Gebauer, K. (2005). Benefits of co-teaching in secondary mathematics classes. *Teaching Exceptional Children*, Vol. 37, Issue 3, 20-24.

Martin, E. W., Martin, R., & Terman, D. L. (1996). The Legislative and Litigation History of Special Education. *The Future of Children: Special Education for Students with Disabilities,* Vol. 6, No. 1, 25-39

Mastropieri, M.A., Scruggs, T.E., & Graetz, J. (2005). Case studies in co-teaching in the content areas: Successes, failures and challenges. *Intervention in School and Clinic*, Vol. 40, Issue 5, 260-270.

Morse, T.E. (2000). Ten Events That Shaped Special Education's Century of Dramatic Change. *International Journal of Educational Reform*; Vol. 9, No. 1, 32-38.

Murawski, W.W. (2005). Addressing diverse needs through co-teaching. *Kappa Delta Pi Record.* Vol. 41, No. 2, 77-82.

Murawski, W.W. & Swanson, H.L., (2001). A Meta-analysis of co-teaching research. *Remedial and Special Education*, Vol. 22, Issue 5, 258-267.

O'Conner, J.L. & Williams, L.C. (2006). Students with disabilities can make AYP: What every school leader should know. Georgia Department of Education

Pearl, C.E. (2004). Implementation of co-teaching model practices and their impact on outcomes for students with learning disabilities in middle school mathematics classrooms. Retrieved June 6, 2005 from http://wwwlib.umi.com/dissertations/25/65/772565/1/00001.gif

Prah, P.M. (2003). No child law could spawn state lawsuits. *Stateline.org Politics & Policy News – State by State.* Retrieved December 15, 2005 from No Child Left Behind act of 2001.

Rafferty, G.D., Leinenbach, M., & Helms, L. (1999). Leveling the Playing Field Through Active Engagement. *Middle School Journal.* 3, 99.

Samuels, C.A. (2005) Report raps N.Y.C Special education graduation rate. Education Week. 24, 40, pg. 6.

Shipley, W. W. (1995) Duck!. Someone said, "Inclusion "! Reactions to a survey. *Washington, DO,* U. S. Department of Education. ERIC Document Reproduction Set-vice No. ED 384 190.

Shores, C. (2005). Implementing Georgia performance standards through co-teaching. Wesley Educational Services. Handouts from professional learning session, June 1, 2006, Walton County Public Schools.

Staples, M. E. (2004). Developing a community of collaborative learners: Reconfiguring roles, relationships, and practices in a high school mathematics classroom. *Digital Dissertations,* 64, 11, 3987-4361.

Taylor, R.L., Smiley, L.R., & Ramasamy, R. (2001). Effects of educational background and experience on teacher views of inclusion. *Educational Research Quarterly,*23,3.

Tichenor, Heins & Piechura-Couture (2000). Here comes the SUN team!: Collaborative inclusion at work. *Teaching Exceptional Children*, 32, 2, 4-12.

Trent, S.C., Driver, B.L., Wood, M.H., Parrott, P.S., Martin, T.F., & Smith, W.G. (2003). Creating and sustaining a special education/general education partnership: A story of change and uncertainty. *Teaching and Teacher Education, 19, 203-219.*

U.S. Department of Education (2000). *Twenty-second annual report to Congress on the implementation of the Individuals with Disabilities Education Act.* Washington, DC: U.S. Government Printing Office.

U.S. Department of Education (2004). Public Law 108-446. 108th Congress. *The law that helps improve education for children with disabilities has been reauthorized.*

(Dec 2004). Retrieved May 1, 2006 from http://www.ed.gov/policy/speced/leg/edpicks.jhtml?src=ln

U.S. Department of Education (2006). Raising the achievement of students with disabilities: New ideas for IDEA. Retrieved August 4, 2006 from http://www.ed.gov/print/adminis/lead/speced/ideafactsheet/html.

