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2008

**Academic Improvement of Students with Learning Disabilities in
Homogeneous Versus Heterogenous General Education Settings**

Jasmine Ramirez

ACADEMIC IMPROVEMENT OF STUDENTS WITH
LEARNING DISABILITIES IN HOMOGENEOUS VERSUS
HETEROGENOUS GENERAL EDUCATION SETTINGS

DISSERTATION

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ABSTRACT

This study examined the effects of including students with learning disabilities in homogeneous versus heterogeneous general education classrooms on their academic improvement, as measured by the Stanford Achievement Test (SAT), the Florida Comprehensive Assessment Test (FCAT), and the Norm-Referenced Test (NRT) from the 2007 and 2008 school years. Data was collected from 71 participants in homogeneous ($n= 41, 57.7\%$) and heterogeneous ($n=30, 42.3\%$) inclusive classrooms. Results indicated that there were no significant differences by classroom setting on age or IQ. Independent samples *t*-tests indicated that there were no significant differences between classroom settings on most of the tests. The reading FCAT 2007 did demonstrate significant differences and reading SAT/NRT of 2007 approached significance, showing that children with learning disabilities in homogeneous classroom settings performed better than in heterogeneous classroom settings in some of the reading pre-test scores. Paired *t*-tests showed that there was a significant increase in both reading and mathematics test scores from 2007 and 2008. Further analyses examined gain scores; findings indicated that there were no significant differences between classroom settings in the gain scores for any of the tests. An additional analysis including “being retained” as an independent variable, showed that there was a significant interaction effect between type of setting and being retained one or more years.

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DEDICATION

To my mom, abuela, Karim, Pepe, Sal, and the kids
A special dedication to my abuelo and tio Guillermo
who are in heaven watching over us

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CHAPTER I

Problem Statement

Introduction

The philosophy of inclusion has been the subject of an ongoing debate for more than fifteen years. During that time, it has gained the interest of many researchers (Andrews, et al., 2000; Fuchs & Fuchs, 1994; Haas, 1993; Kavale & Forness, 2000; Lindsay, 2003; Wilczenski, 1992). Special education's main purpose has been to move students from special education classrooms into general education classrooms with appropriate supports and services. According to Kauffman, McGee, & Brigham (2004) the emphasis in special education has shifted from trying to make students with disabilities "normal", independent, and competent children to now make students dependent on modifications and accommodations.

Full inclusion advocates believe that all students with disabilities should be placed in a general education classroom within their neighborhood, regardless of the severity of the disability. Full inclusionists are in favor of abolishing all continuum placement options within special education (e.g. homebound instruction, special schools, self-contained classrooms, and resource classrooms) (Johnson, Proctor, & Corey, 1994; Sapon-Shevin, 1994). They stress that it is important for students with disabilities to interact and learn with students without disabilities because society in general is not separated into categories as often occurs in special education (Baker, Wang, & Walberg, 1995; Behrmann, 1993; Fuchs & Fuchs, 1994; Johnson et al., 1994; Sapon-Shevin; Skrtic, 1991; Staub & Peck, 1994; Walther-Thomas, Korinek, McLaughlin, & Williams, 2000). Full inclusion advocates also believe that special education services outside the

general education classroom are ineffective. They believe that students with disabilities waste time on buses being transported from their home school to special education centers, that their potentials can be limited when they are labeled, and the curriculum within special education lacks continuation and does not flow with what has been previously learned (Haas, 1993).

On the other hand, there are advocates who oppose and criticize full inclusion. Those against full inclusion believe that students with disabilities are best served under the non-inclusive settings, similarly to gifted students who are pulled out from the general education classroom because they are not being served well in that specific setting (Kauffman, 1995). Teaching with a “one size fits all” methodology by eliminating the continuum of service options disregards the individual needs of students with disabilities, including those with severe disabilities (Delisle, 1994). Brockett (1994) believed that the achievement scores of all students in inclusionary classrooms could decline and inclusive teachers would most likely be held accountable for the decline. Partial inclusionists (Fox & Ysseldyke, 1997; Saint-Laurent, Dionne, Glasson, Royer, Simard, & Pierard, 1998; Sale & Carey, 1995; Vaughn, Elbaum, & Boardman, 2001) believe that it is beneficial for students with disabilities to spend part of their day in inclusive classrooms with the remaining portion of their day spent in a different setting in which they receive direct support and instruction from the special education teacher. They believe that the extreme settings in special education- full inclusion or self-contained programs for all students are equally detrimental because they do not allow for important experiences and opportunities to occur. Meaningful amounts of time should be spent in both settings, if required (Brown, Schwarz, Solner, Johnson, Jorgensen, Kampschroer, Duxstad, &

Gruenewald, 1991). While some students with disabilities have the ability to be taught in general education classrooms and they can be successful, it should not therefore be believed that all students with disabilities are the same and that they all will be successful in the general education setting (Kauffman & Hallahan, 2005). Placing all students in full inclusion classrooms purposefully ignores how students learn best which is by providing appropriate instruction to meet the individual needs of each student (Zigmond, 2003).

Background of the Study

A review of the literature demonstrates that there is much controversy on where to place students with disabilities within inclusionary classrooms. The controversy of whether or not they should be placed in a general education setting for the entire day or for part of the day has been ongoing for many years (Gordon, 2006). Recently, there have been increasing numbers of students placed in special education programs for which they do not necessarily qualify in order to satisfy the demands of state mandated tests (Kauffman et al., 2004). One of the categories with issues of over-identification is the learning disabilities category.

The philosophy of including students with disabilities in the general classroom is not only seen in the United States; it is an international policy issue which is being addressed worldwide in school education (Kelly & Norwich, 2004). Typically, when students with learning disabilities are placed in inclusive settings they are usually emergent readers. This tends to lead to minimal progress in reading even though supports and services are provided within the general education classroom (Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998; Zigmond, Jenkins, Fuchs, Deno, Fuchs, Baker, Jenkins, & Couthino, 1995).

In addition to whether students with disabilities should be placed in full or partial inclusion there is an additional stress placed on schools to determine whether or not to group these students based on their abilities. Thus the issue of whether it is better to place them in homogenous or heterogeneous groups within general education classrooms has arisen. There is an additional stress placed on schools to determine whether to group these students based on their abilities. The term homogeneous grouping refers to ability-grouped classes that restrict the range of student abilities; students are assigned to specific classrooms based on their achievement levels or abilities (Slavin, 1987). The practice of placing students in homogenous groupings is commonly seen in secondary school courses where students are placed based on their abilities or interests, for example vocational, general, or college preparatory courses (Oakes, 1985, 1990a, 1990b; Slavin, 1990).

The question of whether students perform better in homogeneous or heterogeneous groups has had mixed results. McCoach, O'Connell, and Levitt (2006) conducted a study which assessed the effects of within-class ability grouping on reading growth during a school year in a kindergarten class. In this study, the researchers identified factors that were associated with the growth of kindergarten students and their reading achievement. This study only used students who were in kindergarten for the first time. The authors chose to exclude students with disabilities and those who were not proficient in the English language. The kindergarten students in this study were compared to a nationally representative sample. Researchers found gains in the schools where the students were in full-day programs. In addition they found that students in classes with teachers who used similar ability groups (homogeneous grouping) on a daily basis gained

a year and a half growth in reading versus students with teachers who did not use ability groupings (heterogeneous grouping).

In comparison to homogeneous groupings, heterogeneous groupings consist of classrooms that have a wide range of student abilities. Heterogeneous classrooms have students ranging from the lowest 25th percentile in reading and mathematics to the students classified as gifted in the 90th percentile range in reading and mathematics. The students in heterogeneous classrooms do not have a similar IQ or achievement level. Thus, the heterogeneous classroom shows a wide range in students' abilities, IQ, and achievement levels.

Cardona and Artiles (1998) conducted a study to assess the impact of two class-wide instructional grouping adaptation strategies, heterogeneous small groups versus peer tutoring of students with similar ability levels - on the math performance of English language Latino learners. The study was conducted over a twelve week period and compared the effectiveness in math performance of 19 low, average, and high ability first grade students. The participants of this study were in a transitional bilingual classroom in the southwestern United States. The students' instruction was mainly in Spanish with 35 minutes of instruction in English as a Second Language. Participants consisted of 6 males and 13 females from ages six to eight years old. All the students were on a free lunch program; none of the students who participated in this study were students with disabilities, although five of the students were repeating first grade. Cardona and Artiles used a numerical aptitude subtest of BADYG-B [Bateria de Aptitudes Diferenciales y Generales] (Yuste, 1984) to group students according to their performance. The BADYG-B is a standardized test used in Spain. According to Yuste, the BADYG-B is

correlated to the WISC's Arithmetic Subtest ($r=.48$) and to student math grades ($r=.54$). The arithmetic subtests covered the areas of basic quantitative concepts, addition problems, subtraction problems, repeated addition, grouping, and object classification. Student needs were assessed through curriculum-based tests which covered several first grade topics. The results of this assessment demonstrated that the students were deficient in numeration and operations. Therefore, the instruction of the study focused on these deficiencies. The researchers used single case design, an ABAB within case design for twelve weeks in mathematics instruction. The overall results demonstrated that the students' math performance in numerations and operations was higher in peer tutoring phases. The performance in numeration was significantly different between phases A1B1 and A2B2. There was a similar observation in operations between A1 and B1 and A2 and B2. All of the subgroups had significantly higher scores in the math tests during the peer tutoring of similar level groups of the study when compared with tutoring in heterogeneous small groups.

Learning Disabilities

According to the Individuals with Disabilities Education Act [IDEA] (2004), a learning disability can be categorized 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, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. However, learning disabilities do not include learning problems that are primarily the result of visual, hearing, or motor disabilities; mental retardation; emotional

disturbance; or of environmental, cultural, or economic disadvantage [34 *Code of Federal Regulations* §300.7(c)(10)] (Federal Register, 2005).

Several explanations for the large number of students placed in the learning disabilities category of special education are found in the literature. Vaughn and Fuchs (2003) note three specific reasons. The first explanation to the over-identification of students with learning disabilities is the fact that there is a greater awareness of the significant academic and social problems that students with learning disabilities face. Secondly, there has been a greater acceptance of students into the learning disabilities category of special education in recent years. This has caused an increase in the learning disabilities population and a subsequent decrease in the population of students with mental retardation. Lastly, the increased demand for literacy at home, at school, and at work has caused an over identification of students with learning disabilities, as persons who were not required to read in the past have to demonstrate their reading abilities to succeed in society today.

Recently, there has been a shift in diagnosing students with learning disabilities (LD). In the reauthorization of IDEA 2004 (Federal Register, 2005), policy makers believed that the IQ-discrepancy criterion that had been used for decades to identify students with learning disabilities was potentially harmful to students. The discrepancy criterion is criticized because it results in delaying interventions until students' achievement are sufficiently deficient (discrepant) to cause the students to fall further behind instead of remediating their reading and mathematics abilities sooner (Torgesen, 1998).

Response to Intervention (RTI) is now a recommended alternative method of diagnosing students with learning disabilities based on mandates in IDEA, 2004 (Federal Register, 2005). This method of diagnosis entails a process based on systematic assessments of students' responses to high quality, research-based general education instruction (Kavale, Holdnack, & Mostert, 2005; Vaughn & Fuchs, 2003). Fuchs, Mock, Morgan, and Young (2003) detailed the general RTI model as students being provided with 'generally effective' instruction by their classroom teacher; their progress is then monitored; those who do not respond got something else, or something more from their teacher or someone else; again, their progress is monitored; and finally those who still do not respond either qualify for special education or at least for a special education evaluation (Kavale et al.; Vaughn & Fuchs).

While there is much debate about which method to use for assessing students for learning disabilities, there is also increasing debate among parents about inclusion. Data has shown that while the trend is to place students with disabilities into inclusive classrooms, many parents are still concerned and are refusing to change their child's placement (Katsiyannis, Conderman, & Franks, 1995; McLeskey, Henry, & Hodges, 1999; Sawyer, McLaughlin, & Winglee, 1994). The most significant increases seen in inclusive placements over the last few years have been for students with mild disabilities such as learning disabilities (Palmer, Fuller, Arora, & Nelson, 2001). Many of the parents of students with mild disabilities who oppose the inclusion movement have expressed fears that there will be a lack of individual attention and support as well as the possibility of rejection, or mistreatment within the inclusive classroom (Garrick-Duhaney & Salend, 2000; Strong & Sandoval, 1999).

However, Leyser and Kirk (2004) conducted a study in a midwestern state in the United States which examined the perceptions about inclusive education of 437 parents with a child with disabilities from ages four through over eighteen. The parents who participated in the study responded to a *Parent Opinion about Inclusion/Mainstreaming* questionnaire. The results demonstrated that most parents (85%) favored inclusion; parents perceived inclusion as having an important benefit for students with disabilities in their social and personal domains. They also believed that inclusion had a positive impact on students' self-concept by making them feel better about themselves. Many of the parents also reported that inclusion helped students with disabilities academically by preparing them for living in the real world; in addition, it enhanced their awareness about individual differences.

Purpose of the Study

This study examined the effects of including students with learning disabilities in homogeneous versus heterogeneous general education classrooms on their academic improvement, as measured by the Stanford Achievement Test (SAT), the Florida Comprehensive Assessment Test (FCAT), and the Norm-Referenced Test (NRT) from the 2007 and 2008 school years. Academic improvement was defined as scores received by these students on the SAT, FCAT, and NRT in reading and mathematics tests.

The results of this study could either caution full-inclusion advocates to understand that perhaps inclusion is not the best placement for all students with disabilities or support the full inclusion movement. It could indicate whether homogeneous or heterogeneous general education inclusive settings are more effective in increasing the academic achievement levels of students with and without special needs.

Theoretical Framework

The grand theory used in this research study is the social cognitive learning theory developed by Lev Vygotsky. Vygotsky believed that culture is the prime determinant of an individual's development. He also believed that a child's learning development is affected by culture in many ways including the culture of one's family environment and the environment they were immersed in, including school. Vygotsky believed that culture created two types of contributions to a child's intellectual development. The first contribution is acquired through their thinking or knowledge. The second is acquired through the surrounding culture. A child's surrounding culture provides a child with the processes or means of thinking. Further, the social cognition learning model stresses that the cognitive development resulted from problem-solving experiences shared with someone else. The difference between what the child could do on his/her own and what he/she could do with help was what Vygotsky called "the zone of proximal development". Vygotsky's theory states that a child's interaction with their surrounding culture such as parents and other competent peers contributed highly to the child's intellectual development (Vygotsky, 1962; 1978).

The differentiation-polarization theory of Hargreaves (1967) supports the theory of Vygotsky; arising from a series of case studies in the United Kingdom by Hargreaves (1967), the differentiation-polarization theory was formulated after findings of a study on the structure of informal student groupings (high and low abilities of students) showed that their differences led to polarization of these students' attitudes and behaviors with students in higher ability groups gaining greater positive school attitudes and behaviors than lower ability groups. The differentiation-polarization theory has also been used to

explain the differences in teacher expectations and goals (Hargreaves; Murphy & Hallinger, 1989). Teacher differences can also affect teacher judgment. Teachers may judge students who are in inclusive or self-contained settings as having lower abilities than those in high achieving classrooms.

While there have been several studies investigating the differentiation-polarization theory on student attitudes and behaviors, this study will only focus on students with learning disabilities and their academic improvement in state mandated tests. Guided by Vygotsky's zone of proximal development and Hargreaves differentiation-polarization theory, the present study aims to investigate the academic improvement as measured by the SAT, FCAT, and NRT reading and mathematics scores of students with learning disabilities in homogeneous versus heterogeneous general education settings for the 2007 and 2008 testing years.

