ASSESSING THE IMPACT OF ACADEMIC PLACEMENT ON ACADEMIC ACHIEVEMENT AMONG 5TH GRADERS WITH DISABILITIES: A CAUSAL-COMPARATIVE INQUIRY

A Dissertation

by

ROANA KASANDRA RIVERA

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

Kamiar Kouzekanani, PhD
Chair

Karen McCaleb, EdD
Committee Member

Chase Young, PhD
Committee Member

Amy Aldridge Sanford, PhD
Graduate Faculty Representative

May 2017

ABSTRACT

Since the mid ‘70s, school districts have been trying to place students with disabilities in the least restricted environment. As governments strive to create a more inclusive society, an inclusive academic setting for students with disabilities has become a priority. The purpose of the study was to examine the impact of academic setting on academic achievement in reading, science, and mathematics among 5th grade students with disabilities. The hypotheses were that 5th graders with disabilities receiving academic instruction in a segregated setting perform differently in reading, science, and mathematics than do those receiving instruction in an inclusive setting.

The study utilized an ex post facto, casual-comparative research design. The independent variable was the educational placement with two levels. The segregated level was identified by only the students with disabilities. The comparison level consisted of students with disabilities in the general education setting. The outcome measures were academic achievement in reading, science, and mathematics. The characteristic-present group consisted of a non-probability sample of 20 5th grade students with an instructional arrangement code of 42; indicating 21% to less than 50% of the academic school day is spent in a special education setting, receiving direct instruction from a special education teacher. The comparison group consisted of 50 5th grade students with an instructional arrangement code of 40; indicating 0% of the academic school day is spent in a special education setting. Due to the non-experimental nature of the study, no causal inferences were drawn. Due to the non-probability nature of the sampling technique, external validity was limited to the study’s participants.

After adjusting the data on the basis of gender, which was a confounding variables, it was concluded that academic achievement in reading and mathematics was not impacted by academic

setting. Academic achievement in science was impacted by the intervention and favored the inclusive setting. All effect sizes were meaningful and favored the inclusive setting. A series of power analysis showed that the small sample of the subjects in the characteristic-present group could have contributed to the lack of statistical significance in the findings. It was also concluded that gender must be taken into consideration in designing instructional settings for children with disabilities. Students with disabilities, who are receiving special education services, are not only held accountable for the same academic standards within the academic setting, but are also held accountable for meeting state standards on the STAAR assessments. The results of the study may provide an understanding of what adjustments need to be made to be sure students with disabilities are receiving the best education possible.

DEDICATION

First of all, I would like to thank the Lord for blessing me with so many opportunities; all my accomplishments are due to him.

A special thank you to my loving husband, Roger Rivera, for always providing me an ample amount of support throughout my doctoral education. You have always stood by me and I am so grateful to the Lord for blessing me with such a supportive husband.

To my family, thank you for providing encouragement over the course of my academic life. To my father and stepfather, Roel Garcia and Hector Rubio, although you are no longer with us and will not be able to see me as I graduate, I know you will be watching over me on graduation day as you always have. To my mother, Roxana Rubio, thank you for making the initial push for my education; you were the one who assisted me in starting this magnificent journey.

Finally, I am dedicating the study to my brother, Roman, who inspired me to study special education and become a special education teacher.

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CHAPTER I

INTRODUCTION

Background and Setting

Segregation of students due to race or disabilities was a common practice throughout schools in the past. However, as education progressed, so did ideologies related to providing suitable teaching/learning environments for children with disabilities and the parents who wish the best available education for their children. With this in mind, every child sitting in a classroom has his/her own academic needs which must be met in order to achieve meaningful learning. In order for educational changes to transpire for students with disabilities, key court cases set the foundation for these educational changes to occur.

The effort to initiate changes began in 1954 by eliminating segregation in society. The case that established integration due to the dismissal of the "separate but equal" doctrine was Brown v. Board of Education (Walsh, Maniotis, & Kemerer, 2014). Through this integration, segregation was no longer allowed and children of all colors were able to attend the same schools. Even though schools were now required to open their doors to all children regardless of color, there was still segregation within schools. Araiza and Medina (2011) noted separate schools on the basis of race resulted in inferior educational opportunities. This can also be said regarding students with disabilities since they too faced segregation within schools. The court's ruling on eliminating segregation opened the doors for other advocacy groups to pursue the right to no longer being segregated.

President Kennedy and Vice President Humphrey, who both had family members with disabilities, initiated the chain of change for people during the time when public schools had few requirements to follow in regards to students with disabilities (Zettel, 1977). Children with

disabilities were kept out of public school and those attending the public school setting were segregated from their nondisabled peers. In 1975, the Subcommittee on Select Education and the Subcommittee on the Handicapped held hearings to extend and amend the Education of the Handicapped Amendments of 1974 (Public Law 93-380). Based on the testimonies from individuals representing legislators, parent organizations, parents, educational associations, consumers, and educators from local, state, and national levels, there were still many students with disabilities being placed in inappropriate education settings due to their disability and not receiving the appropriate educational services, and approximately 1.75 million children with disabilities were being excluded entirely from receiving a public education solely on the basis of their disabilities (Zettel, 1977). The hearings and the large number of students not receiving an adequate public education indicated a need of high concern and greater efforts to ensure students with disabilities were being properly educated.

In 1975, the Education for All Handicapped Children Act (P.L. 94-142) was established, to mandate change in all schools receiving federal funding. According to the Act, all handicapped children must receive a free and appropriate education at no additional cost to the parents or guardians and be educated in the least restricted environment (U.S. Department of Education, 2010). These requirements not only had a positive impact on students with disabilities who were receiving academic instruction, but also on the overall accessibility to academic instruction to all students with disabilities. As the years progressed, the U.S. Congress renamed and amended the law. The current version, the Individuals with Disabilities Education Improvement Act (Public Law 108- 446: IDEA 2004), increased the accountability. Trohanis (2008) identified three major components that have been critical to the expansion and improvement of services: (1) Part C, the Program for Infants and Toddlers with Disabilities; (2)

Section 619 of Part B, the Preschool Grants Program; and (3) Part D, National Activities to Improve Education of Children with Disabilities (p. 2.).

The 2004 IDEA was aligned with other school improvement efforts such as the No Child Left Behind Act of 2001 (NCLB). The NCLB was introduced "to ensure all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments" (Wright & Wright, 2011, p. 3). The NCLB aims to improve low-performing schools and increase public school students' academic performance (Yell, Shriner, & Katsiyannis, 2006). Cortiella (2006) identified the NCLB Act's four basic principles as (1) accountability results, (2) emphasis on strategies based on scientific research, (3) expand on parental involvement along with parental options, and (4) expand on local flexibility and control. The legislation aimed at closing achievement gaps between groups of students through increased flexibility, greater accountability, and choice (Texas Education Agency, 2015a). In doing so, the required accountability resulted in more rigorous state assessments.