Voltz, D. L. (2003). Personalized contextual instruction. *Preventing School Failure. Vol. 47, No. 3, 138-143.*

Waggoner, K. & Wilgosh, L. (1990). Concerns of families of children with learning disabilities. *Journal of Learning Disabilities*, 23, 97-98.

Wagner, S. (2005). Inclusion: A look at how far we have come – Hope for where we are going. Monarch Inclusion Corner, 0, 1.

Weiss, M.P. & Lloyd, J.W. (2002). Congruence between roles and actions of secondary special educators in co-taught and special education settings. *The Journal of Special Education*, 36, 58-68.

Welch, M., (2000). Descriptive analysis of team teaching in two elementary classrooms: A formative experimental approach. *Remedial and Special Education*, 21, 366-376.

Welch, M., Brownell, K. & Sheridan, S. (1999). What's the score and game plan on teaming in schools? A review of the literature on team teaching and school-based problem-solving teams. *Remedial and Special Education*, 20, 36-49.

APPENDIX A

EXCEPTIONALITIES DEFINED

Georgia State Board Rule 160-4-7-.02 Categories of Eligibility

a. Autism
   Autism is a developmental disability, generally evident before age three, that adversely affects a child's educational performance and significantly affects developmental rates and sequences, verbal and non-verbal communication and social interaction and participation. Other characteristics often associated with autism are unusual responses to sensory experiences, engagement in repetitive activities and stereotypical movements and resistance to environmental change or change in daily routines. Children with autism vary widely in their abilities and behavior. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional and behavioral disorder.

b. Deaf/blind

   Deaf/blind means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness.

c. Deaf/hard of hearing

   A child who is deaf or hard of hearing is one who exhibits a hearing loss, whether permanent or fluctuating, that interferes with the acquisition or maintenance of auditory skills necessary for the normal development of speech, language, and academic achievement. (deaf – 66-90 db loss, hard of hearing – 30-60 db loss)

d. Emotional and behavioral disorder

   An emotional and behavioral disorder is an emotional disability characterized by the following: (i) An inability to build or maintain satisfactory interpersonal relationships with peers and/or teachers. For preschool-age children, this would include other care providers. (ii) An inability to learn which cannot be adequately explained by intellectual, sensory or health factors. (iii) Consistent or chronic inappropriate type of behavior or feelings under normal conditions. (iv) Displayed pervasive mood of unhappiness or depression. (v) Displayed tendency to develop physical symptoms, pains, or unreasonable fears associated with personal or school problems.

   A child with EBD is a child who exhibits one or more of the above emotionally based characteristics of sufficient duration, frequency, and intensity that in/they interfere(s) significantly with educational performance to the degree that provision of special educational services is necessary. For preschool-age children, these characteristics may appear within the preschool environment or in another setting documented through an extended assessment period. The child's

difficulty is emotionally based and cannot be adequately explained by intellectual, cultural, sensory or general health factors.

e. Intellectual disability (mild, moderate, severe, profound)

Intellectual disabilities refers to significantly sub-average general intellectual functioning which exists concurrently with deficits in adaptive behavior that adversely affect educational performance and is manifested during the developmental period.

Significantly sub-average general intellectual functioning is defined as approximately 70 IQ or below as measured by a qualified psychological examiner on individually administered, standardized measures of intelligence. Deficits in adaptive behavior are defined as significant limitations in an individual's effectiveness in meeting the standards of maturation, learning, personal independence or social responsibility, and especially school performance that is expected of the individual's age-level and cultural group, as determined by clinical judgment. Deficits in intellectual functioning and adaptive behavior are all documented prior to age 18.

f. Orthopedic impairment

Orthopedic impairment refers to students whose severe orthopedic impairments affect their educational performance to the degree that the student requires special education. This term may include impairment caused by congenital anomalies, impairment caused by disease, impairment from other causes, e.g., cerebral palsy, amputations, and fractures or burns that cause contractures. Secondary disabilities may be present, including, but not limited to, visual impairment, hearing impairment, communication impairment and/or intellectual disability.

g. Other health impairment

Other health impairment means having limited strength, vitality or alertness including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficient hyperactivity disorder, diabetes, epilepsy, or heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and adversely affects a student's educational performance.