Research Questions

The present study aims to contribute to the understanding of the effects on academic improvement, as measured by the SAT, FCAT and NRT when third through fifth grade students with learning disabilities are placed in homogeneous and heterogeneous general education settings. The study was tested by the following research questions:

1. Are there significant differences in the reading SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?

2. Are there significant differences in the mathematics SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?

Independent Variable

The independent variable in this study was the use of inclusive practices on students with learning disabilities in homogeneous versus heterogeneous general education settings. Only students in 3rd, 4th, and 5th grade were selected to participate.

Dependent Variable

The dependent variable in this study was the academic improvement as measured by the reading and mathematics SAT, FCAT, and NRT scores of students with learning disabilities in inclusive homogeneous versus heterogeneous general education settings. Achievement scores of students in grades 3rd, 4th, and 5th, grade were assessed.

Impact of the Study

Recently, there has been a substantive increase in the number of students with disabilities in inclusive classrooms. Advocates are continuously pushing for students with disabilities to be included in the general education classroom (Fuchs & Fuchs, 1994; Johnson, Proctor, & Corey, 1994; Lieberman, 1996; Sailor, 1991; Sapon-Shevin, 1994; Stainback, Stainback, and Ayres, 1996; Staub & Peck, 1994; Turnbull, Turnbull, Shank, & Leal, 1995; Vaughn, Elbaum, & Boardman, 2001). Since the State of Florida has chosen to adopt the FCAT to determine whether students may be promoted from third and tenth grades, it is essential that students with disabilities be able to read at grade level in order to fulfill the promotion requirements. If research studies are demonstrating that not all students with disabilities should be included in the general education classroom, it

will require the special education teachers, general education teachers, administrators of the school, and parents to determine whether inclusion is the best placement for individual students with disabilities (Gibb, Young, Allred, Dyches, Egan, & Ingram, 1997; Klingner & Vaughn, 1999; Wright, 1999). To date, there are many studies that show that inclusive settings are effective in teaching students with disabilities; however, there are different ways to include students with disabilities. Educators need to also evaluate which type of inclusive classroom- homogeneous or heterogeneous- will produce greater academic improvement for students with learning disabilities. While a meta-analysis of studies comparing the effectiveness of homogeneous and heterogeneous settings for general education students has been conducted by Lou, Abrami, Spence, Poulsen, Chambers, and d'Apollonia (1996), there are no studies on which inclusionary setting, homogeneous or heterogeneous, is more effective for students with learning disabilities. The results from the meta-analysis conducted by Lou and others found that on average students in small homogeneous learning groups within the classrooms achieved significantly higher than those students in small heterogeneous learning groups. According to this study low ability students performed better in heterogeneous classroom settings while medium ability students performed better in homogeneous group settings.

Definition of Terms

Ability grouping- the process of teaching students within groups that are stratified by achievement, skill, or ability levels (McCoach, O'Connell, & Levitt, 2006)

Heterogeneous grouping- consisting of dissimilar elements or parts; a classroom of students with various academic levels and potentials (Loveless, 1998)

Homogeneous grouping- ability-grouped classes where students are assigned specific classrooms based on their achievement levels or abilities (Slavin, 1987)

Inclusion- students with mild disabilities-learning disabilities, behavior disorders, or mild mental retardation-are placed in full or part time general education classes. In this arrangement, the general education classroom teacher rather than the special education teacher has primary responsibility for educating students with disabilities. General education teachers are supposed to receive training, special materials, and support services regarding the education of those students (Taylor & Justen, 1996)

Tracking- the general and usually permanent assignment of students to classes taught at a certain level (Renzulli & Reis, 1991)

CHAPTER II

Review of the Literature

Introduction

According to the United States Department of Education (2003), a total of 2.9 million students between the ages of six and twenty-one were served under the Individuals with Disabilities Education Act (IDEA, 1990 and 1997). The Learning Disabilities Association of Florida cited that about fifteen percent of the United States population, or one out of every seven Americans, have been diagnosed as having a form of learning disabilities (Learning Disabilities Association of Florida, 2006). Over identification of students with learning disabilities has caused this population to increase by 150%. The learning disabilities category now represents over 50% of the total special education population and five percent of all students (Kavale et al., 2005). Furthermore, MacMillan, Sipertein, & Gresham (1996) suggest that the number of students with mild mental retardation have declined significantly primarily because of the misclassification of students with learning disabilities who may have otherwise been classified as mentally retarded previously.

The Individuals with Disabilities Education Act (2005) considers learning disabilities to be a "disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations." Furthermore, the definition also states that learning disabilities include "such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia." The law also cites that learning disabilities do not

include learning problems that are primarily the result of visual, hearing, or motor disabilities; mental retardation; or environmental, cultural, or economic disadvantage. Overall, the definition and diagnosis criteria of learning disabilities may vary within the United States. Furthermore, some states like Georgia, Illinois, Oregon, and Washington are now using RTI (Response to Intervention) while others are using the IQ discrepancy model to identify students with disabilities. Learning disabilities may cause children to have difficulties in reading, language skills, and mathematics. Research has noted that as many as eighty percent of students with learning disabilities have problems with reading. In addition, research has shown that many times learning disabilities often run within families (Learning Disabilities Association of Florida, 2006).

In 1995, Kavale and Forness, reviewing the present state of learning disabilities, noted that there was no other area in special education that has ever been called upon to answer questions about its very own existence. Referred to as a 'phantom category', the learning disabilities category has been under so much scrutiny that even the advocates of learning disabilities have begun to doubt its existence. They continued by stating that the learning disabilities category has faced many difficulties due to the failure of consensus about its nature. Kavale and Forness believe that the learning disabilities category falters in its definition and in its inability to achieve an agreeable method of how to define learning disabilities. They believe that the major problem with the learning disabilities category is its definition, and without a good solid foundation, the category cannot continue to exist. Additionally, they believe that the learning disabilities category will come to the point where no one will be able to answer the question: What is a learning disability? Lack of a true definition explains not only the field's inability to define

learning disabilities, thus affecting the numbers of students admitted displaying wide heterogeneity of types of learning disabilities, but also emphasizes the field's inability to understand what learning disabilities are. Over the years there have been a number of students who have been classified as learning disabled but these numbers are growing at an astonishing rate. Currently, learning disabilities is the largest category in special education while numbers in other disabilities have declined (i.e., students with mental retardation). Given the variation in the understanding and definition of learning disabilities, it is more likely that students are misclassified in this category. Furthermore, the problems escalate when various states are using different classification criteria. According to Kavale and Forness, the learning disabilities category is disproportionate to the rest of the special education categories due to the prevalence seen in learning disabilities. They propose that in order to have a valid prevalence estimate for learning disabilities, a study should be conducted examining a large population from birth to age 18 to determine its true prevalence. The major problem seen in special education according to Kavale and Forness is the placement of students who need special education but do not qualify for mental retardation categories or emotionally behaviorally disordered categories. Many times the students with low academic difficulties are placed in the learning disabilities category in order to receive services. Kavale and Forness continue by calling the learning disabilities category one that has become a catch-all classification. Furthermore, parents who want special help for their children seek learning disabilities as the diagnosis. Kavale and Forness also proposed to have heterogeneity addressed in the learning disabilities category since there is such a wide discrepancy among students being served in this category.

Historically, educating students with disabilities has always been an ever changing process since the initiation of P. L. 94-142, which has evolved in IDEA 1990, 1997, and 2004 (IDEA, 1990, 1997; Federal Register 2004). The educational placement of students with learning disabilities was usually a resource room or self-contained unit where the student was secluded from his “normal” peers. In this placement, the student usually received special education services from a special education teacher away from other normally achieving students. In the last two decades, there has been a paradigm shift whereby students with learning disabilities are now being taught in the “regular” or general education classroom. This shift has been called the inclusion model, and has become more visible in many classrooms today across the nation. This push has come about because many believe that, regardless of individual differences, students with disabilities have a right to be fully included in the mainstream of school life. In addition, the inclusion model has been supported by many because they believe that it prepares students for integrated community living (Johnson, Proctor, & Corey, 1994; Sapon-Shevin, 1994; Stainback et al., 1996; Staub & Peck, 1994).

The inclusion of students with disabilities in general education has occurred now more than ever because of strict enforcement of the mandates of the law. Students with disabilities are to be placed in the least restrictive environments (LRE) according to the continuum of services (Walther-Thomas et al., 2000; Yell, 1998). Considered the newest paradigm shift in special education over the last two decades, inclusion consists of including students with disabilities in the mainstream of a general education classroom. In the general education classroom, the students with disabilities are entitled to adequate and appropriate support and services from the special education teacher (Stainback et al.,

1996). Academic concept, academic self-perceptions, and academic self-efficacy have been used broadly to refer to the positive impact on the self-esteem of students in conjunction with a variety of variables such as motivation, effort, anxiety, interest, and academic success or failure (Meltzer, Katzir, Miller, Reddy, & Roditi, 2004). While research has focused on the effectiveness of inclusion on students with disabilities, however, there is a lack of research linking the academic achievement of students with learning disabilities in the third through fifth grade and their placement in homogeneous versus heterogeneous groupings.

Further research is needed comparing the academic achievement of students with learning disabilities in homogeneous versus heterogeneous general education settings. As noted by Gans, Kenny, and Ghany (2003), future research should use large samples of African Americans and other ethnic groups. This study adds to the growing research and further enhances our understanding of the effectiveness of types of inclusive settings on the improvement of students with learning disabilities. This study compared the academic improvement of these students in inclusive homogeneous and heterogeneous settings from various ethnic backgrounds in the 3rd, 4th, and 5th grade.

Background of Inclusion

Educators continue to debate in the research whether all students with disabilities should be taught exclusively in the general education classroom. Over the years there have been several arguments about the definition and implementation of inclusive practices. In general, inclusion had been known as a movement to merge general and special education so that all students are taught in a general education classroom (Turnbull, Turnbull, Shank, & Leal, 1995). Inclusion today has become a larger part of

society as calls for this movement gathered momentum across the schools in our nation. Lipsky and Gartner advocating for inclusion (1998), stated that longitudinal studies and research findings demonstrated that the experience of students, parents, and teachers in a separate system was flawed and unequal, thus leading to the inclusive design. They also stated that the inclusive model upheld several democratic and ethical principles. Students with disabilities are more alike than different from their peers. Using effective educational practices, schools can educate and work together for a wide range of students with better outcomes for all. Additionally, they noted that separation was costly, a civil rights violation, and a cause for limited outcomes for students with disabilities.

Since P. L. 94-142 was passed into law in 1975, the number of students served in special education has increased to more than two million (United States Department of Education, 2003). The greatest growth in numbers in special education has been seen in the category of learning disabilities (Lipsky & Gartner, 1996), as well as the greatest change in the placement of these students; now most students in the learning disabilities category are educated in the general education classrooms.

In the past, students with learning disabilities were usually placed in resource rooms or self contained classrooms in order to remediate their functional deficits to the maximum extent possible (Stainback et al., 1996). Although students with learning disabilities had a right to be included with their non-disabled peers since PL 94-142, they were usually allowed to participate in the same activities and classes as non-disabled students as long as they did not interrupt the general education settings. Many times students with learning disabilities were unable to participate all day in the general education settings so they were placed in resource rooms and self contained classrooms.

Many special education teachers in the past used the continuum of services on the Individualized Education Plan (IEP) to determine the least restrictive environment (LRE) as resource rooms or segregated classrooms; this allowed some students with learning disabilities to be separated from their age appropriate peers and placed in smaller teacher to student ratio settings. In these smaller settings, the students with learning disabilities were taught by a specially trained teacher with skills in the development and use of instructional strategies. The main thought behind this placement philosophy was that those without learning disabilities could learn more effectively without being held back by students with labeled deficits in learning and/or behavior.

Harwell (1989) reported in his research findings that the practices of special education should not be considered sound for several reasons. He found that self contained programs placed a negative stigma on the student with disabilities. Students in resource or self contained programs began to imitate each other instead of their non-disabled peers, causing serious behavior problems. He also noted that after high school graduation, it was almost impossible to integrate students with disabilities with their non-disabled peer. Lastly, he found that students with disabilities were not being treated equally by teachers as those without disabilities.

Placement of students with learning disabilities used to be one third in general education classes, one third in resource rooms, and one third in more restrictive classrooms (Lipsky & Gartner, 1996). According to Vaughn, Linan-Thompson, and Hickman (2003), the identification of students with learning disabilities has increased to more than 200% since the category was established back in 1977. The U. S. Department of Education reported that during the last two decades, the numbers of students with

learning disabilities increased from about 1.2 million during 1979-1980 to 2.8 million during 1998-1999. Based in the case of the *Board of Education, Sacramento City Unified School District v. Holland* (1992), the Ninth Circuit Court of Appeals determined that a student should only be placed in a segregated special education classroom if they “cannot receive a satisfactory education in the general education class with appropriate support services.” Now there are more educators, parents, and advocates participating in the push for an inclusive model for educating students with disabilities and specifically for educating students with learning disabilities in the general education classroom. The main goal of inclusionists, such as Johnson, Proctor, and Corey (1994), Lipsky and Gartner (1998), Sailor (1991), Sapon-Shevin (1994), and Stainback and colleagues (1996) is to develop educational settings that support individual differences within the mainstream or general education classroom. Their ideal goal for inclusion is to secure a safe, happy, and successful learning environment for all students with disabilities. Furthermore, they describe inclusive schools or classrooms as those that educate all students in the general education classroom. The inclusive classroom should include all students that have been identified with learning and physical disabilities, and students who have been identified as at risk, homeless, or as gifted. In addition, these students are to be provided with appropriate educational experiences that enhance their capabilities and needs with support services as required by either the student or general education teacher.

Contrary to full inclusion advocates, there are those who believe that full inclusion is not appropriate for all students with disabilities. Proponents of partial inclusion include Fox and Ysseldyke (1997), Kauffman, Landrum, Mock, Sayeski, and Sayeski (2005), Saint-Laurent, Dionne, Glasson, Royer, Simard, and Pierard (1998), and

Vaughn, Elbaum, and Boardman (2001). They all believe that the “one size fits all” model is not appropriate for students with disabilities. To these researchers, a student who is not provided with instruction that is appropriate and tailored to their individual needs, regardless of where they are taught, is a victim of discrimination. To them, promoting the ideal that teaching all children in the same place, at the same time, and to the same standards is inappropriate and based on political ideas that are not rational or analyzed with reasonable and reliable evidence (Kauffman et al., 2005).

In 1975, when P. L. 94-142, Education of All Handicapped Children Act evolved, law makers were trying to create a school system where students with disabilities would not be completely excluded from their age appropriate peers. P. L. 94-142 was created in order to assure a free appropriate public education (FAPE) for all students with disabilities in a LRE. In addition, the law was trying to allow students with disabilities the opportunity to receive adequate educational services. This stemmed from the very well known court case of *Pennsylvania Association of Retarded Citizens (PARC) v. Commonwealth of Pennsylvania* (1972). This ruling created the right for students with disabilities in Pennsylvania to be educated in the preferred mode of inclusion in school, with homebound instruction or residential placements used only in the rarest of circumstances (Douvani & Hulsey, 2002). It was also intended to end the isolation of students with disabilities and educate them with their peers who did not have disabilities (Yell, 1998). P. L. 94-142 ensured that students with disabilities would be guaranteed for the first time a free appropriate public education (FAPE). The law later evolved to be known as IDEA 1990 and 1997 (Kluth, Villa, & Thousand, 2002).