In 2012, the state of Texas mandated the replacement of the Texas Assessment of Knowledge and Skills (TAKS) with the State of Texas Assessments of Academic Readiness (STAAR). There were significant differences between the TAKS and the STAAR not only in regards to the rigor of the items on the assessment, but also on student expectations. According to Texas Education Agency Student Assessment Division (2012), the most significant changes are the following: (1) skills being assessed are now at a greater depth and level of complexity; (2) the total amount of tested items have increased; (3) there is a specific four-hour time frame for students to complete the assessment; (4) subject matters of reading and mathematics will be linked from grade to grade along with postsecondary-readiness standards for assessments in

Algebra II and English III, (5) STAAR reading assessments will have a greater emphasis on critical analysis; (6) an increase in the number of open-ended questions in most science and mathematics STAAR assessments; (7) in the high school level of academics, the STAAR end-of-course (STAAR EOC) assessment will only cover content from a particular course; (8) the STAAR writing assessment will be extended in the 4th and 7th grade over a two-day period; (9) STAAR EOC assessments for English I, II, and II will be administered over a period of two days, which in turn will be divided up with the writing component on the first day and the reading component on the second day; (10) STAAR 4th and 7th grades writing and STAAR English I, II, and III test design will differ from TAKS by requiring students to write two different essay regarding different purposes rather than one long personal essay; and (11) the design of the STAAR assessments will focus on the Texas Essential Knowledge and Skills (TEKS) "readiness" standards, which are essential for preparing students for the next grade or course. In doing so, it is anticipated the STAAR assessment will improve the measurement of student academic progress as they progress through their academic education from the elementary through high school levels. The STAAR test consists of four different types of assessments, STAAR, STAAR L, STAAR Alternate 2, and STAAR A.

The STAAR program includes an annual assessment of students from third grade to the end-of-course assessments in high school (Texas Education Agency, 2017c). The annual assessments consist of reading (3rd through 8th grade), mathematics (3rd through 8th grade), writing (4th and 7th grade), social studies (8th grade), and end-of-course assessments for English I, English II, Algebra I, biology and U.S. history (Texas Education Agency, 2017c).

The online linguistically accommodated English version of STAAR is the STAAR L. The STAAR L is intended for English language learners (ELLs) who meet the participation

requirements and are in need of significant linguistic accommodations in the grades 3rd through 8th and end-of-course mathematics, social studies and science (Texas Education Agency, 2017b).

The STAAR Alternate 2 assessment was developed to assess students who have significant cognitive disabilities and are receiving special education services in grades 3rd through 8th along with high school in order to meet federal requirements which were mandated under the Elementary and Secondary Act (Texas Education Agency, 2015a). The student expectations are summarized into essence statements, which are used for STAAR Alternate 2. An essence statement serves as a link between the prerequisite skill and the grade-level expectations (Texas Education Agency, 2017a).

The STAAR A is an accommodated version of the STAAR. For the purpose of the study, the STAAR A was the assessment that had been administered to students. In the academic school year 2014-2015, the STAAR A replaced the previous test, which was created as an alternate assessment; the STAAR Modified. It is important to understand the difference between a modification and an accommodation. The two terms are significant when understanding the difference between the two different levels of testing. A modification is intended to change student academic expectations and curriculum which may then alter and reduce a student's overall learning experience due to the possibility of an increase in the gap between expectations for proficiency at a specified grade level and the achievement of students with disabilities (Howard County Autism Society, 2013). Thus, the STAAR Modified was identified as an alternate form of assessment being it was based on modified academic achievement standards and was intended for students receiving special education services who met the participation requirements (Texas Education Agency, 2014a).

Accommodations do not alternatively alter instructional content, curriculum, or student expectations, but rather are designated supports and services to provide equitable access to the general education curriculum (Howard County Autism Society, 2013). Providing students with disability-related accommodations, instead of modifications, has increased accountability of student progress. It is state mandate to implement STAAR A as the replacement assessment of STAAR Modified multiple changes. For example, the STAAR A and the STAAR are both considered to be the general assessment due to the fact that the STAAR A has the same passing standards as any other STAAR test provided for a specific grade level without any modified Texas Essential Knowledge and Skills (TEKS). The test is offered online; thus, there are far more capabilities for accommodations, compared to a paper-based administered test. The embedded supports include graphic organizers, text-to-speech, visual aids, and clarification of construct-irrelevant terms. Students receiving the following services along with meeting two or more of the STAAR A eligibility requirements per tested subject area may be administered STAAR A in one or more subjects: (1) students with identified disabilities who are receiving special education services and (2) students who are identified with dyslexia or a related disorder (as defined in Texas Education Code §38.003) and are receiving Section 504 services (Texas Education Agency, 2014b).

In deciding if the STAAR A is the best form of assessment for a student to take, there are key factors which have to be considered prior to the final decision being made along with completing the state-required documentation forms, STAAR A Eligibility Requirements. These forms (Texas Education Agency, 2014b) ensure the decision to administer the STAAR A assessment is based on the accommodations the student receives regularly within the classroom setting that have been documented in the student's Individualized Education Program (IEP). The

criteria set for the STAAR A participation include two or more accommodations which must be identified as needed for each individual students per tested subject area at the student's specified grade level. These accommodations include reading support, using writing process checklist, directing students' attention to specific information, scaffolding students' understanding in regards to open-ended questions about texts, providing clarification or rewording of vocabulary, complex sentences, and other concepts, and providing the student the opportunity to preview the text prior to reading in order to set a purpose for reading the text, activating prior knowledge, and drawing conclusions (Texas Education Agency, 2014b).

Figure 1 shows the state-required documentation form which identifies the eligibility requirements for a student who is identified as eligible to be administered the STAAR A examination.

Figure 1

STAAR A Eligibility Requirements

State-Required Documentation Form

STAAR A
State of Texas Assessments of Academic Readiness
A

STAAR A Eligibility Requirements

Student Name_____**Grade** _____ **Date** _____

Name of District Personnel Completing Form_____**Position** _____

STAAR A is an online version of STAAR that contains certain embedded accommodations such as pop-ups, rollovers, and oral administration (i.e., text-to-speech). Both STAAR and STAAR A are considered the general assessment; however, STAAR with approved or allowable accommodations (as outlined in the Accommodations Triangle) should be the first consideration when determining which assessment is most appropriate for a student. The decision to administer STAAR A should not be based solely on the student's disability category, disabling condition, placement setting, or the student's previous performance on a state assessment. Admission, review, and dismissal (ARD) and Section 504 committees should ensure the following when making assessment decisions.