In some cases, heightened awareness to environmental stimulus results in difficulties with starting, staying on and completing tasks; making transitions between tasks; interacting with others; following directions; producing work consistently; and, organizing multi-step tasks.

h. Significant developmental delay

The term significant developmental delay refers to a delay in a child's development in adaptive behavior, cognition, communication, motor development or social development to the extent that, if not provided with special intervention, it may adversely affect his/her educational performance in age-appropriate activities. The term does not apply to children who are experiencing a slight or

temporary lag in one or more areas of development, or a delay which is primarily due to environmental, cultural, or economic disadvantage or lack of experience in age appropriate activities. The SDD eligibility may be used for children from ages three through five, and in no instance later than the end of the school year in which the child turns six.

i. Specific learning disability

Specific learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not apply to students who have learning problems that are primarily the result of visual, hearing or motor disabilities, intellectual disabilities, emotional or behavioral disorders or environmental, cultural or economic disadvantage.

This definition is intended to distinguish a specific learning disability from a general learning deficit or from underachievement. The term specific learning disability would, therefore, exclude those students whose overall limited cognitive ability results in pervasive learning problems. A specific learning disability is characterized by a pattern of strengths and weaknesses in performance rather than general academic weaknesses. While most students with specific learning disabilities have average or above average intelligence, some students with specific learning disabilities may score below the average range on tests of intelligence. For these students, there shall be thorough documentation that eligibility criteria have been met.

The student with a specific learning disability has one or more serious academic deficiencies that are significantly discrepant with measured ability. The student's need for academic support alone is not sufficient for eligibility and does not override the other established requirements for determining eligibility.

The student who is eligible for services under the category of specific learning disabilities exhibits a deficit in basic psychological processes which is manifested in a severe discrepancy between actual achievement and expected performance. Deficits in basic psychological processes in the definition typically include problems in attending, discrimination/perception, sensory integration, organization, sequencing, short-term memory, long-term memory and/or conceptualization/reasoning. Once a deficit in basic psychological processes is documented, there shall be evidence that the processing deficit has impaired the student's mastery of the academic tasks required in the regular curriculum. An achievement deficit exists when there is a severe discrepancy between current achievement and estimated measured ability and when the current achievement is below the student's grade placement level.

Students whose achievement in classroom academics is not commensurate with their abilities in academic areas may be considered as having a specific learning disability even though they are progressing from grade to grade.

j. Speech-language impairment

Speech-language impairment - a communication skill which differs so significantly in manner or content from that of peers that it is apparent, disrupts communication or affects emotional, social, intellectual or educational growth. A speech-language impairment may range from mild to profound. It may be congenital or acquired. Speech-language impairment refers to impairments in the areas of articulation, fluency, voice or language. Individuals may demonstrate one or any combination of speech-language impairments. A speech-language impairment may be a primary disability or it may be secondary to other disabilities.

k. Traumatic brain injury

Traumatic Brain Injury (TBI) refers to an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects the student's educational performance. The term applies to open or closed head injuries resulting in impairments which are immediate or delayed in one or more areas, e.g., cognition, language, memory, attention, reasoning, abstract thinking, judgment, problem solving, sensory, perceptual and motor abilities, psychosocial behavior, physical functions, speech and information processing.

These injuries may intensify pre-existing problems in these areas as well. Resulting impairments may be temporary or permanent in nature. The term does not apply to brain injuries that are congenital or degenerative in nature, brain injuries induced by birth trauma or those resulting from internal occurrences such as stroke, tumor or aneurysm.

l. Visual impairment

A student with a visual impairment is one whose vision interferes with functioning in a regular school program or, for preschool-age children, in learning tasks. Examples are students whose visual impairments may result from congenital defects, eye diseases, or injuries to the eye. Visual impairment is determined on the basis of a current examination by an ophthalmologist or optometrist.