The Individuals with Disabilities Education Act of 1997 emphasized two major principles: that the education of students with disabilities should produce outcomes similar to those expected of students without disabilities and students with disabilities should be educated with their non-disabled peers. Even though the reauthorization of IDEA 1997 did not mention “inclusive education”, previous laws had not mentioned this either. The concepts of LRE and inclusion are similar (Yell, 1998). Many think of IDEA 1997 as the Inclusion Development and Expansion Act (Lipsky & Gartner, 1998). In addition to the revisions of IDEA in 1990 and 1997, the latest revision in 2004 is still being interpreted by many educators, parents, schools, and the court systems. However, IDEA’s national commitment continues to provide students with disabilities both FAPE and LRE. In addition, the thrust of IDEA is to stop the isolation between students with disabilities and students in general education. IDEA’s main focus is to require all public school districts to educate students with disabilities in a LRE.

According to Douvanis and Hulsey (2002), the law that governs special education is derived from two sources. The first source is from statute law, which was enacted by legislatures in IDEA. The second source is from case law or judge-made law. Douvanis and Hulsey believe that it is the right and the duty of the courts to interpret statutory laws and recognize the meanings that the legislature originally intended, and in effect created new laws. However, various courts may interpret the same law in a manner contrary to what the legislatures originally intended. In turn, the laws that govern a person with special needs is dependent on the state where they live or reside for most of the year, as constitutionally education is under the purview of the state.

In the year 2000, the National Council on Disability released a finding similar to that of Karagiannis, Stainback, and Stainback in 1996, which stated that every state was out of compliance with the mandated requirements of IDEA and that U. S. officials were not enforcing compliance. Their research demonstrated that between 1977 and 1990, there was only a small decline in the percentage of students that received services in resource rooms and self-contained classrooms versus those that received services in the general education classroom. Researchers also noted that schools would at times place a student in a self-contained classroom as soon as the student's disability had been identified. For example, if a school knew that they would be receiving a student with severe learning disabilities, he or she would automatically be placed in a resource room; no other criteria would be taken into consideration, such as allowing the student to participate in an inclusion model with supports and services in the general education classroom.

Inclusion is an important topic in today's society because it tries to include students of all exceptionalities with those who are "normal" or who have not been identified as having special needs. The need for inclusion began with P. L. 94-142 mandating that all students can be taught in public schools and then continued to evolve in IDEA 1990, 1997, and the latest revision in 2004. Each time the law has been revised, its tenets have tried to be specific in respect to allowing students with disabilities to be integrated into classrooms with students who do not have special needs. This is a crucial element for students with disabilities because they will not always be segregated from those without special needs in the real world. Inclusion allows for students with and without special needs to interact and learn from each other. Additionally, it allows those

students without special needs to become sensitized and have more compassion for those people who are different. In the real world, as adults, people do not walk around with labels on their foreheads identifying themselves as disabled, normal, or gifted. Based on this reasoning, children should be taught inclusively with others of their age to the maximum extent possible.

There have been many debates over the determination of LRE for students with disabilities. Due to the controversy of what constituted LRE, the Ninth Circuit Court developed a four-part test to identify the LRE of students with disabilities. This test required schools to first compare the benefits a student received with supplements in a general education classroom to the benefits received in a segregated setting. Secondly, schools needed to also consider the benefits that a student experienced as a result of non-academic interactions in general education classes. Thirdly, schools had to consider the impact of the disabled student's presence on other teachers and students in the general education class. Lastly, schools had to consider the costs associated with placing the student in this setting (*Sacramento City Unified School District v. Rachel H.*, 1994).

Some parents and advocates of students with learning disabilities, however, have expressed fears that because of this inclusion movement, these students will suffer greatly as they may not be provided the supports and services in the general education classroom that they need to be successful (Vaughn et al., 2001). Therefore, it is of utmost importance to understand the path that special education has taken in the past and prevent the lack of services for students with disabilities in the future. Special education has made many changes as various court cases clarified the meanings of vague tenets, but its goal continues to be to improve the education of all students with disabilities. Through the

proper integration of students with disabilities, society can become more accepting and tolerant of differences.

Inclusion

Through the creation of P. L. 94-142 and the reauthorizations of IDEA 1997 and 2004, many have been able to see the growing mandates for inclusive practices. Douvanis and Hulsey (2002) believe that, through various cases and proceedings, the courts have been trying to use the inclusive model recently as a matter of rights and law. In addition, they believe that the courts seem to be defining LRE as an agreement within the language used in IDEA, mainly to have students with disabilities placed and educated with their peers without special needs to the maximum extent appropriate.

Overall, it seems that the interpretation of inclusion has been left up to individual states, school districts, administrators, teachers, and parents. Currently, there are various definitions and models of what can constitute inclusive practices. Rogers (1993) suggests that inclusion is not a specific physical placement of a student but a philosophy. He continues by stating that inclusion is the acceptance of students with disabilities as full members of their home base schools where all educators have the responsibility for all the students in that school. Lieberman (1996) states that the philosophy of special education twenty years ago was to maximize the potential of children with handicaps. He further stated that today's philosophy of inclusion is to return those same students with disabilities to the general education classroom.

Stainback, Stainback, and Ayres (1996) believe that inclusive practices should encompass an inclusive school and classroom. The inclusive school and classroom would educate all students regardless of their disabilities in the general education setting. Also

known as full inclusion, this philosophy allows students to learn and belong in the mainstreams of school and community living. Adding to the support for inclusion of all students, Sailor (1991) believes that full inclusion must include six characteristics. The first is that students with disabilities must attend their home school. Secondly, there should be a natural occurring number of students with disabilities at each school site. Thirdly, there should not be any student excluded from an educational opportunity because of his/her disability. Fourth, schools should only have general education classes with no resource or self contained classrooms. Fifth, teachers must practice cooperative learning and peer tutoring as a strategy for all students. Lastly, the special education students would receive all support and services in the general education classroom.

Contrary to full inclusionists, there are those who believe that the LRE mandate is misinterpreted and does not mean that all students with disabilities should be included in the general education classroom (Anderegg & Vergason, 1996). To these authors, inclusive practices should be used for students with disabilities only when appropriate. However, allowing the use of a continuum of services does not necessarily mean that schools cannot use inclusive practices (Anderegg & Vergason). There have been several court cases in which students with disabilities were allowed to participate in partial inclusion versus full inclusion. In the case of *Greer v. Rome City School* (1990), a nine-year old student with Down Syndrome was retained in a general education first grade classroom. Four years later, she was receiving half day instruction in a resource room and the other half day instruction in the general education classroom.

Thus, it is apparent from the research that there are several methods of implementing inclusive practices; moreover, this diversity in implementation is occurring

in schools across the United States. There has not been a single method of implementing inclusion, perhaps because the best decisions should be based on the discussions from the IEP team during the consideration of placement. The only way to maximize the capacities of students is by looking at each student with disabilities individually and not as a disability which needs to be fitted into a category (Zinkil & Gilbert, 2000).

According to Villa and Thousand (2003), inclusive education must incorporate both systems-level support and classroom-level strategies. The systems approach includes a connection with other organizational best practices, a visionary leadership and support staff, redefined roles among adults and students, collaborative skills, and additional support when needed. In order to implement inclusion successfully, a school must use best practices for meeting the needs of the school community, providing positive behavior supports, and configuring students and teachers appropriately. The leadership team must articulate the vision and work to support it. Redefining roles among school personnel and students will ensure that everyone knows what their role is in creating a successful inclusive school and community. Collaboration is crucial to the success of an inclusive school. General education teachers are not expected to have all the expertise on how to work with students with disabilities. Therefore, they must collaborate with other faculty members in order to help the students and their school to become successful in the inclusion implementation process. Providing support is also a key element in creating a successful inclusive school. Adult support can come in many forms; support can be provided through consultation, parallel teaching, supportive teaching, complementary teaching, or co-teaching.

In order to make inclusion work at schools, there are four factors that must be realized and envisioned. The first factor is to incorporate all students in the classrooms without discriminating against them. Students with disabilities who are participating in inclusive classrooms need to be included in the class activities. Secondly, a school must have systems in place to prevent teasing and bullying particularly against students with disabilities. Teachers must respond to teasing and bullying rather than ignoring and avoiding these behaviors. Thirdly, teachers must provide general education students with opportunities to experience life as a person with a disability. For example, through class discussions, students can be more aware of the way students with disabilities feel participating in an inclusive classroom. Lastly, teachers must foster courage and challenge oppression; teach students to speak up for themselves and let others realize that not everyone is the same (Sapon-Shevin, 2003).

Positive Aspects of Inclusive Practices

In inclusive practices, students with and without disabilities learn that they are more alike than different. All students also learn how to tolerate and help each other more effectively than when they are separated. Teachers use this class structure as a teaching tool to enhance social skills in students with learning disabilities (Vaughn et al., 2001). The study of Vandercook, York, Sharpe, Knight, Salisbury, LeRoy, and Kozleski (1991) showed that inclusion had no harmful effects on either students with or without disabilities. In fact, general education teachers have been able to support the positive gains experienced by both students (Stainback et al., 1996).

Academic achievement can be improved when students with disabilities are expected to perform at higher standards (Daniel & King, 1997). When students with

learning disabilities are placed in these types of settings they usually put extra effort in order to comply with the standards and fit into the norm. Allowing the inclusion of students with disabilities into the general education classroom enhances their ability to create friendships with others who do not have special needs as well as imitate appropriate behaviors.

Full inclusionists argue that when students with disabilities are totally included into the general education classroom, they are able to reflect the mainstream of society and a supportive and humane atmosphere for all involved is established (Daniel & King, 1997). When students are pulled out of the general education classroom and given disability labels, they are stigmatized.

Daniel and King (1997) conducted a study on the effects of students' placement versus nonplacement in an inclusive classroom with four sets of dependent variables. The four variables researched were: parent concerns about their child's school program, teacher and parent reported instances of students' problem behaviors, students' academic performance, and the students' self-reported self-esteem. They also researched whether different types of inclusive programs would result in different dependent variables. There were three types of classrooms used in this study. There were six random inclusion classrooms which included students who were learning disabled, language impaired, and gifted. There were also two clustered inclusion classrooms (formed using a random approach with a higher percentage of students with disabilities) and four non-inclusion classrooms where students with disabilities were mainstreamed only for a portion of the day. Daniel and King (1997) conducted a quasi-experimental study with 207 third through fifth grade students from twelve intact classrooms. Three different types of

standardized instruments were used to measure the variables of interest in the study. The Child Behavior Checklist (CBCL) by Achenbach (1991a) was self-administered by each student; and another was completed by each parent. The teachers completed the Teacher's Report Form also created by Achenbach (1991b). The Self-Esteem Index by Brown and Alexander (1991) was administered to all the students. The researchers collected students' total scores on the SAT for language, reading, spelling, and mathematics. Lastly, the student's parents were asked to complete a 22-item questionnaire. The results from this study were collected from 178 out of the 207 students; 63 third graders, 52 fourth graders, and 63 fifth graders. The results indicated few differences in the academic improvement among students in inclusion versus non-inclusive classrooms. Third grade inclusion students did demonstrate higher gains in their reading scores versus those in non-inclusive settings, although fourth and fifth grade inclusion students had smaller gains in mathematics. Overall, the results demonstrated consistent academic gains which did not appear to cause a disadvantage for students who participated in an inclusive classroom. The researchers noted, however, that educators should be cautioned in using the inclusion approach for academic improvement as its sole purpose. The teachers and parents of students in the inclusionary classrooms as compared to noninclusive classrooms reported instances of behavior problems. Anecdotal evidence demonstrated that there were two reasons for these findings. The first being the intensive strategies required for appropriate implementation of the inclusion concept which may have distracted the teacher's attention from general classroom management procedures. Secondly, the difficulty of directing instruction to students in a wide range of ability levels may have resulted in students' engaging in inappropriate behaviors because of

boredom or frustration. Self-esteem was uniformly lower among the students who were placed in inclusive classes. The findings reported were for the group as a whole, not just the students with disabilities. Results indicated that the reduced self-esteem may have inhibited academic achievement which is an outcome that has been previously correlated to self-perceptions. Results from the study also noted that the parents of students with disabilities were expressing considerably higher concerns than parents in noninclusive classrooms.

In addition to teachers' and research findings, parents have also had input on the success of including students with special needs in the general education curriculum. Gibb and colleagues (1997) conducted a study investigating parents with children with moderate disabilities and their perceptions and attitudes regarding the inclusion of their children in general education classes. The study took place in a public junior high school in central Utah with an enrollment of about 1,300 students. The students were prominently middle-class Caucasians with Hispanics as the minority. From 450 eighth grade students, 110 students without disabilities were randomly selected to participate. In addition, 20 students with disabilities were selected by school administrators and special education teachers. These students were selected based on the probability that they could not complete the class work in a general education classroom even if they were provided with support services. At the end of the study, only 18 out of the 20 students were available for the interviews. Only one of the 18 students was considered to have a behavior disorder while the others were diagnosed as learning disabled. All of the participants were English speakers. The data was collected through a series of semi-structured telephone interviews. The telephone calls were conducted by four professors

from the university team. Each of the interviews lasted for about 20-30 minutes. The results from this study included an analysis of the interview transcripts which incorporated parental views on the schools' teaming, curriculum, instruction, IEP's, team organization, parent involvement, perception of teachers, social relationships of the students with disabilities, achievement levels of students with disabilities, and the overall satisfaction with the program. The parents of students with disabilities provided several insights about the study questions. Overall, the parents of students with disabilities believed that their children and teachers worked well together to complete assignments, take tests, and ability groups homework completion. Parents of students with disabilities noted that their children seemed to enjoy increased self-esteem, expanded social relationships, and increased willingness to participate in group activities. Some parents of students with disabilities noted that their children's attitudes changed to a more positive way of thinking when compared to previous years at the school. None of the parents of students with disabilities noted negative attitudes or perceptions about their children's participation in the program.

Walther-Thomas (1997) conducted a three year study of eighteen elementary and seven middle school teams involved in the development and implementation of building-level programs designed to support students with disabilities in inclusive classrooms. Twenty-three school teams in eight Virginia school districts were used in this investigation. Each team was comprised of five members: a principal or assistant principal who was responsible for the school's special education students, one or more general education teachers, and one or more special education teachers who co-taught with the general education teacher. The schools were selected based on three criteria.

Team members were recommended by district-level administrators. Schools were selected based on their innovation in special education programs. All the teams were observed prior to the study to determine whether an inclusive service delivery model was in place and daily co-teaching was taking place. Most of the participants had about 12-18 months of co-teaching experience prior to participating in the study. A total of 143 participants were included in the study (119 teachers and 24 administrators). The overall investigation focused on the professionals who served students with disabilities rather than focusing on the students themselves. The students with disabilities who participated in the study had a broad range of disabilities and functioning levels including learning disabilities, speech-language disabilities, and hearing loss. Data was collected through classroom observations, semi-structured interviews with each of the participants, and informal contacts. The results of the study showed both benefits and persistent problems for students with disabilities, general education students, and teachers. Some of the benefits seen by the students with disabilities were positive feelings about themselves as capable learners, improved academic performance and social skills, as well as stronger peer relationships. The study reported that both general and special education teachers found an increased satisfaction in their profession, greater professional growth, personal support, and opportunities for collaboration. In the aforementioned study on inclusion of Walther-Thomas, while benefits to students with and without disabilities and teachers were reported to meet the greater class diversity, persistent problems were also reported as the study evolved. Many of the participants reported issues with scheduled planning time, the need for differentiated planning, student scheduling, large caseloads,

administrative support, and the need for staff development opportunities to address persistent problems.