_____ The decision to administer STAAR A is based on the determination that STAAR with or without approved or allowed accommodations does not best meet the student's needs.

_____ The decision to administer STAAR A is based on the accommodations the student routinely receives in the classroom and that are documented in the student's individualized education program (IEP) or individualized accommodation plan (IAP).

_____ The decision to administer STAAR A is based on the eligibility criteria outlined in Step I and Step II of this documentation form. According to 19 Texas Administrative Code (TAC) §101.27(b), school districts are required to follow the procedures specified in the applicable test administration materials. **As a result, the ARD or Section 504 committee (in conjunction with the language proficiency assessment committee (LPAC) if the student is an English language learner (ELL)) must include this form in the student's IEP or IAP to document eligibility for STAAR A.**

Step I: Indicate Eligible Services *Indicate the service the student is receiving. If a student is not receiving either of these services, the student is not eligible to participate in STAAR A and must take one of the other state assessments.*

☐ The student has an identified disability and is receiving special education services.

☐ The student is identified with dyslexia or a related disorder as defined in Texas Education Code (TEC) §38.003, and is receiving Section 504 services.

Step II: Review Eligibility Criteria *The ARD or Section 504 committee (in conjunction with the LPAC if the student is an ELL) must circle the subject(s) for which STAAR A is being considered and check the accommodation(s) the student routinely receives in the classroom for that subject. If a particular subject is not applicable, circle NA. To be eligible to participate in STAAR A in a particular subject,* ***TWO OR MORE*** *accommodations must be checked in that subject. If fewer than two accommodations are checked, the student is not eligible to participate in STAAR A in that subject.*

NA Reading 3–8	☐ Preview text before reading to activate prior knowledge, draw conclusions, and set a purpose for reading	☐ Clarification or rewording of vocabulary, complex sentences, and concepts using definitions, similes, literal language, graphics, animation, etc.	☐ Direct student attention to specific information (e.g., parts of the selection, parts of a graphic, parts of an answer choice)			
NA Writing 4/7	☐ Preview text before reading to activate prior knowledge, draw conclusions, and set a purpose for reading	☐ Clarification or rewording of complex questions and concepts using definitions, similes, and literal language, etc.	☐ Direct student attention to specific information (e.g., parts of the selection, parts of an answer choice)	☐ Use of writing process checklist	☐ Reading Support (i.e., revising passages and questions)	
NA English I English II	☐ Preview text before reading to activate prior knowledge, draw conclusions, and set a purpose for reading	☐ Clarification or rewording of vocabulary, complex sentences, and concepts using definitions, similes, literal language, graphics, animation, etc.	☐ Direct student attention to specific information (e.g., parts of the selection, parts of a graphic, parts of an answer choice)	☐ Scaffold understanding of open-ended questions about texts (i.e., short answer questions)	☐ Use of writing process checklist	☐ Reading Support (i.e., revising passages and questions)
NA Mathematics 3–8 Algebra I	☐ Clarification or rewording of vocabulary, complex sentences, and concepts using definitions, similes, literal language, graphics, animation, etc.	☐ Direct student attention to specific information (e.g., parts of a graphic, parts of an answer choice)	☐ Scaffold steps in a process (i.e., bullet each step, space out each step)	☐ Use of generic and question-specific graphic organizers	☐ Identification of formula(s) to use with specific questions	
NA Science 5/8 Biology	☐ Clarification or rewording of vocabulary, complex sentences, and concepts using definitions, similes, literal language, graphics, animation, etc.	☐ Direct student attention to specific information (e.g., parts of a graphic, parts of an answer choice)	☐ Scaffold steps in a process (i.e., bullet each step, space out each step)	☐ Use of generic and question-specific graphic organizers	☐ Identification of formula(s) to use with specific questions	
NA Social Studies 8 U.S. History	☐ Clarification or rewording of vocabulary, complex sentences, and concepts using definitions, similes, literal language, graphics, animation, etc.	☐ Direct student attention to specific information (e.g., parts of a graphic, parts of an answer choice)	☐ Scaffold steps in a process (i.e., bullet each step, space out each step)			

Step III: Summarize Assessment Decision The ARD or Section 504 committee (in conjunction with the LPAC if the student is an ELL) should indicate the STAAR A test(s) the student will take for the school year under consideration. ***This form must be included in the student's IEP or IAP to serve as the required documentation of the state academic achievement decision.*** Additional testing accommodations may be allowed and must be documented in the student's paperwork as well. Refer to the Accommodation Triangle on the TEA Student Assessment website for more information.

Indicate the STAAR A tests the student will take for the school year under consideration.

- ❑ *Reading Grade ____*
- ❑ *Writing Grade ____*
- ❑ *English I*
- ❑ *English II*
- ❑ *Mathematics Grade ____*
- ❑ *Algebra I*
- ❑ *Science Grade ____*
- ❑ *Biology*
- ❑ *Social Studies Grade 8*
- ❑ *U.S. History*

Many students receiving special education services are now being administered the STAAR A assessment which has passing standards set at the same level as the STAAR test. Consequently, districts are emphasizing the importance of the rigor along with preparation demands for testing. Due to this, programs have become determined to employ and train highly qualified personnel, apply new and creative strategies in the educational setting, increase parent involvement, and provide adequate support for students with disabilities so they can participate in activities with their peers because of the growth in numbers who are increasingly diverse (Trohanis, 2008).

Statement of the Problem

The replacement of STAAR Modified with STAAR A, along with the change of passing standards since the academic school year of 2014-2015, has raised concerns in education. Educators have been trying to balance the change along with the rigor and requirements that are required of students with disabilities. The STAAR Modified assessment was based on modified standards for students who meet the required criteria and receiving special education services (Texas Education Agency, 2014a), as opposed to the STAAR A assessment, which no longer has modified standards, but rather requires students to be held to the same academic and passing standards of those in the same grade level and subject. Although not all students with disabilities can meet the state standards, identifying the placement which provides the best academic support for academic growth is important to understand.

Theoretical Framework

The study focused on the link between academic placement and academic achievement. Hornby (2015) identified the theory of inclusive special education of which identified children with special educational needs and disabilities (SEND) needing to be taught by utilizing the best

teaching strategies and evidence-based practices that can be used in mainstream schools. The inclusive special education theory derives from both the inclusive education and special education with an emphasis on research based strategies teachers follow to provide students with disabilities the adequate academic instruction which also involves the selection and implementation. To do so, Hornby (2015) suggested a few strategies such as using interventions, a working relationship between parents and teachers, and building a relationship with students.