Functionally blind means a student who is legally blind and unable to use print as the reading medium. Consideration of instruction in Braille is essential to this student's education. Legally blind means a student whose visual acuity is 20/200 or less in the better eye after correction or who has a limitation in the field of vision that subtends an angle of 20 degrees. Some students who are legally blind have useful vision and may read print. Partially sighted means a student whose visual acuity falls within the range of 20/70 to 20/200 in the better eye after correction or when the student cannot read 18 point print at any distance. Some students with a visual acuity greater than 20/70 will need specialized help for a limited time. The eligibility report shall document whether the visual loss constitutes an educational disability.

APPENDIX B

HUMAN RESEARCH COURSE COMPLETION CERTIFICATE

Completion Certificate

This is to certify that

Suzanne Carter

has completed the **Human Participants Protection Education for Research Teams** online course, sponsored by the National Institutes of Health (NIH), on 12/09/2006.

This course included the following:

- key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- a description of guidelines for the protection of special populations in research.
- a definition of informed consent and components necessary for a valid consent.
- a description of the role of the IRB in the research process.
- the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.

National Institutes of Health
http://www.nih.gov

FIRSTGOV

APPENDIX C
IRB EXEMPT STATUS LETTER

GEORGIA SOUTHERN UNIVERSITY

OFFICE OF RESEARCH SERVICES & SPONSORED PROGRAMS
POST OFFICE BOX 8005
STATESBORO, GEORGIA 30460-8005
TELEPHONE: (912) 681-5465

March 27, 2007

Suzanne Malloy Carter
5325 Guthrie Rd.
Loganville, GA-30052

Dear Suzanne Malloy Carter,

After a review of your proposed research project numbered: **H07189**, and titled **"Collaborative Instruction and Academic Achievement: An Administrative Staffing Issue"**, it appears that your research involves activities that do not require approval by the Institutional Review Board according to federal guidelines.

According to the Code of Federal Regulations Title 45 Part 46, your research protocol is determined to be exempt under the following exemption category(s):

1. Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that your research is exempt from IRB approval. You may proceed with the proposed research.

Sincerely,

N. Scott Pierce
Director of Research Services and Sponsored Programs

APPENDIX D

WALTON COUNTY LETTER OF APPROVAL

WALTON COUNTY BOARD OF EDUCATION

200 Double Springs Church Road, Monroe, Georgia 30656, Telephone 770-266-4520, Fax 770-266-4415
www.walton.k12.ga.us

Dr. Tim Lull
Superintendent

John Robinson
Associate Superintendent

Harvey Franklin
Assistant Superintendent

BOARD MEMBERS

Bill Inabinet
Chairman

Mark Banks
Vice Chairman

James Burrow
Andy Camp
Kirklyn Dixon
Coleman Landers
John Seigler

June 1, 2006

Suzanne Mallory Carter
Walton County Public Schools
200 Double Springs Church Road
Monroe, GA 30655

Dear Ms. Carter:

Your request to approve your study titled "Collaborative Instruction and Academic Achievement: An Administrative Staffing Issue" was received and reviewed by the Research Review Committee. I am pleased to notify you that your request is approved.

If you publish and/or present the findings of this study, you must include the following statement:

> The Walton County Public Schools approved the conduct of this study. However, this approval is not an endorsement of the design of the research or the methodology used. Nor does the Walton County Public Schools endorse the findings of this study.

I would appreciate receiving a copy of your findings and recommendations.

Please let me know if I can be of assistance.

Sincerely,

Roger D. Crim, Ed.D.
Coordinator for Testing and Research

cc H. Franklin
Dr. K. Rutter
Dr. R. Dickinson

In Pursuit of Excellence
Walton County Public Schools

Equal Opportunity Employer