Mastropieri, Scruggs, Graetz, Norland, Gardizi, and McDuffie (2005) presented recent findings from several long term qualitative investigations of co-teaching in the content areas of science and social studies in inclusive classrooms; students with and without disabilities were observed and all teacher participants interviewed regarding effective practices and challenges associated with inclusion. The first analyzed case study was comprised of two different teams of teachers- one general education and one special education teacher. All the teachers had teaching experience in their corresponding fields; they were also veterans except for one seventh grade science teacher. One of the teams was comprised of a co-teaching fourth grade elementary class and the other was comprised of a co-teaching seventh grade class. The fourth grade class had a total of 25 students, of whom five were classified as having various disabilities- learning disabilities, emotional disturbance, mental retardation, and physical disabilities. The seventh grade class had a total of 25 students, of whom seven were classified as having learning or emotional difficulties and one with a hearing impairment. In both of the classes, the students were not required to take a high stakes test on science content. Observational findings demonstrated that the two teams of teachers had strikingly similar ways in which collaboration and co-teaching occurred. Both teams appeared to have had an outstanding working relationship, strength as motivators, time for co-planning, a good curriculum, effective instructional strategies, exceptional disability-specific teaching adaptations, and expertise in the content area. In respect to outstanding working relationships, the fourth grade teachers requested to co-teach; however, the seventh grade teachers were assigned

to co-teach. When both teams were asked about their working relationships, they both indicated an authentic trust and respect for their partners which was evident in facilitating their working relationship. Both of the teams seemed to motivate their students. They claimed ownership for all the students in their respective classes. One teacher emphasized the importance of enthusiastic teaching while maintaining effective behavior management. The teams made time for co-planning even though the elementary team did not have an allocated co-planning time. The teachers managed to meet before, during, and after school to discuss the science units and the roles/responsibilities for each teacher and student. A common free period at the seventh grade level made it easy for the seventh grade teachers to plan for science. During these times, the teachers met in the science lab where they co-taught. The two teams of teachers used hands-on activity based approaches which made the content more concrete for students. This approach lessened the language and literacy demands of tasks. The observations from this study demonstrated that teachers are more likely to share responsibilities and ensure all students understand and complete activities. Additionally, both teams were observed on their use of effective instructional skills including effective classroom management. One of the elementary teachers mentioned the need for good student behavior especially during activities that had a wide range of manipulatives. At times, the teachers used reinforcers such as positive comments, tangibles, and stickers to reward students for their good behavior and class performance. The teams addressed individual student performances to date within the unit and ways to address individual differences in the upcoming lessons. The seventh grade teachers also implemented disability-specific adaptations. The special education teacher also adapted tests to reduce the amount of written language in the

questions. In the fourth grade classes, the teachers consulted with one another before, during, and after instruction in order to benefit all the students. In the seventh grade classes, the general education teacher took the lead role as she had more extensive expertise in the subject. However, this was not perceived as a disadvantage by the special education teacher because she was able to learn from her partner.

Mastropieri and others also researched a team of general and special education teachers who taught government and civics to eighth grade students. The class consisted of 30 students, 8 of whom had learning disabilities or emotional disabilities. Both of the teachers had an allocated planning time during the school week so they could meet to review plans for upcoming classes. However, much of this time was used for individual planning, parent conferences, and IEP meetings. At the beginning of the academic year both of the teachers worked well together, but as the year progressed, there was a noticeable tension between the two. The tensions that arose were not seen during instructional times. One of the teachers felt that there was a lack of planning and that the lessons were too advanced for all the students. The teacher expressed his feelings of frustration and non-desire to teach in a co-teaching situation. As tensions escalated, the teachers began to split the class into small groups. The two teachers exhibited very distinct styles of instruction- one was very relaxed and casual while the other was very structured and formal. This was not apparent to the students, but it did have an influence on the collaboration of the working relationship between the teachers.

The third case analyzed was comprised of three teams of teachers consisting of general and special education teachers in tenth grade world history classes. The class sizes ranged from 22 to 25 and included four to nine students with disabilities- learning

disabilities, emotional disabilities, and hearing impairments. The lesson planning included whole group instruction, class review of textbook content and chapter questions, assigned work that could be started in class but required outside class completion, long term project activities, and technology based graphic organizers. The three teams demonstrated that they each had distinct working roles and responsibilities with the emphasis on student gains in the state wide end-of-the-year testing. Due to their content expertise, the general education teachers consistently conducted the group instruction, while special education teachers assumed roles of activities manager. One of the teams however, consistently reversed the roles when technology was used. The results demonstrated that both the general and special education teachers were accepting of their roles. This was supported by the findings of Zigmond and Matta (2004) that special education teachers rarely assume the lead teacher role. High stakes testing at the end of the school year seemed to be the driving force influencing all the activities of instruction. The teachers felt great pressure to have all their students pass these high stakes tests. There was only a small amount of differentiated instruction in evidence to address the needs of individual students, although the special education teacher regularly walked around the room to assist students on a one-to-one basis.

The fourth case studied involved two women who had been assigned to teach four high school chemistry classes over a two year period. The chemistry classes ranged in size from 22 to 27 students with 5 to 7 students with learning disabilities, emotional disabilities, or autism. The instructional approaches were similar to those of the third case study. The findings demonstrated collaboration and co-teaching which consisted of working roles and responsibilities, differentiated instruction, and a great emphasis on

content needed for state wide end-of-the-year testing. The teachers interchangeably circulated the room after whole group instruction in order to facilitate the learning process. The differentiated instruction used throughout the two years allowed for an increase in achievement levels for both general and special education students. Overall, Mastropieri and colleagues found that the academic content itself did not yield a significant influence on the co-teaching success. However, the interactions between the course content teachers and the special education teachers did have a substantial influence on co-teaching. The perception that general education teachers provide the content knowledge and the special education teachers provide the strategies was not entirely supported by this research. Additionally, high stakes testing created a strong influence on how the content was covered and how the co-teachers collaborated. It was found that the relationship between the co-teachers was a major critical component which influenced the success or failure of the inclusion students with disabilities. The researchers found that when teachers worked well together, the students were more likely to be successful and have successful experiences in the inclusive classroom. Also, a teacher's number of years of experience in itself was not a factor in contributing to the success of co-teaching. The researchers determined through this study that specific variables- academic content knowledge, high stakes testing, and co-teacher compatibility interact strongly to create successful co-teaching.

Rea, McLaughlin, and Walther-Thomas (2002), conducted a study investigating the relationship between middle school students with learning disabilities placed in inclusive versus pullout special education programs and the effect on their academic achievement, behaviors, and attendance. The population was comprised of all the

students with learning disabilities in the eighth grade in two suburban middle schools in the southeast. The students were classified as having a learning disability after following a referral, assessment, and placement process. The students involved in the study were at their assigned school for at least two consecutive years. The students who participated in the study were selected based on data records (i.e., IEP's, special education eligibility records, individual student evaluation reports, class schedules, report cards, and student scholastic records). The researchers measured qualitatively and quantitatively three outcomes: achievement, behavior, and school attendance. The students' academic achievement was measured using Iowa Test of Basic Skills test and final course grades in eighth grade language arts, mathematics, science, and social studies, as well as a pass or fail score in reading, mathematics and written language on the Literacy Passport Test. The students' report card grades were also collected and converted to a 4-point scale. Students' disruptive behavior was also documented and cross-referenced for accuracy with district records. Finally, the students' school attendance was also collected and cross-referenced with district records. Overall, the researchers found significantly higher academic grades for students with learning disabilities in inclusive settings in all four areas of academics. After reviewing the performance data on the Literacy Passport Test, the students in inclusive and pullout programs did not show any significant differences. On the Iowa Test of Basic Skills the researchers noted that there were mixed results. The results indicated that the students in inclusive settings had significantly higher scores than those in the pullout programs only in the subtests of language arts and mathematics. Furthermore, the researchers found that the students earned similar mean scores on the reading comprehension, science, and social studies subtests. Based on their findings the

researchers noted that there were no statistical differences between the two groups in the amounts of in-school and out-of-school suspensions. Attendance from both schools demonstrated that students in the inclusive classrooms attended significantly more days than those in the pullout programs. In conclusion, the researchers noted that students in inclusive classrooms achieved higher course grades in language arts, mathematics, science, and social studies. Secondly, they scored higher on the language arts and mathematics subtests of the Iowa Test of Basic Skills. Thirdly, the students in inclusive settings demonstrated scores comparable to those in pullout programs in reading, writing, and mathematics. Fourthly, the students with learning disabilities did not experience more suspensions than those in pullout programs. Finally, the researchers noted that the better attendance found in students in inclusive settings may be attributed to them feeling greater satisfaction with the inclusive services.

Negative Aspects of Inclusive Practices

Research shows that inclusion is not for all. Inclusion is not a one size fits all method that will help to correct or eliminate a disability. It is a practice that will help to enhance a student's self-esteem and education. According to Wright (1999), adopting full inclusion as the implementation strategy for teaching students with disabilities is the same as eliminating the discretion granted to parents and guardians under IDEA. If all students with disabilities were to be placed in a full inclusion model, the discretion granted to parents under IDEA in determining the appropriate placement for their child during the IEP would then be eliminated. The potential effect of adopting full inclusion as the implementation strategy for teaching all students with disabilities is perhaps both positive and negative. Full inclusion of all students with disabilities has been seen by

some as the ultimate normalization mechanism by which to integrate students with disabilities and contribute to their social acceptance. Others fear that full inclusion is an excuse by which schools can reduce or eliminate the broad continuum of placement opportunities guaranteed in the federal regulations for IDEA (Wright, 1999).

Kauffman and colleagues (2005) state that the use of the word all-or-nothing as a standard of performance is compounded silliness. They believe that researchers, who suggest the literal terms of “all” for students are either setting the students with disabilities up for failure or for the outrage from parents when the students fail. The use of “all” as a reference to students with disabilities makes them fit into a pre-selected group. Kauffman and colleagues also described the grief that all-inclusiveness has caused as it spreads throughout the nation because of the high stakes testing that has been mandated for all states by the No Child Left Behind Act (NCLB). A newspaper headline shows the impact of high stakes testing, stating “All-or-nothing tests causing states grief; Florida, Virginia among those considering changes” (2003, p. B1).

At times, students with disabilities who were included in general education programs caused problems in that they had to constantly prove their individual needs, strengths, and talents. There were also times when their disability was visible to others and then this lead to frequent and repetitive questions from others. In addition to these repetitive inquiries, students with disabilities have difficulties in creating and maintaining friendships with others who are not disabled. Schools should place students with disabilities in classrooms where their IEP goals are more likely to be met (Kauffman et al., 2005; Kendall & DeMoulin, 1993).

Gibb and others (1997) found in their research that some parents of students with disabilities felt that their learning disabled children were not provided with adequate individualized instruction. Other research has shown that students with disabilities experience difficulty adjusting to the higher expectations from general education classes. Students with disabilities experienced the higher expectations coming from the general education teacher in such school aspects as more homework, harder testing, and stricter grading criteria (Walther-Thomas, 1997).

When students are placed in a full inclusion model, their rights to a LRE are revoked. The best decisions to place students in special education come from the individual determination of the IEP team. By making this determination, the student is allowed the strongest possibilities of attaining and developing the skills necessary to maximize their individual capacity in school and independent adulthood (Anderegg & Vergason, 1996).

Klingner and Vaughn (1999) conducted a synthesis of twenty studies that investigated the perceptions of instruction in inclusive classrooms. A total of 4,659 students in kindergarten through twelfth grade with 760 of these students considered to have high-incidence disabilities, mostly all with learning disabilities, were used in this meta-analysis. The studies selected for this synthesis followed a two step procedure that was initially broad with the intent of locating all potential research articles, conference presentation, and dissertations. In order to conduct a thorough investigation, the researchers used five major modes of searching: in subject indexes, citations, footnotes, consultations, and browsing. All the research studies collected were coded and separated. The findings from these studies showed that regardless of the delivery model

implemented, many of the students with learning disabilities will spend ample amounts of time in general education settings. Furthermore, the studies demonstrated a significant finding in that most students did not perceive instructional adaptations and accommodations to meet the needs of students with disabilities. Students also stated that they needed strategies that would help them learn from texts as well as independently. Additionally, the parents of students with learning disabilities voiced their concerns about the academic difficulties and need for greater instructional accommodations for their children.

While the drawbacks of the inclusion philosophy are not seen as much in research, de Vise (2008) published an article about the controversial decisions about expansion of inclusion being made in Montgomery County, Maryland. In 2006, the Montgomery County leaders decided to phase out secondary learning centers where students with severe disabilities attended. The secondary learning centers were a network of self contained classrooms open to students with special needs since the 1970's. Students such as Victoria, who was mentioned in the article, were part of the first generation of students with severe disabilities to be fully included in the general education classroom. The controversy with the decision to include her in the general education classroom involved her cognitive and adaptive deficits; with an IQ of 55, she could not button a shirt, match a sock to another, or tell which school bus was hers. The leaders of Montgomery County felt forced to increase inclusion for students such as Victoria by the provisions of the No Child Left Behind Act (NCLB) which states that all students with special needs are expected to pass state tests by 2014. The article further stated that while many of the parents in this transition were satisfied, several were not;

however, only 24 families responded to the survey. Some of the parents of students with disabilities, who were outraged by these decisions, stated that their children have been left bewildered and friendless. Furthermore, the parents are even angrier at the fact that they did not participate in the decision making process of closing the centers.

While there are studies of students with disabilities in inclusion and other studies on students with disabilities in self-contained classes, there were no studies found on the use of ability grouping- homogeneous and heterogeneous in inclusive settings. Therefore, this study will review research found on homogeneous and heterogeneous general education settings.

Homogeneous Grouping

Homogeneous grouping or ability grouping have previously been referred to as the process of teaching students who are grouped together by achievement, skill, or ability levels. There have been several common forms of ability grouping. They include between-class ability grouping (Slavin, 1987) and within class ability grouping. Between-class ability grouping has been known as the process through which teachers or administrators divide students into separate classes on the basis of their perceived abilities or prior knowledge (Kulik, 1992). Tracking is another synonym commonly used to refer to homogeneous or ability grouping. Renzulli and Reis (1991) refer to ability groups as a general and usually permanent assignment of students to a class which is taught at a certain level. Ability grouping is usually seen more often in the secondary schools. Ability groups are rather fixed and students often are assigned according to standardized test scores such as the Stanford Achievement Test (SAT), Florida Comprehensive Assessment Test (FCAT) and Normed Reference Test (NRT). Other

forms of between-class ability grouping include regrouping and cross-grade (i. e., first and second grade classes) grouping, also known as the Joplin plan (Tieso, 2003).

Some researchers believe that grouping students homogeneously for instruction is a rational approach for the school population (Engelmann, 1997; Grossen, 1993; Zigmond, 2003). Kauffman and colleagues (2005) believe that grouping students by their abilities, needs, and skills allow for effective instruction which result in the appropriate placement of all the students. Direct instruction is usually seen as one of the most effective strategies for instruction. Swanson (2001) conducted a meta-analysis to determine which models of instruction were the best for instructing students with learning disabilities. Direct instruction had the ability to appropriately group students homogeneously (Becker & Gersten, 2001; Engelmann, 1997). According to Loveless (1998), ability grouping for the purpose of reading instruction is especially prominent within the early elementary grades.