On the basis of the academic placement, Rueda, Gallego, and Moll (2000) identified the least restrictive environment (LRE) and argued that a focus on the physical setting was not the most important factor, but rather the need to understand the nature of the interaction within the setting. Furthermore, the underlining idea is that the same setting or placement can be facilitating or restrictive, depending on the context of the setting. In other words, even though a student is in an inclusive setting, s/he may still be excluded and segregated within the classroom. Rueda, Gallego, and Moll (2000) suggested a minimum of three levels for a complete account of development and learning to occur: (1) personal plane, involving individual cognition, emotion, behavior, values, and beliefs; (2) interpersonal or social plane, including communication, role performances, dialogue, cooperation, conflict, assistance, and assessment; and (3) community or institutional plane, involving shared history, languages, rules, values, beliefs, and identities (p. 2).

These theories support the understanding of an inclusive setting. Additionally, they may be instrumental in distinguishing between inclusive and segregated classrooms or schools.

Purpose of the Study

The purpose of the study was to test the hypotheses that 5th grade students with disabilities receiving academic instruction in a segregated setting perform differently in reading,

science, and mathematics than do those receiving instruction in an inclusive setting. The following research questions guided the study:

1. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in reading?

2. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in science?

3. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in mathematics?

Operational Definitions

A segregated setting was defined as a type of instructional setting where educational services are provided to only students with disabilities. An inclusive setting was defined as in-class support provided in a general education classroom to students receiving special education services.

Academic achievement in fifth grade was measured by the STAAR. In the Reading STAAR, the reporting categories consisted of (1) Understanding/Analysis across genres, (2) Understanding/Analysis of literary texts, and (3) Understanding/Analysis of informational texts. For the Science STAAR, the reporting categories were (1) Matter and energy, (2) Force, motion, and energy, (3) Earth and space, (4) Organisms and environments. In the Mathematics STAAR, the reporting categories were (1) Numerical representations and relationships, (2) Computations and algebraic relationships, (3) Geometry and measurement, and (4) Data analysis and personal financial literacy.

Glossary of Terms

The following definitions are provided to assist the reader to better understand the terms and acronyms used throughout the study:

State of Texas Assessments of Academic Readiness (STAAR) is a series of state-mandated standardized test administered to Texas public school students in grades three through twelve and those enrolled in five specific high school courses. The annual assessment is based on the state's curriculum standards called Texas Essential Knowledge and Skills (TEKS) (Texas Education Agency, 2015c).

Texas Essential Knowledge and Skills (TEKS) are state educational standards for what students should be able to do and know from prekindergarten through high school; the content is used by Texas educators (Texas Education Agency, 2015c).

State of Texas Assessments of Academic Readiness Accommodated (STAAR A) is an accommodated version of the STAAR, which is offered as an online assessment in the same grades and subjects as STAAR's. The passing standards and content for STAAR A are the same as STAAR's. The STAAR A has embedded supports to help students with disabilities access the content being assessed (Texas Education Agency, 2015b). Embedded supports are provided in the STAAR A assessment. These embedded supports include visual aids, graphic organizers, clarifications of construct-irrelevant terms, and text-to-speech functionally (Texas Education Agency, 2015b).

Individuals with Disabilities Education Act (IDEA) is a law ensuring educational services to children with disabilities throughout the nation. It governs how the states and public agencies provide early intervention, special education, and related services to eligible infants, toddlers, children, and youth with disabilities (Texas Education Agency, 2015b).

Admission, review, and dismissal (ARD) committee (in Texas) is the committee which determines a child's eligibility for special education services and decides on most of the major decisions regarding a student's special education program. The term is compatible to the term used in federal law as an Individualized Education Program (IEP) team (Texas Education Agency, 2016).

Delimitations, Limitations, and Assumptions

The study was delimited to 1) 5th grade students, 2) the independent variable of academic placement for students with disabilities, and 3) the outcome measures of academic achievement in reading, science, and mathematics. The 5th grade was chosen because it is a student success initiative (SSI) grade. The SSI grade advancement requires students to pass the STAAR assessment or have a unanimous decision from the grade placement committee that the student is likely to perform at grade level after additional instruction (Texas Education Agency, 2017d). In choosing an SSI grade level, it is understood the goal of the SSI is to ensure all students receive the instruction and support needed in order to be successful in reading and mathematics. Due to the non-experimental nature of the study, no causal inferences were drawn. Due to the non-probability nature of the sampling technique, external validity was limited to the study's participants. It was assumed the existing data obtained from the Texas Education Agency were accurate and that the researcher remained objective throughout the course of the study.

Significance of the Study

There are still classrooms and schools which follow segregation-based practices on academics. The requirements of passing standards, accountability ratings, and the level of rigor have been changing, leaving schools under large amounts of pressure. School systems are held accountable for identifying how to provide interventions in order to meet the needs of students

with disabilities, along with the constraints of budgets in regards to support for each individual student. The significance of the study is that it may provide schools and educators with an opportunity to better understand how the academic setting can affect the students' learning and identify the academic placement which can positively impact academic achievement in reading, science, and mathematics. Students with disabilities, who are receiving special education services, are not only held accountable for the same academic standards within the academic setting, but are also held accountable for meeting state standards on the state assessments. The results of the study may also provide an understanding of what adjustments need to be made to be sure students with disabilities are receiving the best education possible.

Chapter II

REVIEW OF LITERATURE

Introduction

The review of literature examined the historical timeline of special education, instructional arrangements, the theoretical framework, academic achievement in reading, science, and mathematics, and state standards and achievement-based academic testing. In reviewing the literature, the EBSCO, Google Scholar, SAGE, ERIC, and the Mary and Jeff Bell Library at Texas A&M University-Corpus Christi were utilized to identify the relevant literature for the purpose of the study.

The first section describes the history and selected cases which lead the way for the evolution of special education. Our education system is based on the ideology of a free and appropriate education for all students. It is important to understand how education has changed and how it has helped enlighten many individuals' understanding of how those with disabilities are capable to learn and be productive members of society.

The second section focuses on instructional arrangements where students with disabilities receive instruction. Along with identifying how the educational placement for a student with disabilities is decided, and the multiple teaching approaches. Instructional practices are also discussed in regards to how they have evolved over time, along with the percentage of time a student with disabilities is provided academic instruction in a general education classroom.

The third section addresses the study's two different theoretical frameworks. Both the inclusive special education and the least restrictive environment are discussed on the basis of a student's academic placement and instruction. Understanding the context of the academic setting is helpful in providing different views of students' participation within the classroom.

The fourth section discusses the importance of academic achievement in reading, science, and mathematics, the study's outcome measures. The academic standards and importance of each subject matter is discussed as well as the importance of adequate preparation in these subject matters.