Several researchers (Kulik, 1992; Kulik & Kulik, 1992; Slavin, 1987) have conducted meta-analysis studies to see the benefits of homogeneous grouping in elementary school students with varying ability levels. They were able to find that homogeneous grouping of elementary school students had four effects: (1) extension of the curriculum differentiation that occurred within the groups; (2) flexibility in the arrangements of the groups; (3) methodology wherein how students were assigned to each of the instructional groups; and (4) preciseness of the grouping arrangements (Kulik, 1992, Slavin, 1987).

In another meta-analysis study conducted by Lou and colleagues (1996), researchers compared homogeneous and heterogeneous grouping whereby students were

placed in mixed-ability groups for instructional purposes only. Researchers were able to conclude that although homogeneous groupings had an advantage over the heterogeneous groupings, the effects were not consistent for students of all abilities and achievement levels. They were able to conclude that low-ability students did better in heterogeneous groupings while average-ability students did better in homogeneous groupings. Lastly, the high-ability students did equally well in both the homogeneous and heterogeneous settings. According to the researchers, the results of having average-ability students perform better in homogeneous groupings was surprising.

Lou, Abrami, and Spence (2000) then conducted a follow-up meta-analysis study which found that the effect sizes were greater in homogeneous ability groupings than they were in heterogeneous ability groupings, in turn demonstrating that similar ability grouping appeared to be an effective instructional strategy. The main focus of this particular study was to develop a parsimonious model of predictors that accounted for the significant variability in effect sizes of within class grouping on student achievement. All the studies used in this meta-analysis were researched using various databases and had to meet specific criteria. The criteria used in this meta-analysis included research that occurred within a classroom at an elementary, secondary, or postsecondary school level. The research had to involve students participating in within class ability grouping either in homogeneous or heterogeneous settings. The research involving children with learning disabilities or enrichment programs such as gifted were excluded. The minimum group size was two and the maximum was ten students. The grouping of students had to have taken place for more than one day. If any training was offered, the entire class needed to have received the same training(s). The only data collected from students was that of

achievement levels. The results from this meta-analysis demonstrated that there was a small but significantly positive effect in achievement of the delivery model on student small group instruction. Therefore, general education students who were in small group settings within their classes had greater learning gains. Later, it was determined that on average students in the elementary level who were placed in small groups within the classroom performed considerably above average academically.

However, Meijnen and Guldemond (2002) believe that low achieving students who are grouped together lead to teachers adjusting their standards to a negative view. This in turn does not allow the students to have high expectations and perform at higher levels similarly to higher achieving students. They believe this to be the reverse with high achieving students in homogeneous groupings. Opponents of heterogeneous groups have a fear that students with high ability levels are insufficiently challenged and do not achieve to their highest potentials (Allan, 1991; Lou et al., 1996).

Lou and others (1996) stated that during the 1950's, "excellence" had a high priority in education and ability grouping was seen as beneficial for high ability students. Later in the 1960's and 1970's, people were concerned about equity in education, so there was more support for heterogeneous grouping. Then in the 1980's and 1990's, there was a swing again to strive for excellence and the support for heterogeneous groupings again began to decline.

Heterogeneous Grouping

Loveless (1998, p. 10) believes that the practice of ability grouping students has been under analysis and criticism for quite some time. Loveless feels that the ability grouping of students is inefficient and has hindered the learning process. In contrast to

homogeneous grouping, heterogeneous grouping is defined as placing a mixture of students with varying abilities into the same classroom. When students are placed in heterogeneous groupings, teachers have the ability to use within-class ability grouping. This means that students are assigned to a group within the mixture of the whole class according to the teacher's judgment of their immediate needs, which can change over time. In these heterogeneous settings, teachers had the flexibility of grouping students according to specific skills or content areas. Teachers also have the ability of differentiating the curriculum. Curricular differentiation occurred when a teacher adapted the depth, pace, or difficulty level of a lesson to meet the specific needs of an individual or small group of students (Passow, 1962; Tomlinson, 1995, 1999).

When the same curriculum had been delivered to homogeneous groups without being adapted to their ability levels, the homogeneous groups did not experience positive results in their achievement. However, when students in heterogeneous groups received differentiated curriculum, their achievement did increase (Kulik, 1992; Kulik & Kulik, 1992). Teachers can have a big influence on the extent to which differentiated instruction is delivered effectively to students. Allowing heterogeneous groupings in schools can help teachers by giving them the flexibility to move students around in groups throughout the school year.

Kulik (1992) and Slavin (1987) conducted a study using meta-analysis which indicated that heterogeneous groupings brought out small and positive effects on student achievements regardless of ability level. Kulik believed that teachers were more willing to differentiate instruction in heterogeneous groupings rather than homogeneous groupings. Other research demonstrated that the amounts of instructional differentiation

or tailoring within a small group correlated with the positive effects associated with the grouping arrangements (Kulik, 1992; Lou et al., 1996).

Lou, Abrami, and Spence (2000) conducted a study which suggested that heterogeneous grouping practices were the most effective under three specific conditions: (1) teachers were provided with appropriate training, (2) students were placed in small groups according to their abilities and group cohesiveness, and (3) cooperative-learning strategies were used to facilitate student learning in interactive small groups.

Ability grouping has been a very controversial educational issue for many years (Loveless, 1998). Although some educators support homogeneous groupings as a technique to promote educational excellence and best challenge students of all ability levels (Allan, 1991; Kulik, 1992), others have criticized homogeneous groupings as discriminatory and destructive to a classroom's community (Oakes, 1985). A common argument seen and heard against homogeneous grouping is that teachers develop lower expectations for their students when they are placed in lower ability groups. In addition, opponents of homogeneous grouping fear that students in lower ability groups would be denied appropriate opportunities to learn and advance academically (Lou et al., 1996). Specifically, some critics of homogeneous grouping have worried that those students who were in the lowest ability groups would fall further and further behind their average ability classmates and would never have the opportunity to move into higher ability groups. Finally, some educators have expressed their concerns that homogeneous grouping will have adverse effects on students' self concepts (Tieso, 2003). There has been very little evidence to support the controversy that students are academically harmed by within class ability grouping (Allan; Kulik; Loveless). However, the evidence

supporting the academic effectiveness of homogeneous grouping is mixed (Lou et al., 1996; Loveless, 1998).

Johnson, Johnson, Stanne, and Garibaldi (1990) conducted a study examining group processing as a potential mediating variable in effective learning. Group processing was defined as a review of a group's session to describe the member actions that were both helpful and not helpful in deciding what actions to continue or change. The purpose of this processing was to improve the effectiveness of the members in contributing to the productivity of the group. Previous studies conducted by Yager, Johnson, Johnson, and Snider (1986) examined the impact on group productivity and individual achievement of cooperative groups with processing, cooperative groups without processing, and individual efforts. Both of these studies concluded that for elementary students, cooperation with group processing promoted the highest level of daily achievement, problem solving success, and long term retention of relevant information. They also concluded that cooperation with group processing promoted the next highest level of achievement. Lastly, they found that individual efforts resulted in the lowest level of achievement. Johnson and colleagues also sampled a total of 49 Black American students in Project Excel at Xavier University, New Orleans. Project Excel was a summer four week honors program in humanities for high school graduates who had been previously accepted for admission at the university. The project was also open to high ability students entering their senior year of high school. The researchers examined the issue of whether group processing mediates the relationship between cooperative efforts and individual achievement; in this study, the researchers established that this type of relationship did exist. In addition, the researchers found that students in cooperative

conditions had higher scores than those students in individual conditions on both the performance measures used in this study. On the question of whether group processing increased individual achievement and group productivity, the results demonstrated that while progress was made under both conditions, students in the processing group achieved significantly higher scores than did those students in the no-processing condition group. The students who engaged in both large and small group processing achieved significantly higher scores than did those who only engaged in large group processing. Results also demonstrated that a combination of both large and small group processing resulted in significantly higher achievement than did the large group processing only and no processing. However, there were no significant differences found between the large group and the no processing conditions. The results demonstrated that group processing increased both individual achievement and group productivity. Some of the possible explanations for this are that meta-cognitive thought increased each member's ability to achieve. Group processing increased student's self-efficacy by directing their attention towards skillful cooperative behaviors and reducing personal inhibitions such as self-doubt and self-preoccupation. Group processing also resulted in members gaining insights into how to behave more effectively. Lastly, the members received feedback on their use of social skills. The results from this study demonstrated that the combination of large and small group processing resulted in greater group productivity and higher individual achievement than did large group processing alone. There was no significant difference in group productivity between no processing and large group processing. The researchers concluded that group processing may have more of an impact when it occurs in small groups and members may make personalized,

specific statements to each other rather than broad statements. Furthermore, there were differences in the within-group oral interaction patterns between groups that processed the interaction among members and those that did not. There was more student to student interaction and less teacher student interaction in the cooperative conditions than in the individual condition. There were also more student to student interactions in the student and teacher lead processing condition than in the teacher led processing condition. Social skill responsibilities for members of cooperative learning groups and engagement in both small group and large group processing increased the amount of positive student to student interactions with the groups.

Meijnen and Guldemon (2002) believe that placing students in homogeneous groups denies them an opportunity to obtain an education and learn how to handle various emotions caused by the differences in their performances compared with their peers. Opponents of homogeneous groups also argue that homogeneous grouping by academic performance usually creates segregation by race and social background. This in turn limits students' opportunities to interact with other students from different backgrounds than themselves. However, heterogeneous grouping puts a greater demand on the teacher rather than homogeneous grouping. At times, homogeneous groups do not allow a teacher to fully educate students because of specific expectations the teacher may have for his/her students (Meijnen & Guldemon, 2002).

Grand Theory

The grand theory used in this research study is the social cognitive learning theory by Lev Vygotsky (1962, 1978) which addresses how students learn. Positing that there is a zone of proximal development that helps children learn, Vygotsky believed that

children acquired much of their thinking or knowledge from cultural contributions. He also believed that children acquired the process or means of their thinking also known as the tools of intellectual adaptation from their surrounding culture. Therefore, he believed culture provided the children with both what to think and how to think. Vygotsky further elaborated on his view of cognitive development stating that the child learned through shared problem solving experiences with someone else, such as parents, siblings, teachers, and peers. This second part of Vygotsky's theory entailed the zone of proximal development. He believed that children had a certain time span to achieve their potentials through problem solving in collaboration with more capable peers. In order for children to broaden their zone of proximal development, they must seek assistance from adults or peers that are more capable.

As applied in this study, students with learning disabilities who are placed in inclusive settings would have the ability to learn from more capable peers in some areas. This could lead to more positive effects on the academic achievement of students with learning disabilities because they would be exposed to the general curriculum, would not be pulled out of the classes often missing general education classwork, or excluded from activities available to the general population. Allowing students with learning disabilities to receive support from a special education teacher within the general education setting could create a more positive academic self perception in that the students with learning disabilities would have the abilities to interact socially with other students who are at times more competent in specific subject areas.

The differentiation-polarization theory of Hargreaves (1967), which supports the theory of Vygotsky, is derived from a series of case studies conducted in the United

Kingdom by Hargreaves. The differentiation-polarization theory was formulated after findings demonstrated that the structure of informal student groupings (high and low abilities of students) and their differentiation led to polarization in their attitudes and behaviors.

Few quantitative studies have focused on the effects of ability grouping on student attitudes or student behaviors (Catsambis, Mulkey, & Crain, 1999; Kelly 1976; Wiatrowski, Hansell, Massey, & Wilson, 1982). Hargreaves (1967) conducted a study in a United Kingdom school for boys as part of a project on educational inequalities which had initially focused on the structure of informal student groups and the influences these groups had on the educational process. Inadvertently, the study became a study of higher and lower ability group systems within the school which were divided by school attitudes. The students in the lower ability grouped classes were characterized by negative school attitudes while the students in higher ability grouped classes were characterized by positive school attitudes. Hargreaves said that for students in higher ability groups to gain positive experiences in school, they needed to belong to a higher ability grouped class in order to get status within the school. For students in lower ability grouped classes, this process was the reverse. He believed that students in lower ability grouped classes lost their status due to the teachers' lack of expectations for student performance; consequently this caused the students to have negative school attitudes. Similar research inspired by Hargreaves was conducted in the United States by Schafer and Olexa (1971) where they found that the ability grouping system led to the inception of different sub-cultures. Several other researchers noted that the differentiation-polarization theory is also applicable to teachers (Hargreaves; Metz, 1978; Murphy &

Hallinger, 1989; Oakes, 1985; Persell, 1977; Rosenbaum, 1976). Their studies demonstrated that teachers in different ability grouped classrooms need to teach different types of material and interact with classroom dynamics differently. In lower ability grouped classrooms, the teachers approached subject matter less theoretically and addressed academic content by emphasizing facts and basic skills; in the higher ability grouped classes, the teachers planning stressed concepts, processes, and complex skills. Planning for lower ability grouped classes had an emphasis on in-class exercises and memorization activities whereas, in contrast, planning for the higher ability grouped classes placed an emphasis on higher order skills such as problem-solving, critical thinking, and work/home study. Students in the lower ability grouped classes received fewer explanations and directions regarding expectations and goals. Teachers in the higher ability grouped classes were more enthusiastic since their classes were better prepared and they received feedback from students that they had learned the concepts and how to apply them (Evertson, 1982; Goodlad, 1984; Hargreaves; Oakes; Page, 1991; Persell; Schwartz, 1981).

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in order to get status. The opposite was true for students in lower ability classes. He believed that students in lower ability groups lost their status. Similar research inspired by Hargreaves has been conducted in the United States. Schafer and Olexa (1971) conducted a study which found that the ability grouping system led to the emergence of different sub-cultures. Several other studies have shown that the differentiation-polarization theory is also applicable to teachers (Hargreaves; Metz, 1978; Murphy & Hallinger, 1989; Oakes, 1985; Persell, 1977; Rosenbaum, 1976). Teachers in different ability groups need to teach different material and even deal with it differently. In lower ability groups, the teachers approached subject matters less theoretically and academically used facts and basic skills. In higher ability groups, the teachers stressed concepts, processes, and complex skills. Lower ability groups had an emphasis on in-class exercises and memorization; in contrast the higher ability groups placed emphasis on problem-solving, critical thinking, and work/home study. Students in the lower ability groups received fewer explanations and directions with regard to expectations and goals. Teachers in the higher ability groups were more enthusiastic since their classes were better prepared (Evertson, 1982; Goodlad, 1984; Hargreaves; Oakes; Page, 1991; Persell; Schwartz, 1981).

While the studies of Hargreaves, Schafer and Olexa, and others looked at the effects of differentiation-polarization theory on non-disabled student attitudes and behavior in the general education classrooms, this study will focus on students with learning disabilities and their academic achievement in general education classrooms. Guided by Vygotsky's zone of proximal development and Hargreaves differentiation-polarization theory, the present study aims to investigate the academic achievement as

measured by the SAT, FCAT, and NRT reading and mathematics scores of students with learning disabilities in inclusive homogeneous versus heterogeneous general education settings.

CHAPTER III

Methodology

Research Design

Through a causal comparative research design, this study compared the academic improvement of students with learning disabilities in inclusive homogeneous and heterogeneous classrooms. Academic improvement was measured by the achievement scores obtained by the students in reading and mathematics in the Stanford Achievement Test (SAT), the Florida Comprehensive Assessment Test (FCAT), and the Normed Referenced Test (NRT) tests. Data from Miami-Dade County Public Schools were collected from 41 students with learning disabilities in homogeneous inclusive classrooms in 3rd, 4th, and 5th grades and from 30 students with learning disabilities in heterogeneous inclusive classrooms in 3rd, 4th, and 5th grades.

The independent variable in this study was the use of inclusive practices on students with learning disabilities in homogeneous versus heterogeneous general education settings. Only students in 3rd, 4th, and 5th grade were selected to participate. The dependent variable in this study was the academic improvement as measured by the reading and mathematics SAT, FCAT, and NRT scores of students with learning disabilities in inclusive homogeneous versus heterogeneous general education settings. Achievement scores of students in grades 3rd, 4th, and 5th, grade were assessed.

Research Questions

The present study aimed to contribute to the understanding of the effects different inclusion general education settings- homogeneous or heterogeneous- have on the academic improvement of students with learning disabilities, as measured by the reading

and mathematics SAT, FCAT, and NRT of 3rd, 4th, and 5th grade students. The study was tested by the following research questions:

1. Are there significant differences in the reading SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?
2. Are there significant differences in the mathematics SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?

Participants

Data was collected from a total of 71 participants in homogeneous ($n=41$, 57.7%) and heterogeneous ($n=30$, 42.3%) inclusive classrooms. The participants came from four general education classrooms (two homogeneous and two heterogeneous) in south Florida public elementary schools in the northern section of Miami-Dade County. The four schools had been categorized as A schools according to the state of Florida public school grading system. The state of Florida grades public schools across the state based on student achievement levels on the FCAT from A to F, with A being the highest achieving score. The schools that were selected based their philosophies of placement for students with learning disabilities in either homogeneous or heterogeneous inclusive classrooms. Schools that followed the homogeneous classroom setting model grouped their students with and without disabilities who had similar reading and mathematics test scores as well as similar academic grades in the same classroom. On the contrary, schools that followed the heterogeneous classroom model grouped their students with and without disabilities who had a wide range of test scores in reading and

mathematics in the same classroom. Thus, student participants in this study were required to have been part of an inclusive setting with special education services and support services provided in a homogeneously or heterogeneously grouped classroom. Each collaborating school had an inclusion program for the 2nd, 3rd, 4th, and 5th grade classes. All students labeled as having learning disabilities have been evaluated by a licensed psychologist prior to placement in special education. Thus, student participants who were included in the study fit the following inclusion criteria: were in an inclusive classroom; had participated in the SAT for 2nd grade; had participated in the FCAT, and NRT testing during 3rd, 4th, or 5th grade; had a learning disability as documented and measured by a licensed psychologist; and participated in a homogeneous or heterogeneous classroom setting during the 2006-2007 and 2007-2008 school years.

More than half of the sample ($n= 41, 57.7\%$) were attending homogeneous classrooms and about 42% ($n= 30, 42.3\%$) were in heterogeneous classrooms. Table 1 describes the distribution of students attending homogeneous and heterogeneous classrooms by grade.

Table 1

Number of Students in Homogeneous and Heterogeneous Classrooms by Grade

Grade	Homogeneous		Heterogeneous		Total	%
	<i>n</i>	%	<i>n</i>	%		
3	9	12.7	12	16.9	21	29.6
4	15	21.1	5	7	20	28.2
5	17	23.9	13	18.3	30	42.3
Total	41	57.7	30	42.3	71	100

There were 40 (56.3%) males and 31 (43.7%) females in this study sample. The age of the students ranged from nine years of age to thirteen. The mean age was 11 in both groups. The average age in the homogeneous group was $M= 10.78$, ($SD= .822$) and in the heterogeneous group was $M= 10.57$, ($SD= 1.331$). The average IQ of the students was 94 ($SD= 11.86$) ($M= 95.59$, $SD= 8.769$) and ($M= 92.20$, $SD= 15.048$), respectively. Demographic characteristics, including gender, ethnic group, socio- economic status (determined by free and reduced lunch), age, and IQ are presented in Table 2.

In reviewing the demographic characteristics, the participants, there were more male than female; a characteristic that is typical of learning disabled populations. Almost 50% of the participants were Hispanic, a characteristic that is representative of the schools in Miami-Dade County. Almost half of the participants received free or reduced lunch, a characteristic that also is representative of the socio-economic status of the city of Miami, which is continually listed as one of the poorest cities in America (Childstats.gov, 2007).

Table 2

<i>Demographic Characteristics</i>			
		<i>n</i>	<i>%</i>
Gender			
	Male	40	56.3
	Female	31	43.7
Ethnic Group			
	Hispanic	35	49.3
	White	25	35.2
	Black	11	15.5
SES			
	Free Lunch	21	29.6
	Reduced Lunch	12	16.9
	Full Price	38	53.5
Age			
	9	11	15.5
	10	19	26.8
	11	24	33.8
	12	15	21.1
	13	2	2.8
Retention			
	Retained	40	56.3
	Non-retained	31	43.7
IQ		<i>M</i>	<i>SD</i>
	Homogeneous	10.78	0.822
	Heterogeneous	10.57	1.331

Instrumentation

The researcher collected archival data from each participant through a sought out Miami-Dade County Public Schools employee who had access to the databases. The

reading and mathematics scores from the SAT, FCAT, and NRT for 2007 and 2008 were collected for each student participating in the study.

The following instruments were used by the school district to assess reading and mathematics achievement and were subsequently utilized in this study. The Stanford Achievement Test (SAT), tenth edition (Stanford 10) was designed to measure students' achievement in reading, mathematics, spelling, language, science, social science, and listening. The SAT can be administered as either the full-length battery or the abbreviated battery. Miami-Dade County Public Schools used the abbreviated version testing students in reading and mathematics. The Stanford 10 is an untimed test that has been widely used as a standard assessment of education throughout the country for decades. The test consists of thirteen test levels from kindergarten through twelfth grade; specifically, the first two levels of the SAT are the Stanford Early School Achievement Test. The test includes multiple choice and open-ended items for which partial credit can be received. The SAT reports several types of scores: raw scores, scaled scores, individual percentile ranks, stanines, grade equivalents, Normal Curve Equivalents, Achievement/Ability Comparisons, group percentile ranks and stanines, content cluster and process cluster performance categories, and performance standards. Miami Dade County Public Schools only reports on the individual percentile rank and stanine scores for students in 2nd grade and percentiles for students in 3rd, 4th, and 5th grades. The SAT provides a reliable and user-friendly assessment of students' achievement in seven academic areas across grades K-12 with sub-tests reliability coefficients ranging from .85 to .95 (Harcourt Association, 2003). The content validity is based on the fit of the test to what is taught in particular classrooms.

The Florida Comprehensive Assessment Test (FCAT) is part of the State of Florida's overall plan to increase student achievement in reading, writing, mathematics, and science by implementing higher standards. The FCAT is administered to students in 3rd through 11th grade. The FCAT contains two basic components. The first component is the criterion-referenced tests (CRT). The CRT measures selected benchmarks in reading, writing, mathematics, and science from the Sunshine State Standards (SSS).

The second component is the norm-referenced tests (NRT). The NRT measures reading and mathematics. The NRT measures individual student performance against national norms. In this study, the SAT scores will be treated as equivalent to the NRT since both the SAT and NRT are comparable in their percentiles, as well as stanine scores (Harcourt Association, 2003). Thus, for students who took the SAT in 2nd grade and the NRT in the same area during the following year (3rd grade), the SAT scores will be considered as the pre-test scores and the NRT will represent the post-test scores.

Procedure

Permission to do the study was sought from both the Institutional Review Boards (IRB) at Barry University (Appendix A) and Miami-Dade County Public Schools (Appendix D). Letters of introduction were sent to the principals of each school (Appendix B) as well as the special education teachers at each school site (Appendix C). Student data was collected through a third party. The researcher found out an employee from Miami-Dade County Public Schools to retrieve the archival data from the records of each student. The researcher created an Excel spreadsheet which the employee completed in using each student's information excluding their first and last name but including a range of numbers (1-71) that identified each student as a member of the school using a

homogeneous or heterogeneous approach. The researcher had no access to data that linked to the individual student information. Demographic variables such as age, gender, and ethnicity were also obtained from school records. In addition to demographic variables, test scores were collected for all students participating in the study. The test scores collected came from two standardized tests: Stanford Achievement Test (SAT) and Normed Referenced Test (NRT) as well as the Florida Comprehensive Assessment Test (FCAT). Reading and mathematics scores and percentiles were retrieved for each student participating in the study. All students designated as English Language Learners (ELL) were excluded from the study.

As previously mentioned all the data collected for this study was retrieved by a Miami-Dade County employee who was compensated for collecting the data and inputting it into an Excel spreadsheet created by the researcher. The data collected contained only student identification numbers, age, gender, ethnicity, IQ level, lunch status (SES measure), SAT reading and mathematics scores, FCAT reading and mathematics scores, and NRT reading and mathematics percentages.

The researcher analyzed the data using the SPSS 15.0 graduate package program to compare the FCAT and the SAT/NRT reading and mathematics scores of students in third through fifth grade homogeneous settings versus those in third through fifth grade heterogeneous settings. Due to the lack of FCAT scores in second grade, researcher compared second grade SAT-10 scores to third grade NRT scores. Students in the second grade were only assessed on the SAT-10 reading and mathematics test. Due to the lack of FCAT scores in second grade, the score in this test were analyzed starting in third grade only.

CHAPTER IV

Results

Introduction

The purpose of this study was to examine the effects of including students with learning disabilities in homogeneous versus heterogeneous general education classrooms on their academic achievement levels in reading and mathematics, as measured by the Stanford Achievement Test (SAT), the Norm-Referenced Test (NRT), and the Florida Comprehensive Assessment Test (FCAT) from the 2007 and 2008 school years. Homogeneous classrooms were considered those classes that included students with and without disabilities who had similar reading and mathematics test scores as well as similar academic grades. Heterogeneous classrooms were those that included students with and without disabilities with a variety of reading and mathematics test scores as well as academic grades. The following research questions were investigated in this study:

1. Are there significant differences in the reading SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?
2. Are there significant differences in the mathematics SAT, NRT, or FCAT scores of third through fifth grade students with learning disabilities in a homogeneous versus heterogeneous general education classroom settings?

The Statistical Package for Social Sciences (SPSS 15.0) program was used for all the data analysis. Electronic archival data were collected from Miami-Dade County Public School System targeting the following data: reading and mathematics scores obtained by the Stanford Achievement Test (SAT), the Florida Comprehensive

Assessment Test (FCAT), and the Norm-Referenced Test (NRT) administered during 2007 and 2008. In addition, demographic information was collected from those files, including age, gender, ethnicity, IQ scores, SES (determined by free and reduced lunch data), and number of years retained. In this study, the SAT scores were treated as equivalent to the NRT scores since both the SAT and NRT tests are comparable in their percentiles as well as stanine scores. Thus, for students with learning disabilities who took the SAT in second grade and the NRT in the same subject area during the following year (third grade), the SAT scores were considered as the pre-test scores and the NRT represented the post-test scores.

Analyses and Findings

Independent samples *t*-tests were performed to examine if there were any significant differences between classroom settings (homogeneous versus heterogeneous) on two demographic variables: age and IQ level. Results indicated that no significant differences by classroom setting were found on these two demographic variables.

Independent samples *t*-tests were conducted to assess if there were any significant differences by classroom setting on the following achievement variables: reading and mathematics scores on the SAT, FCAT, and NRT for 2007 and 2008. Findings indicated that achievement scores students with learning disabilities on the reading and mathematics SAT/NRT of 2007 and 2008, the reading FCAT of 2008, and the mathematics FCAT of 2007 and 2008 did not differ significantly based on classroom setting. There were no significant differences in the reading SAT/NRT scores of 2008 between students with learning disabilities attending the homogeneous and heterogeneous classrooms ($M = 49.68$, $SD = 28.667$ and $M = 42.50$, $SD = 25.917$, respectively),

$t(69) = 1.085, p = .282$. Nor did the mathematics SAT/NRT in 2007 scores show significant differences between the groups ($M = 48.90, SD = 27.769$ and $M = 39.43, SD = 27.528$, respectively), $t(69) = 1.409, p = .163$. A similar trend was found for the SAT/NRT in 2008 ($M = 53.93, SD = 27.930$ and $M = 48.07, SD = 26.131$, respectively), $t(69) = .911, p = .365$. In addition, the reading FCAT scores of 2008 demonstrated no significant differences between the homogeneous and heterogeneous groups ($M = 2.10, SD = 1.200$ and $M = 2.03, SD = 1.098$, respectively), $t(69) = .231, p = .818$. Other results indicated that the FCAT mathematics scores did not differ by classroom setting in 2007 ($M = 1.98, SD = 1.491$ and $M = 1.33, SD = 1.422$, respectively), $t(69) = 1.828, p = .072$ and in 2008 ($M = 2.61, SD = 1.202$ and $M = 2.17, SD = .950$, respectively), $t(69) = 1.672, p = .099$. However, results indicated that the reading SAT/NRT 2007 approached significance. In other words, students in homogeneous classrooms received higher scores than those in heterogeneous classrooms ($M = 43.27, SD = 28.202$ and $M = 31.07, SD = 23.680$, respectively), $t(69) = 1.924, p = .058$. Results also showed that there were significant differences between students with learning disabilities attending the homogeneous and heterogeneous classrooms in regards to the reading FCAT scores from 2007 ($M = 1.73; SD = 1.379$ and $M = 1.03; SD = 1.066$, respectively), $t(69) = 2.313, p = .024$, with a medium effect size ($ES = .698$). Those attending the homogeneous classrooms did significantly better in the reading FCAT of 2007 than those attending the heterogeneous classrooms.

Paired sample t -tests were performed to compare the 2007 and 2008 scores on the same or similar measures for all students with learning disabilities. As expected, there was a significant increase in both the reading and mathematics tests scores from 2007 to

2008. Means and standard deviations for all the tests in 2007 and 2008 are presented in Table 3. For all the measures tested and as expected, students obtained significantly higher scores in 2008 than in 2007. The reading FCAT scores in 2007 differed significantly from those in 2008, $t_{(70)} = -3.363$, $p < .01$, with a medium effect size ($ES = -0.55$). The mathematics FCAT scores in 2007 increased significantly in 2008, $t_{(70)} = -3.651$, $p < .01$, with a medium effect size ($ES = -0.64$). The reading NRT scores in 2007 increased significantly in 2008, $t_{(70)} = -2.911$, $p < .01$, with a small effect size ($ES = -0.31$). The mathematics NRT scores in 2007 increased significantly 2008, $t_{(70)} = -2.410$, $p < .01$, with a small effect size ($ES = -0.24$).

Table 3

Means and Standard Deviations for the Reading and Mathematics FCAT and NRT

Scores in 2007 and 2008

	M	SD
Reading FCAT 2007**	1.44	1.295
Reading FCAT 2008	2.07	1.150
Mathematics FCAT 2007**	1.70	1.487
Mathematics FCAT 2008	2.42	1.117
Reading NRT 2007**	38.11	26.901
Reading NRT 2008	46.65	27.580
Mathematics NRT 2007**	44.94	27.862
Mathematics NRT 2008	51.45	26.741

* $p < .05$, ** $p < .01$, *** $p < .001$

Gain Scores

Of particular interest in this study was the exploration of which classroom setting- homogeneous or heterogeneous- would benefit students with learning disabilities the most in an inclusive general education setting, as measured by the reading and mathematics achievement scores of the SAT, FCAT, and NRT. To determine gain scores in this study, differences from the 2007 and 2008 reading and mathematics SAT, FCAT, and NRT were calculated. In other words, each pre-test score was subtracted from its corresponding post-test score (e.g., reading FCAT 2008 – reading FCAT 2007 = gain score for reading FCAT). Independent samples *t*-test demonstrated that no significant differences on the gain scores in the reading and mathematics tests were found between students attending homogeneous and heterogeneous classroom. Means and standard deviations for the gain scores in all the tests are presented in Table 4. Gain scores were used in further analyses to determine whether the variable of classroom setting combined with other variables to influence reading or mathematics achievement scores.