The final section of the literature review examines state standards and achievement-based academic testing. It is vital for educators to understand the foundation of standardized testing and how it has changed over the years, directly affecting students with disabilities since they too are required to test and attempt to meet academic achievement.

History

Historically students with disabilities have been underrepresented and treated unequally in the educational setting. Prior to the early 1970s, millions of children with disabilities in the United States were not receiving adequate and appropriate special education services within the public school system along with another one million children with disabilities completely excluded from school altogether (U.S. Department of Education, 1995). However, change was on the forefront, parents and advocates for students with disabilities turned to the courts in an attempt to force states to provide students with disabilities an equal educational opportunity (Yell, Rogers, & Rogers, 1998). The efforts were successful with two highly influential court cases which were decided in 1971 and 1972. The two cases were Pennsylvania Association for Retarded Children (PARC) v. Commonwealth and Mills v. Board of Education of District of Columbia (Kaufman & Kaufman, 2013).

Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania, was a civil rights case which was brought by PARC and parents of children who had been excluded from public education and training (PARC v. Commonwealth, 1972). The

plaintiffs argued the state was discounting its constitutional obligation by not providing a publicly supported education for these students (Yell, Rogers, & Rogers, 1998). In doing so, many students with disabilities were lacking proper educational instruction needed to be productive society members. Thus, this civil rights case helped evolve individuals' understandings of students with disabilities. Yell, Rogers, and Rogers (1998) identified four points in regards to the case: (1) all children with disabilities are capable from benefiting from an education; (2) education cannot be defined only as an academic experience; (3) the state could not deny students with disabilities educational services considering the state had undertaken to provide all children a free public education; and (4) previous students with disabilities had been provided educational services. Resolution specified that all children with mental retardation, ranging from the ages of six and twenty-one, must receive a free public education and provided an educational program most like one which is provided to their nondisabled peers (Zettel & Ballard, 1982). The court's rulings not only brought light to students with disabilities capabilities, but also to the importance as to why they should receive an educational program similar to their nondisabled peers. Although advancements were being made for students with disabilities, the resistance to implement court rulings was still affecting students' academic opportunities.

The second highly influential case was Mills v. Board of Education of District of Columbia, 348 F. Supp. 866 (D.C. 1972). The class action suit was based on the Fourteenth Amendment that students were improperly excluded from schools without due process (Zettel & Ballard, 1982). It was filed on behalf of seven students who had been identified as having disabilities and excluded from school or denied education services that could have addressed the needs for their disabilities (Mead, 2015). The students were certified as a class which

represented a variety of disabilities, namely, hyperactivity, behavioral problems, epilepsy, mental retardation, and physical impairments (Yell, Rogers, & Rogers, 1998). Since the students were certified as a class, they represented 18,000 other students who were excluded or denied public education (Yell, Rogers, & Rogers, 1998). It is important to understand the vast amount of students with disabilities whom were directly affected regarding the decisions being made because without educational support these individuals would then have to rely on other areas of means in hopes of receiving some form of academics and skills training needed for future endeavors. The outcome of the court's ruling provided another advancement in education for students with disabilities. The court ordered the school district to provide a free and appropriate education, regardless of the degree of the child's mental, emotional, physical disability, or impairment, along with individualized educational plans and the due process protections (Kaufman & Kaufman, 2013). The procedural safe guards, which became the framework for the due process of Education for All Handicapped Children Act (EAHCA), passed in 1975, consists of the right to a hearing with representation, impartial hearing officer, appeal, access to records, and written notice to all stages of the process (Yell, Rogers, & Rogers, 1998). Three major federal statutes were passed by Congress following these two lawsuits: the Rehabilitation Act of 1973 (RHA), in Section 504, the Individuals with Disabilities Education Act (IDEA), and the Americans with Disabilities Act of 1990 (ADA).

The Rehabilitation Act of 1973 (RHA), in Section 504, protects individuals who have a qualifying mental or physical impairment from discrimination under any program or activity receiving Federal financial assistance (Kaufman & Kaufman, 2013). In the Rehabilitation Act of 1973, Section 504, it is stated that "No otherwise qualified individual with a disability in the United States…shall, solely by reason of his or her disability, be excluded from the participation

in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance" (Dobson, 2013, p. 2).

The Section 504 was designed to help protect civil rights, prevent discrimination, and provide students with disabilities the same opportunities as nondisabled peers, regardless of the activity (Smith, 2001). Smith (2001) dissected the entire process of 504 by examining the correlation between the ADA and the IDEA. The definition of a disability under 504 is considered to be vague and open to interpretation. Smith (2001) claimed since the definition of a disability in Section 504 differed from the Individuals with Disabilities Education Act (IDEA), many students who were considered ineligible for services could now be protected. Understanding the requirements for a student to qualify for 504 is important to understand due to the fact not all students will be eligible to receive special education services, but still may need some form of educational support. If this were to occur, then the student could now have the opportunity to still receive adequate services under 504 based on the qualifying term of a disability.

The Americans with Disabilities Act of 1990 (ADA) is another important federal statute, because it goes beyond the schools and covers individuals with disabilities from being excluded or denied participation for all public entities as opposed to the IDEA which only applies to schools (Kaufman & Kaufman, 2013). In this instance, a person is considered to have a disability if s/he has one of the following: (1) a physical or mental impairment that significantly limits one or more major life activities; (2) a record of such impairment; and (3) is regarded as having such impairment (Smith, 2001). A primary goal of the ADA was to improve educational opportunities for individuals with disabilities. "Congress created statutory duties to provide: (1) reasonable accommodation in educational programs and facilities, (2) a free, appropriate

education, (3) special education and related services, (4) the least restrictive educational environment, (5) alternative appropriate placements, and (6) procedural protections which, among other things, permit such students to "stay put" in their placements pending any review of those placements" (Kaufman & Kaufman, 2013, p. 3). Although, these mandates are set as requirements, school districts still find it difficult to provide adequate resources and support in attempting to meet the needs of the students with disabilities (Kaufman & Kaufman, 2013).

The progression of educating students with disabilities continued to cultivate the need for change and in 1990 the Education for All Handicapped Children Act (EAHCA), passed in 1975, was renamed The Individuals with Disabilities Education Act (IDEA). The IDEA has been reauthorized and amended multiple times since then. Tavakolian and Howell (2012) identified two main components of the statute: (1) due process provisions; and (2) a permanent grant program providing federal funding to states. There are six major principals of the IDEA which focus on the responsibilities of public schools to students with disabilities and the students' rights. The six major principals are (1) A Free Appropriate Public Education for every student with disabilities; (2) Appropriate evaluations by schools for students who are suspected of having a disability; (3) Individualized education plan ensures every student has access to a free appropriate public education (FAPE); (4) Least restrictive environment (LRE) possible is guaranteed; (5) Parent participation must be ensured by state educational agencies and local boards by having equal participation in collaborating together in the process of development and delivery of the student's placement; and (6) Procedural safeguards which protect parental access and procedures to resolve disagreements (Saleh, 2015).