Table 4

<i>Gain Scores from 2007 to 2008 for all tests by Setting</i>			
	Setting	<i>M</i>	<i>SD</i>
Reading FCAT	Homogeneous	0.1613	0.374
	Heterogeneous	0.1579	0.375
Mathematics FCAT	Homogeneous	0.1613	0.374
	Heterogeneous	0.3158	0.478
Reading NRT	Homogeneous	5.5946	15.214
	Heterogeneous	9.6207	24.824
Mathematics NRT	Homogeneous	2.7000	21.512
	Heterogeneous	8.5333	17.712

Additional Analyses

Since many students with learning disabilities were retained ($n= 40$), additional analyses were conducted including the variable retained (students who had been retained one or more years and those who had never been retained). Two-way (2 X 2) Analyses of Variances (ANOVA) (type of classroom by retained) were conducted on the gain scores of all the tests (i.e., reading and mathematics SAT, FCAT, and NRT). In these analyses, the variable retained was introduced as an independent variable. Most of these analyses showed no significant differences between students with learning disabilities attending homogeneous or heterogeneous classrooms, with the exception of the reading NRT gain scores. Means and standard deviations for the reading NRT gain scores (without two outliers) in homogeneous versus heterogeneous classrooms are reported in Table 5.

Table 5

<i>Means and Standard Deviations for Reading NRT Gain Scores</i>			
		M	SD
Homogeneous	Retained	5.50	17.48
	Not retained	5.77	10.43
Heterogeneous	Retained	-0.80	21.75
	Not retained	20.79	23.63

The ANOVA including the NRT gain scores showed significant results. Retained students with learning disabilities performed significantly lower than students with learning disabilities who had not been retained, $F_{(1, 62)} = 5.194, p = .026, \eta^2 = .077$ (small effect size) on the reading NRT. Although there were no significant differences between children with learning disabilities attending homogeneous or heterogeneous classroom

settings on the reading NRT gain scores, $F_{(1,62)} = 0.82$, $p = .36$, there was a significant interaction effect between type of setting and being retained, $F_{(1,62)} = 4.941$, $p = 0.03$, $\eta^2 = 0.074$. Retained and non-retained students with learning disabilities performed significantly different in homogeneous and in heterogeneous classrooms. The results of the MANOVA are presented in Table 6.

Table 6

MANOVA: Reading NRT scores for Students Retained versus Classroom Settings

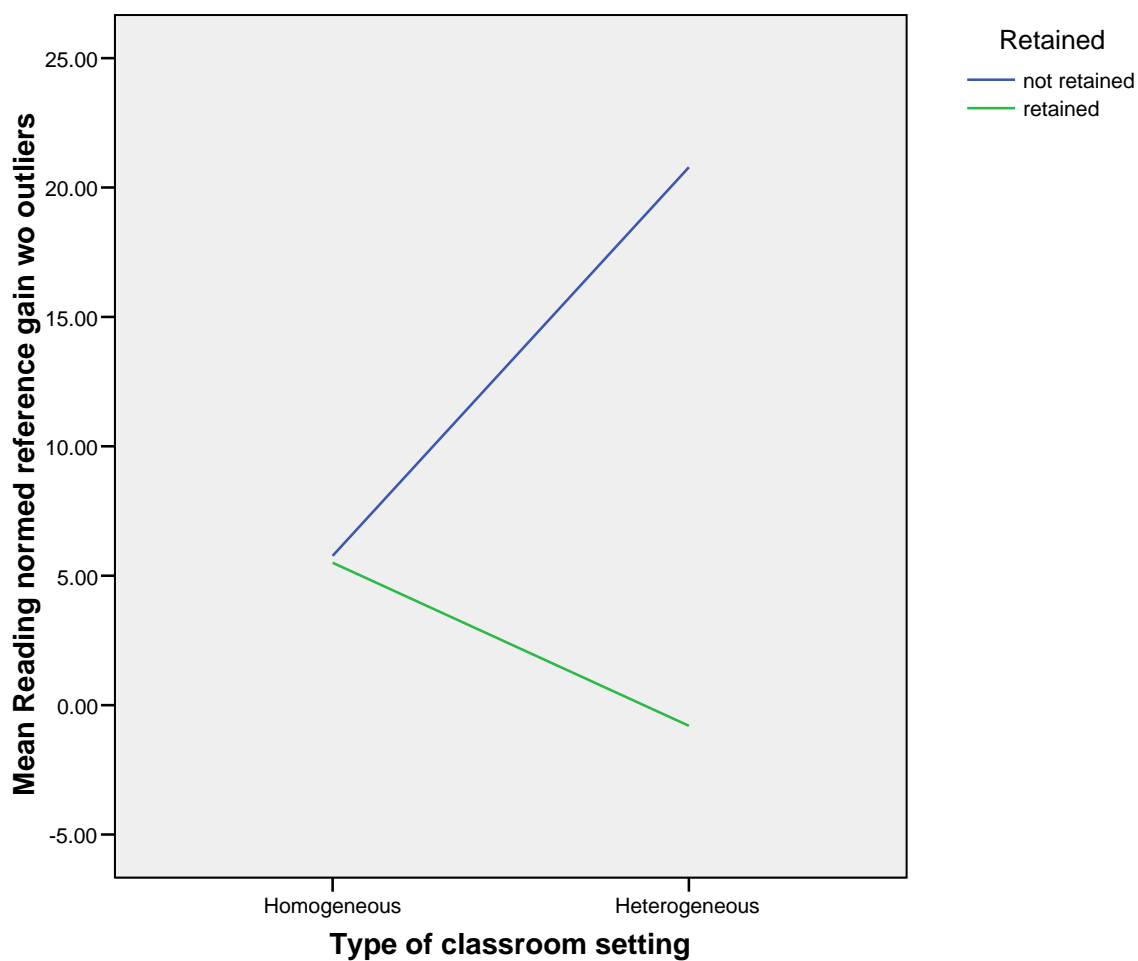
	Type III Sum of Squares	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>	<i>ES</i>
Corrected Model	3638.208(b)	3	1212.736	3.385	0.024	0.141
Intercept	3805.722	1	3805.722	10.622	0.002	0.146
Setting	295.993	1	295.993	0.826	0.367	0.013
Retained	1860.797	1	1860.797	5.194	0.026*	0.077
Setting * Retained	1770.234	1	1770.234	4.941	0.030*	0.074
Error	22213.065	62	358.275			
Total	29430.000	66				
Corrected Total	25851.273	65				

* $p < .05$

Students with learning disabilities who were not retained performed significantly better in heterogeneous classroom settings than in homogeneous classroom settings ($M = 20.79$, $SD = 23.63$, $M = 5.77$, $SD = 10.43$ respectively). Retained students did not differ based on the type of setting. Figure 1 represents the interaction of the mean scores on the reading NRT gain scores for students with learning disabilities who were retained and those that were not retained in homogeneous and heterogeneous classroom settings.

Figure 1

Interaction Effects of Setting by Retained on Reading NRT Gain Scores



Summary

Results indicated that there were no significant differences by classroom setting on age or IQ. Independent samples *t*-tests indicated that there were no significant differences between classroom settings on most of the tests (i. e., reading FCAT 2008, mathematics FCAT 2007 and 2008, or mathematics SAT/NRT 2008). The reading FCAT 2007 did demonstrate significant differences and reading SAT/NRT of 2007 approached significance, showing that children with learning disabilities in homogeneous classroom

settings performed better than in heterogeneous classroom settings in some of the reading pre-test scores. Paired *t*-tests were also conducted and, as expected, there was a significant increase in both reading and mathematics test scores from 2007 and 2008. Further analyses examined gain scores; findings indicated that there were no significant differences between classroom settings in the gain scores for any of the tests. An additional analysis including “being retained” as an independent variable, showed that there was a significant interaction effect between type of setting and being retained one or more years.

CHAPTER V

Discussion

Introduction

This chapter provides a summary of the purpose of the study and procedures, followed by a summary and interpretations of findings based on the analysis of the data and the literature review. The chapter includes implications for further studies in the area of special education, specifically for students with learning disabilities in inclusive classrooms- homogeneous versus heterogeneous. The chapter concludes with limitations of the study, recommendations for additional research, and a conclusion.

Summary of the Purpose of the Study and Procedures

Purpose of the Study

The purpose of this study was to examine the effects of including students with learning disabilities in homogeneous versus heterogeneous general education classrooms on their academic achievement, as measured by the Stanford Achievement Test (SAT), the Florida Comprehensive Assessment Test (FCAT), and the Norm-Referenced Test (NRT) from the 2007 and 2008 school years. In this study, inclusive homogeneous classrooms were considered those that included students with and without disabilities with similar test scores and academic grades in reading and mathematics. Inclusive heterogeneous classrooms were considered those that included students with and without disabilities with varying abilities in reading and mathematics test scores as well as academic grades.

Summary and Interpretations of Findings

This study was designed to contribute to the understanding of special education placements for students with learning disabilities in inclusive classrooms. Thus far, there have been many studies that demonstrate the effectiveness of inclusive settings in teaching students with disabilities (Baker et al., 1995; Behrmann, 1993; Fuchs & Fuchs, 1994; Johnson et al, 1994; Sapon-Shevin, 1994; Skrtic, 1991; Staub & Peck, 1994; Walther-Thomas et al., 2000); however, there were no studies found that investigated which type of inclusive classroom setting- homogeneous or heterogeneous- would provide significantly greater academic improvement for students with learning disabilities.

Quantitative data was used to determine the effects of including students with learning disabilities in homogeneous and heterogeneous general education classrooms on their academic improvement, as measured by scores on the SAT, the FCAT, and the NRT during the 2007 and 2008 school years. The summary and interpretations of these findings were based on the results of both descriptive and inferential statistics.

The results of this study demonstrated that there were no significant differences in the gain scores in reading and mathematics between students with learning disabilities in either homogeneous or heterogeneous inclusive classroom settings. This shows that the academics taught in each of these inclusionary settings (homogeneous and heterogeneous) are equally as beneficial for student achievement on standardized tests such as the reading and mathematics SAT and NRT as well as formal tests like the FCAT. The findings of this study support previous studies demonstrating that inclusion had no harmful effects on students with learning disabilities (Daniel & King, 1997,

Kauffman et al., 2005, Rea et al., 2002, Vandercook et al., 1991). Rea and colleagues found significantly higher academic grades for students with learning disabilities in inclusive settings than in non inclusive settings. The researchers noted that students in inclusive classrooms achieved higher course grades in language arts, mathematics, science, and social studies. This study was also able to demonstrate that there were positive gains experienced by being placed in these inclusionary settings. The students in this study demonstrated that there was increase in their achievement scores from 2007 to 2008 on all the reading and mathematics tests; while is assumed to be part of their natural maturation from one school year to the next. This can help relieve some of the concerns and hesitations parents of students with learning disabilities may have in placing their children in an inclusive setting.

The results about the improvements that occurred between 2007 and 2008, regardless of type of inclusive setting, is consistent with Lev Vygotsky's (1962, 1978) theory of social cognitive learning which posited that cognitive development is enhanced through shared problem solving experiences with someone else. His zone of proximal development notes that learning occurs not only through acquisition gained from one's own experiential knowledge but also from modeling skills learned from others. These learning and problem solving experiences are shared with others who are cognitively different such as parents, siblings, teachers, and other peers. The findings of this study support the growing body of literature showing that inclusion works, perhaps because of the greater diversity of knowledge available to students with learning disabilities as well as the reported effects of teacher expectations (McKown & Weinstein, 2008).

Results of this study also were consistent with Hargreaves theory of differentiation polarization because there was a significant interaction between setting and being retained. Findings demonstrated that students with learning disabilities who have never been retained performed significantly better on the reading NRT gain scores while in heterogeneous classroom settings versus those students who had been never retained and participated in homogeneous classroom settings. This result may have been due to the assumption that even though students who were not retained knew they were learning disabled, they were not dually stigmatized by their disability label and the fact that they were retained. In this study, retention, not disability appears to be the differentiating variable as defined in Hargreaves's theory. The stigmatization of being retained may be more detrimental to a student with learning disabilities than having the label of a disability, or the cumulative effect of both factors may negatively affect the child. Students who have been previously retained may feel ostracized and excluded from others. Further, the results may be attributed to the assumption that students with learning disabilities who have never been retained adapt better to classes that are heterogeneously grouped versus those that are homogeneously grouped. Also, it could be noted that the students who had never been retained possibly performed better in the heterogeneous classroom because they are held to higher standards than those in homogeneous groups.

Retained or retention is referred to as the act of requiring a student to remain at his or her current grade level the following school year despite spending a full school year in a given grade (Jackson, 1975). Based on the interaction between setting and being retained, it can be assumed that students with disabilities who had been retained may have performed better in a homogeneous classroom setting. This may be because they

feel more confident about themselves and their understanding of concepts while not being intimidated by their peers who are more skillful. Also, the teacher may have provided additional supports for students to accomplish their tasks successfully. Or, it may be that the students who were retained performed significantly lower than those in the heterogeneous setting and therefore achieved better in homogeneous settings.

The results of this study revealed that students with disabilities who have never been retained performed, overall, better on the reading NRT gain scores than those who have been retained. These results are supported by previous researchers who have stated that grade retention can possibly stigmatize students; this may in turn lead to lower teacher, parent, and self-expectations (Jackson, 1975; Shepard, 1989, Roderick & Nagaoka, 2005). Various analyses have been conducted to show the negative results of retention on children's academic achievement and personal/social development.

Although there are some studies that reported no statistically significant differences in the outcomes between students who were retained and those who were promoted (Hong & Raudenbush, 2005), there have been mixed results stemming from studies comparing students who had been retained versus those who had been promoted (Alexander, Entwisle, & Dauber, 2003; Ferguson, 1991; Jimerson, 1999; Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997; Karweit, 1992; Mantzicopoulos & Morrison, 1992; McCoy & Reynolds, 1999; Meisels & Liaw, 1993; Peterson, DeGracie, & Ayabe, 1987; Reynolds, 1992; Shepard & Smith, 1989). The results of this study supports the meta-analysis of twenty studies published during the 1990's by Jimerson (2001) that concluded that retention has generally negative average effects on both the academic and psychosocial function of students.

Even though the analyses showed that students with learning disabilities in homogeneous classroom settings were performing better on the reading NRT, than those who have not been retained, their gain scores demonstrated that they achieved greater gains in reading in heterogeneous classroom settings than in homogeneous classrooms. The reading NRT average gain scores seemed to be higher for retained students in homogeneous compared to heterogeneous classrooms ($M= 5.50$, $SD= 17.48$ and $M= -.0.80$, $SD= 10.43$, respectively). However, the results were not significantly different; this is probably due to the small subsamples and the wide standard deviations obtained in the sub-samples.

Implications for Further Studies

The current findings enhance the literature and understanding about students with learning disabilities in general education classroom settings by providing a closer look at students participating in homogeneous and heterogeneous classroom settings. As expected, after conducting paired t -tests to compare the 2007 and 2008 scores on the same or similar measures for all, students there was a significant increase in both the reading and mathematics tests scores from 2007 to 2008, as expected. These results may have been part of the natural development and maturation that is expected of students as they move from one grade level to the next but it should be noted that students with learning disabilities no matter the setting significantly advanced in reading and mathematics, an outcome that not always occurs. However, it was noted that students participating in homogeneous classroom settings almost reached significance on the 2007 SAT/NRT tests, and students in inclusive homogeneous classroom settings performed significantly better on the 2007 reading FCAT than students in inclusive heterogeneous

classroom settings. A finding which supports previous research and Vygotsky's as well as Hargreaves theory was that students with learning disabilities who had never been retained performed better in heterogeneous classroom settings versus homogeneous classroom settings. Although it seemed that homogeneous classroom settings may have been more appropriate for students with learning disabilities who had been retained, this finding was not significant. Previous research has noted that promoting children too early may aggravate their difficulties in understanding the content and this in turn may place them at risk for academic failure in the future (Grant & Richardson, 1998; Hong & Yu, 2007; Smith & Shepard, 1988). Although Vygotsky's theory could be applied to students who have never been retained, it may not apply equally to students with disabilities who were retained and are facing wider ranges of differences in their performance in relation to the performance of students without disabilities, which might be counterproductive for these students.

The homogeneous classroom setting may be beneficial for students with learning disabilities who have been previously retained because they may not feel dually stigmatized by the fact that they have a disability and have previously been retained. Future studies should investigate whether students with learning disabilities who have been retained may possibly perform better in homogeneous classroom settings. In this study, at face value, it seemed like retained students obtained higher scores in homogeneous than in heterogeneous classes. However, these results were not statistically significant. This future study should note whether students with learning disabilities who are retained may be stigmatized due to their retention; the knowledge of their retention, as well as their learning disability may in fact cause them to fall further behind in a

heterogeneous classroom. The student may take better notice of how other students are much more different than he or she may be and suffer more socially and academically rather than in a homogeneous setting where many of the other students are of similar abilities. Additional research is needed to confirm if students with learning disabilities who had been retained performed better in homogeneous settings; and if so, then why.

It should be noted though that placing all students who have been retained in the same classroom may create a classroom that tends to be more homogeneous, easing the teacher's task of managing instruction for students (Byrnes, 1989; Shepard & Smith, 1989). Further investigations should note whether students view grade retention as a form of punishment or if this may be the push they need in order to study harder and avoid being retained in the future. Some research has demonstrated that retention may benefit students who are not equipped to learn higher-level material because they have not yet mastered the lower-level facts and skills (Hong & Raudenbush, 2005). While some researchers oppose the idea of retention (Dawson, 1998; Jimerson, 2001), there are researchers who have noted that the repetition of a grade is possibly more developmentally appropriate and may help to make learning more meaningful for students who are struggling (Plummer & Graziano, 1987; Smith & Shepard, 1988). Additionally, the increased emphasis on accountability from the No Child Left Behind Act has created higher rates of grade retention, especially in the nine states where students are mandated to pass tests of grade level competencies in order to be promoted to the next grade level (Bali, Anagnostopoulos, & Roberts, 2005). Florida is one of the nine states to adopt this practice. Beginning in the 2002-2003 school year, the State of Florida adopted the Florida Statue (s. 1008.25) which required students in the third grade

who were not reading at grade level to be retained (Florida K-20 Education Code: Assessment and Accountability, 2002).

Future studies should also focus on the efficacy of retention and the psychosocial effects of retention on students with learning disabilities. Further investigations of retention need to be investigated particularly for students with learning disabilities but not exclusively. Additionally, further research should focus on homogeneous classroom settings that have less variability, which in this study may have precluded the findings of significant results. Further investigations are needed of how flexible grouping within homogeneous and heterogeneous classrooms may be a consideration for future studies. Flexible groupings may help to address the broad range of students' needs within the same classroom that is defined as the heterogeneous classroom setting. The flexible groupings address students' particular learning needs as determined by continuous assessments (Flood, Lapp, Flood, & Nagel, 1992). A consideration that can be chosen for other studies may be to conduct studies on heterogeneous classrooms that use within class ability grouping as well as differentiated instruction. By providing differentiated instruction for students with disabilities in heterogeneous classrooms, their knowledge and concepts of reading and mathematics may be further enhanced. It may be possible to attain moderate to large effect sizes, if the homogeneous classroom setting teacher would differentiate the curriculum further than just by grouping students according to academic grades and achievement levels on state testing. Betts (1946) hypothesized that when students were presented with tasks that were sufficiently familiar, while at the same time providing a certain degree of challenge, the students obtained optimal learning. Further, tasks that were not challenging or too challenging were referred to as the independent and

frustration levels, respectively. Gickling and Armstrong (1978) further enhanced the understanding of independent, instructional, and frustration levels. They defined independent reading levels as the ability to know more than 97% of the words presented. Instructional levels of reading contained knowledge of 93-97% of words and frustration levels contained less than 93% of known words in a passage. Students demonstrated high levels of comprehension at both the independent and instructional levels while demonstrating low levels of comprehension at the frustration level. Research has suggested that students are more consistently on task when reading materials are presented at the instructional level rather than at the independent or frustration levels. This data provides evidence that students' instructional levels be identified and targeted for reading activities in school. Furthermore, this study supports the need for teachers to differentiate instruction based on the student's individual needs, as this is crucial in ensuring individual success for each student (Treptow, Burns, & McComas, 2007).

Although this study only included two homogeneous and two heterogeneous schools, it is recommended that further investigations include a wider range of schools, specifically schools graded by the State of Florida as "B" through "F", including not only schools rated as "A". In addition, it is recommended that future studies include students of lower socio-economic status as this study only included schools that were in predominantly affluent neighborhoods. Researchers should also investigate whether homogeneous classroom settings are beneficial for all students with prior retentions from kindergarten through twelfth grade. This study was conducted with only students on the elementary level. A final recommendation for further studies is that of comparing the homogeneous classroom settings and heterogeneous classroom settings with a wider

range of grade levels to determine whether or not the findings of this study generalize to students in middle and high school grades as well.

Limitations of the Study

Although the current study has presented data that may be of interest to both researchers and practitioners, several limitations should be noted that may have impacted the study's reliability and generalization. Due to the constraints of the design, only four schools rated A by the State of Florida were available within the region which in turn allowed for only a small number of participants to be included in this particular study. The sample size was relatively small, with 41 students in the homogeneous classroom settings and 30 in the heterogeneous classroom settings. The student's prior education before entering the homogeneous or heterogeneous classroom setting could also have had an effect on the results of the study. A further limitation of this study was the assumption that SAT and NRT scores are comparable. Additionally, there were different classrooms included in the study which in turn could have impacted the levels of teacher effectiveness in teaching students with disabilities. Variability in teacher experience could have also had an effect on the results. Furthermore, the amount of time and support services provided to the students with disabilities in the homogeneous and heterogeneous settings differed and therefore was a limitation. Teachers who are inexperienced in teaching inclusionary classes may find it more difficult to teach in any of the environments tested. Finally, the amount of curricular differentiation and adaptations provided to the students during instructional time was not evaluated and may have been a limitation. For example, students who may have been lacking understanding in phonics

may or may not have received differentiated instruction in this particular area in order to improve their reading skills.

Gay, Mills, and Airasian (2006) stated that the analysis of gain or difference scores may have also been a limitation in this study. They believe that researchers who analyze data using gain scores from two groups who are pretested, treated, and post-tested have two main problems. The first, every participant does not have the same opportunity to gain. Secondly, gain or difference scores are less reliable than analyzing the post-test scores alone. Furthermore, Gay and colleagues believe that if both groups are essentially the same on the pretest and neither of the groups has been previously exposed to the treatment, then the post-test scores are best compared using a *t*-test. If there is a difference between the groups on the pretest, then the preferred analysis would be an analysis of covariance.

Conclusion

Although great progress has been made in the field of special education especially in understanding the philosophy of inclusion, it is apparent from the present research study, however, that there are still many unanswered questions regarding the placement of students with learning disabilities. These unanswered questions can be the foundation for future research in gaining a better understanding of how to best service students with learning disabilities in inclusionary classrooms.

In conclusion, the results from this study call for careful consideration for future implications. It has been noted in the literature that overall, students with learning disabilities who are included in the general education classroom can be successful both academically and socially. This is not to say that all students with learning disabilities can

be or should be included. Many students with learning disabilities might be more successful in homogeneous versus heterogeneous classroom settings. The results of this study revealed new interesting information. The most noteworthy result of this study is the fact that students with learning disabilities who have never been retained and are included in heterogeneous classroom settings can perform better on normed and standardized tests than those in homogeneous classroom settings.

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APPENDIX A



Barry University

Provost and Senior Vice President
for Academic Affairs

11300 NORTHEAST SECOND AVENUE
MIAMI SHORES, FLORIDA 33161-6695
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Research with Human Subjects Protocol Review

Date: April 30, 2008
Protocol Number: 080411
Title: Academic Achievement of Students with Learning Disabilities in Homogeneous versus Heterogeneous General Education Settings

Meeting Date: 4/16/2008
Researcher Name: Jasmine Ramirez
Address: 9185 SW 138 Place
Miami, FL 33186

Faculty Sponsor:
School: EDU

Dear Ms. Ramirez:

On behalf of the Barry University Institutional Review Board (IRB), I have verified that the specific changes requested by the IRB have been made. Therefore, I have granted final approval for this study as exempt from further review. Enclosed is the Consent Cover letter with the IRB stamp. Please use this letter when collecting your data.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on May 1, 2009. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at (305)899-3020 or send an e-mail to dparkhurst@mail.barry.edu . Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,



Doreen C. Parkhurst, M.D., FACEP
Chair Institutional Review Board
Assistant Dean, SGMS &
Program Director, PA Program
Barry University
Box SGMS
11300 NE 2 Avenue
Miami Shores, FL 33161

cc:

Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.

APPENDIX B

Barry University
SAMPLE COVER LETTER TO MIAMI-DADE
COUNTY PUBLIC SCHOOL PRINCIPALS

Dear Principal,

My name is Jasmine Ramirez; I am a doctoral student at the Barry University Adrian Dominican School of Education. I am conducting a research investigation at several public schools in Miami-Dade County. I hope to include your school in my study titled *Academic achievement of students with learning disabilities in homogenous versus heterogeneous general education settings*. I will use for this study archival data (i. e., school, age, gender, ethnicity, IQ level, lunch status, SAT reading and mathematics scores, FCAT reading and mathematics scores, and NRT reading and mathematics scores) that will be retrieved via the Miami-Dade County Public Schools databases.

My goal is to collect information that will be useful in the field of education specifically for students with learning disabilities. The aims of this research are to identify the best methods of including students with learning disabilities in a homogeneous or heterogeneous general education classroom. I will have an employee retrieve archival data from the databases in order to collect needed data from a total of sixty students with learning disabilities (about 15 students will be from your school).

Thank you in advance for your consideration of allowing me to use data from your students as part of my research. I look forward to hearing from you. I may be reached at (305) 586-2149 or my advisor Dr. Catherine Roberts at (305) 899-4829 or the Institutional Review Board point of contact, Ms. Barbara Cook, at (305) 899-3020.

Sincerely,



Jasmine Ramirez
Employee # 250741
9185 SW 138 Place
Miami, FL 33186

Approved by IRB

Date:

4-30-08

Signature:

Doreen C. Gaudin, MD, FACSP

APPENDIX C

**BARRY UNIVERSITY
SAMPLE LETTER TO SPECIAL EDUCATION TEACHER**

Dear Teacher(s),

My name is Jasmine Ramirez. I am a third-grade teacher at Virginia A. Boone Highland Oaks Elementary School in North Dade and a doctoral student at the Barry University Adrian Dominican School of Education. I am conducting a research project at several Miami Dade County Public Schools and I hope to include your students in my study titled *Academic achievement of students with learning disabilities in homogenous versus heterogeneous general education settings*.

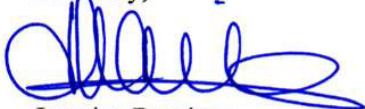
The aim of this research is to identify the best method of including students with learning disabilities in a homogeneous or heterogeneous general education classroom. I will be collecting electronically archived data (i. e., school name, age, gender, ethnicity, IQ level, lunch status, SAT reading and mathematics scores, FCAT reading and mathematics scores, and NRT reading and mathematics scores) that is stored on Miami-Dade County Public Schools databases. I anticipate the number of participants to be 60.

While as a teacher I certainly know you have a tremendous workload I am writing this letter to ask for your help and that of your ESE team. I will provide you with envelopes containing consent form to be signed with a yes or no response from the parents. Please send these envelopes home with the students as soon as you receive them. When the students return the envelopes you can send them back through school mail or I will be picking them up the last week of June 2nd.

Your help in this research project is greatly appreciated and I would like to compensate you and each of your inclusion teachers who can help with a gift card at the end of the survey. Please call me with any concerns or questions at (305) 586-2149.

Thank you for your consideration.

Sincerely,



Jasmine Ramirez
Barry University Ph. D. Student
Virginia A. Boone Highland Oaks Elementary
Third Grade Inclusion Teacher
20500 N. E. 24th Avenue
Miami, Florida 33180

APPENDIX D



Miami-Dade County Public Schools

giving our students the world

Superintendent of Schools
Rudolph F. Crew, Ed.D.

Miami-Dade County School Board
Agustin J. Barrera, Chair
Perla Tabares Hantman, Vice Chair
Renier Diaz de la Portilla
Evelyn Langlieb Greer
Dr. Wilbert "Tee" Holloway
Dr. Martin Karp
Ana Rivas Logan
Dr. Marta Pérez
Dr. Solomon C. Stinson

May 9, 2008

Ms. Jasmine Ramirez
9185 S.W. 138th Place
Miami, FL 33186

Dear Ms. Ramirez:

I am pleased to inform you that the Research Review Committee of the Miami-Dade County Public Schools (MDCPS) has approved your request to conduct the study, "The Academic Achievement of Students with Learning Disabilities in Homogeneous Versus Heterogeneous General Education Settings." The approval is granted with the following conditions:

1. Participation of a school in the study is at the discretion of the principal. A copy of this approval letter must be presented to the principal.
2. The participation of all subjects is voluntary.
3. The anonymity and confidentiality of all subjects must be assured.
4. Parent permission forms must be secured for all participating students prior to the beginning of the study.
5. If data are drawn from a participating student's educational records at his/her school, a completed Permission for Release of Records and/or Information from Records form (FM 1867E) bearing the parent's signature must be retained in the student's cumulative folder. The FM 1867E form is enclosed.
6. The study will involve approximately 60 MDCPS students in grades 3 – 5.
7. Teacher participation is voluntary.
8. Disruption of the school's routine by the data collection activities of the study must be kept at a minimum. Data collection activities must not interfere with the district's testing schedule.

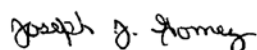
It should be emphasized that the approval of the Research Review Committee does not constitute an endorsement of the study. It is simply a permission to request the voluntary cooperation in the study of individuals associated with the MDCPS. It is your responsibility to ensure that appropriate procedures

are followed in requesting an individual's cooperation, and that all aspects of the study are conducted in a professional manner. With regard to the latter, make certain that all documents and instruments distributed within the MDCPS as a part of the study are carefully edited.

The approval number for your study is 1477. This number should be used in all communications to clearly identify the study as approved by the Research Review Committee. The approval expires on June 30, 2009. During the approval period, the study must adhere to the design, procedures and instruments which were submitted to the Research Review Committee. If there are any changes in the study as it relates to the MDCPS, it may be necessary to resubmit your request to the committee. Failure to notify me of such a change may result in the cancellation of the approval.

If you have any questions, please call me at 305-995-7529. Finally, remember to forward an abstract of the study when it is complete. On behalf of the Research Review Committee, I want to wish you every success with your study.

Sincerely,



Joseph J. Gomez, Ph.D.
Chairperson
Research Review Committee

JJG:mp
Enclosure

APPROVAL NUMBER: 1477

APPROVAL EXPIRES: 6-30-09