Each child, if deemed eligible, must receive special education services which are specifically designed for instruction. As indicted in the IDEA (2004) the following eligibility

requirements are identified as a disability, 'child with a disability' means a child—''(i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as 'emotional disturbance'), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and ''(ii) who, by reason thereof, needs special education and related services" (p. 6). Since students should receive special education services which are specifically designed for instruction, it is important for parents to understand all specifically designed instruction must be at no cost to the parents and must meet the needs of each individual child (Kaufman & Kaufman, 2013). An additional change covered by the IDEA demonstrates how the perception of students with disabilities has evolved over time, changing the term of handicapped student to emphasize the person first, child/student/individual with a disability. Additionally, students with autism and traumatic brain injury were identified as a separate classification category, and a transitional plan must be included by the age of 16 to any student with disabilities (Yell, Rogers, & Rogers, 1998). These advances in education have promoted student success for students with disabilities and continue to provide beneficial needed supports.

Instructional Arrangements

For the purpose of this study, two academic setting were identified to assess the link between academic placement and academic achievement in reading, science, and mathematics. The two settings were an inclusive setting and a segregated setting.

Where a student with disabilities receives their academic instruction determines the type of instruction they may receive from time to time. For instance, if a student receives all his/her academic instruction in a general education classroom, then there is a higher tendency for the

instruction to be provided by a co-teaching model and if the student receives instruction in a segregated setting, then the form of instruction could vary from whole or small group instruction. A student's instructional arrangement is determined by the admission, review, and dismissal (ARD) committee. The term is compatible to the term used in federal law as an Individualized Education Program (IEP) team (Texas Education Agency, 2016).

The instructional arrangement is labeled using specific codes which indicate the amount of time a student receives special education services in either a general education or special education setting. The instructional arrangement code identified for the inclusive setting is 40; indicating 0% of the academic school day is spent in a special education setting receiving direct instruction from a special education teacher. This means all academic instruction is provided in a general education setting with a special education teacher within the classroom providing students with disabilities academic support. The instructional arrangement code identified for a segregated setting is 42; indicating at least 21% and less than 50% of the academic school day is spent in a special education setting receiving direct instruction from a special education teacher. In the geographical area of the study, the segregated setting was also known as "resource". The term resource is referred to students with disabilities being removed from the general education setting to receive instruction in a special education setting (Obiakor, 2011).

With respect to placement, as previously discussed, one of the major six principals of the IDEA is that the least restrictive environment possible is guaranteed. Each public agency must ensure that to the maximum appropriate extent, children with disabilities, including those in public or private institutions or other care facilities, are educated with children who are nondisabled [§300.114(a)(2)(i)]; and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment, occurs only if the nature or

severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily [§300.114(a)(2)(ii)] (IDEA, 2004, Section §300.114). Chiba and Semmel (1997) described the least restrictive alternative as the most appropriate match when considering the characteristics of the student and the nature of the educational environment. In comparison an inclusive setting would be considered a less restrictive environment as opposed to a segregated setting in regards to where students with disabilities would receive academic instruction.

As governments strive to create a more inclusive society, an inclusive academic setting for students with disabilities has become a priority (Tkachyk, 2013). Lindsay (2003) identified inclusion as a complex concept with an open interpretation of what it should entail and how it should be implemented. Tkachyk (2013) defined an inclusive classroom as a non-separate classroom without pulling out students with disabilities. Zigmond (2003) identified the general education classroom as an opportunity for students with disabilities to have access to instruction from a general education teacher, content taught by subject matter specialists, and interact with nondisabled peers.

A successful and functional inclusive classroom requires more than just the required certified personnel for instructional purposes. It must incorporate multiple other factors to create the ideal inclusive classroom. Lee, Yeung, Tracey, and Barker (2015) found the impact teachers' attitude can have on learning in an inclusive classroom to be significant. Dev and Haynes (2015) indicated educator's self-efficacy most likely influenced their attitudes and assisted in preparing them to work in an inclusive setting. If teachers have a negative attitude towards an inclusive setting, then it is likely the inclusive educational setting will be unsuccessful (Engelbrecht, Oswald, Swart, & Eloff, 2003). Educators at times can have negative attitudes due to their

reservations of identifying an inclusive classroom as the least restrictive environment, specifically, when the educator feels students' disabilities require a restrictive classroom setting (Dev & Haynes, 2015). According to Zigmond (2003), when students with disabilities are provided full-time instruction in a general education classroom, results can be as good as the ones generated by a separate setting in an elementary school. Rea, McLaughlin, and Walther-Thomas (2002) conducted a study in a fully inclusive school that included pull-out times for specific academic instruction and found students in the inclusive school earned higher grades, attended more school days, achieved higher scores on standardized testing, and diminished behavioral infractions than did the comparison groups. Henninger and Gupta (2014) noted there are multiple opportunities in an inclusive classroom for students with disabilities to engage in activities that challenge academic performance, which provides students the opportunity to gain confidence, achieve more, develop a stronger sense of self, and gain independence. In regards to an inclusive setting, Henninger and Gupta (2014) showed that it positively affects students without disabilities because when students with disabilities are exposed to an inclusive setting consistently, they then become more likely to accept students with disabilities.

Zigmond (2003) noted a segregated setting could possibly be most appropriate if the student needs to learn things which are normally not taught to all other students; for example, intensive instruction beyond the academic grade level their nondisabled peers are taught, and any explicit instruction to manage behaviors. The segregated setting can pose to be difficult to provide students individualized instruction with so many students requiring additional classroom support. However, there are still some identified benefits of a segregated classroom such as students working at the same pace, the special education teacher teaching the class as a whole group to use manipulative and supplemental aids, small group instruction in the classroom, and

allowing the teacher to do more hands-on activities with the students (Fattig & Tormey-Taylor, 2008). According to Holloway (2001), progress in a combined setting, where students with disabilities receive instruction in a pull-out program which consists of students receiving partial instruction outside of the general education classroom and an inclusive classroom is better compared to an academic setting where students with disabilities remain in the general educational setting at all times. Waldron and McLeskey (1998) reported students with a severe learning disability made more progress in reading and mathematics by having instruction provided in a pull-out service as opposed to students with mild learning disabilities in an inclusive setting. Instruction being provided within an academic setting can vary from whole group, small group, one on one instruction, collaborative teaching, peer review, and other forms of instruction, but one instructional method known as co-teaching has continued to become more present within inclusive academic settings.

At the time of conducting the study, the study's urban school district was implementing the co-teaching model and had given individual campuses the flexibility to make appropriate adjustment to promote student achievement. Co-Teaching in the U.S. schools can be traced back to the 1960s when it was popularized as an example of progressive education. In the 1970s, co-teaching was advanced by legislated school reforms and the need to modify instruction for a more diverse student population. By the 1990s, studies of the effectiveness of school-based collaborative activates, with co-teaching as one model, appeared in the research and practice literature (Espinor, 2009). Co-teaching was developed in response to parental complaints that their children were being taught, too often and for too long, by inexperienced teacher candidates and not enough by experienced teachers. After incorporating co-teaching in the classroom, parents began to request that their children must be placed in classes that used the co-teaching

model rather than the traditional model. Results showed decreased referrals in intensive special education services, increased overall student achievement, fewer disruptive problems, and decreased referrals for behavior problems (Espinor, 2009).

As a result of federal legislation and related policy changes, co-teaching has evolved rapidly as a strategy for ensuring that legislative expectations can be met while, simultaneously, students with disabilities can have access to the same curriculum as do other students while receiving the specifically-designed instruction and other support services to which they are entitled. There are researchers who believe that co-teaching is of great benefit to students with disabilities because it makes it possible for them to have access to the general curriculum while benefiting from specialized instructional strategies (Gurgur & Uzuner, 2010). In co-teaching, students are able to receive instruction from both general education and special education certified teachers. Theoretically, co-teaching draws on the strengths of both the general educator, who understands the structure, content, and pacing of the general education curriculum, and the special educator, who identifies unique learning needs of individual students and enhances curriculum and instruction to match (Kloo & Zigmond, 2008). Being able to draw on the strengths of both educators can provide an abundance of knowledge, but if adequate support and planning time is not provided it can lead to the classroom instruction and environment being unbalanced between the two educators. Shin, Lee, and McKenna (2016) identified co-planning and communication between the two educators as an essential element, but yet it was identified as another main challenge when implementing the co-teaching model.

Benefits of co-teaching are positive role-models (cooperation between students and teachers), improved self-esteem and social skills in students, increased attention and learning options for the students, increased time for individualized attention for both high and low

achieving students, increased supervision of low achieving students and increased teacher/student time, student conferences, one-on-one teaching, re-teaching, and enrichment activities (Fattig & Tormey-Taylor, 2008; Kloo & Zigmond, 2008; Chapman, 2011). However, even though there are multiple benefits to implementing the co-teaching model there must first be adequate steps taken to ensure a successful implantation. Initially when deciding whom to pair as team teachers it is important consider their overall personality and how the two educators would work on a collaborative level. Shin, Lee, and McKenna (2016) identified preservice educators indicated a critical role in their co-teaching experience is the effect personality plays on it and found it to be challenging if the two educators had different perspectives and styles. When educators begin to form teacher partnerships they should discuss their academic practices/strategies and how they handle conflict (Conderman, & Hedin, 2012). In doing so, this provides the educators the opportunity to have a better understanding of one another and begin to build relationships.

Theoretical Framework

Through the identification of the two different instructional arrangements, it is important to relate the impact which is linked to the study's theoretical framework, inclusive special education and least restrictive environment.

Hornby (2015) identified the theory of inclusive special education and noted children with special educational needs and disabilities (SEND) should be taught by utilizing the best teaching strategies and evidence-based practices that can be used in mainstream schools. Educators have reported they understand the importance of evidence-based practices and how it can improve student success, but still lack a sense of awareness of specific practices (Guckert, Mastropieri, & Scruggs, 2016). The inclusive special education theory derives from both the

inclusive education and special education with an emphasis on research-based strategies teachers must follow to provide students with SEND the adequate academic instruction that also involves the selection and implementation.

All individuals have their own strengths and weaknesses, but education binds us together and promotes knowledge and skills which will allow individuals make use of their own abilities and identify their talents (Buli-Holmberg & Jeyaprathaban, 2016). To do so, Hornby (2015) suggested a few strategies, such as, using interventions, a working relationship between parents and teachers, and building a relationship with students. When developing a plan, such as interventions, the educator should ensure the curriculum suits not only students with SEND, but also all diverse learners (Buli-Holmberg & Jeyaprathaban, 2016). Meaning lessons should be created to meet the academic needs of all types of learners regardless of disability.

In providing the academic instruction, the priority for students with SEND must be that the instruction is appropriate for them, not the students with SEND trying to fit to the specified instruction (Farrell, 2010). In reviewing Hornby's (2015) recommendations, it is important to consider what levels of supervision would be required to ensure high quality instruction.

Previous research has shown that special education teachers providing instruction in a segregated setting have less supervision from administration, but rather from a special education director (Coladarci & Breton, 1997). Coladarci and Breton (1997) reported that 45% of special education educators in a segregated setting were receiving adequate supervision and 13% did not have any informal observations. Hornby (2015) noted many educators have a lack of confidence to teach students with SEND because of the lack of training and inadequate resources for support. Hornby (2015) suggested that with additional support from other educators and an

adequate amount of training, the outcome can be educators who are confident and have a greater depth of knowledge to teach students with SEND.

On the basis of the academic placement, Rueda, Gallego, and Moll (2000) identified the least restrictive environment (LRE) and argued that a focus on the physical setting is not the most important factor. Furthermore, the underlining idea is that the same setting or placement can be either facilitative or restrictive, depending on the context of the setting. In other words, even though a student is in an inclusive setting, s/he may still be excluded and segregated in the classroom. Thus, it is important to provide adequate training for an inclusive implementation.

Carson (2014) suggested two different integration strategies. It can be either the integration of students with disabilities into the educational settings with their nondisabled peers or the form of participation by students with disabilities in activities with nondisabled peers (Carson, 2014).

Special education guarantees an avenue for students with disabilities to receive specially designed instruction which in return can maximize their highest potential, but would require collaboration and consultation of all stakeholders (Obiakor, 2011). Research by Taylor (2004) consisted of a critical analysis of the LRE principle and claimed the continuum model leads to creation. The LRE received prevalent support within the field of education. However, the actual meaning of the principal remains imprecise and lacks specificity which provides the opportunity for educators to define the LRE differently (Taylor 2004).

Based on the research by Zigmond (2003), attempts to provide the same type of instruction within a general education classroom have not been as successful due to the focus being on the group as a whole and not the individual student. Since the focus is on the group as a whole, it can lead to students showing little engagement in their education and having less

amount of positive experience within the classroom as opposed to other students (Wagner et al., 2003). Wagner et al. (2003) described the lack of engagement can be due to repeated embarrassment or failure because the student may struggle to meet academic or behavioral expectations within the classroom. This form of instruction can lead to educators having lower expectations for students with disabilities and lessen the participation in classroom activities which may be motivating yet challenging at the same time regarding classroom academics (Goodenow 1992; Groossman, 2002).

Academic Achievement in Reading, Science, and Mathematics

Due to the NCLB, academic achievement in various subject matters has been receiving attention among educators. This study focused on reading, science, and mathematics because 5th graders are tested in these subject matters.

A study conducted by Wagner et al. (2003) reported students with disabilities, based on academic grade level and grade-level equivalency score, on average were 3.60 years below their expected grade level expectations in reading and mathematics. It is imperative that in each grade level, the specified TEKS are taught. Through the required TEKS, grade level standards vertically align so as students' progress through the years the skills they have learned will build on each other to prepare students for life after graduation.

Americans continue to recognize literacy as an essential requirement and continue to have a concern for students in schools and adults improving their literacy levels (U.S. Department of Education, 1996). According to the U.S. Department of Education (1996), there has been more emphasis placed on regularly measuring the reading skills of students as opposed to adults. Since 1969, data tracking of students reading performance has been periodically done

by the National Assessment of Educational Program (NAEP) in order to monitor student mastery.

Based on the reading data collected in 2015, compared to the previous data in 2011, students' average scores were not significantly different in all areas except for students with disabilities and those who were eligible for the National School Lunch Program, for whom it was found that the reading scores were higher than before in fourth grade and lower than before in eighth grade (The Nation's Report Card, 2017).

From the information provided, it is apparent student literacy continues to be a high concern and the emphasis on the mastery of knowledge and skill requirements along with instructional strategies are top priorities in closing the gaps. Reading is important because researchers have recognized the adverse effects if students do not master reading by the end of third grade. Hernandez (2011) indicated students who do tend to fail this critical milestone exhibit slower progress in later grades and tend to drop out from high school.

Based on a longitudinal study, students who do not read at a proficient level by third grade are four times more likely to stop attending school prior to earning their high school diploma (Hernandez, 2011). With the alarming findings through research, educators now have the information needed to assist in improving reading skills. However, although there is a significant amount of emphasis on reading, it can still be difficult to reach all students. For instance, Melekoğlu and Wilkerson (2013) noted that the lack of reading motivation hinders students' willingness to improve reading skills, and that students with disabilities have a decline in motivation to read as opposed to their nondisabled peers because they struggle with reading and performing below grade level in reading.

Thus, it is important for students to develop reading skills needed for the reading process. Students should be able to have automatic word recognition because then they can become more fluent readers (Rasinski, Rupley, Pagie & Nichols, 2016). Understanding the importance of word recognition can provide an understanding of the process educators need in order to promote all students becoming successful readers. Xi and Wise (2015) found that struggling readers need to learn phonological and phonemic awareness. However, Rasinski, Rupley, Pagie and Nichols (2016) recognized even if teachers provide phonics instruction to struggling readers and they learn how to decode, they can still fail to reach the level of reading fluency required for their grade level.

In order to derive meaning from the text, a variety of other information is needed; for example, background knowledge, vocabulary meaning knowledge, and cognitive strategies to be able to question, summarize, and monitor one's own understanding of the text (Caccamise & Snyder, 2005). Considering one of the most powerful sources of learning is reading, understanding the importance of reading and the impact it has on students regarding academics is vital for educators to know. Reading is linked to all other subject matters in academics because students must read the text over the specified subjects during the learning process.

Akbasli, Sahin, and Yaykiran (2016) concluded that reading comprehension contributes to students learning in science and mathematics. Research has shown that students who have an in-depth knowledge of understanding on what they are reading demonstrate significant amounts of achievement in science and mathematics courses (Akbasli, Sahin, & Yaykiran, 2016).

Within the last decade, science and mathematics courses have become a focus in the education system with critical thinking and problem-solving skills being vital for both subjects (Akbasli, Sahin, & Yaykiran, 2016). Clark (1996) addressed the importance of adequate

preparation in these subjects in an attempt to provide students with the opportunity to participate as informed citizens within a technological society. Akbasli, Sahin, and Yaykiran (2016) stressed the importance for educators to maximize student classroom experiences which not only challenge them intellectually, but also prepare them to be lifelong learners. In doing so, regardless of the student's academic capability, this instruction can be instrumental in providing knowledge for future employment.

Since new developments in science, there has been an increase in the need for individuals with an understanding of Science, Technology, Engineering, and Mathematics (STEM) disciplines (Yildirim, 2016). President's Council of Advisors on Science and Technology (2010) identified STEM education as the determining factor whether the United States would remain a leader among nations and the survival of immense challenges within the areas of energy, health, national security, and environmental protection along with ensuring our society would be able to continue making fundamental discoveries. Not only will STEM education generates the future technologists, scientists, engineers, and mathematicians, but also prepares all citizens to be able to make informed decisions in a technological world (President's Council of Advisors on Science and Technology, 2010).

Kennedy and Odell (2014) indicated the STEM education removes the traditional barriers among science, technology, engineering, and mathematics, and focuses on innovation and the applied processes in order to design a solution. Yildirim and Selvi (2015) noted current education systems fall short in adequately preparing students to have sufficient knowledge in these areas and concluded many countries are trying to improve the quality of instruction provided in STEM education. Research by Yildirim and Altun (2015) identified students who

received the STEM education had better learning and academic success as opposed to students who did not.

The pressure of keeping up with the global economy continues, leading to employers to actively seek out employees who can assist in improving their processes, services, and products by using problem-solving skills and critical thinking (Wagner, 2008). Wagner (2008) conducted interviews with multiple business leaders. Through those interviews, seven specific skills, which are imperative for students to develop at an expertise level to help ensure readiness for employment in the twenty first century, were identified. These seven skills are (1) critical thinking and problem-solving, (2) the capability to collaborate across networks and leading by influence, (3) the ability to adapt to new situations and have agility, (4) being able to take the initiative and entrepreneurialism, (5) having effective oral and written communication, (6) having the capability to assess and analyze information, and (7) having curiosity and imagination (Wagner, 2008)

According to Sümen and Çalisici (2016) and Pitt (2009), the STEM education contributes to the development of 21st century skills that are needed to emphasize technological development and encourage students to study science and mathematics. However, compared to other nations in regards to the STEM education, the United States lags behind at the elementary and secondary levels which can limit future participation in well-paid, continuously growing professions and could eventually deprive the nation from the full benefit of their perspectives and talents (President's Council of Advisors on Science and Technology, 2010).

The importance of reading, science, and mathematics draws on the understanding of the critical factors which are needed to fully understand how these subject matters affect not only students independently, but also the nation. Identifying background concepts and ideas also

provide educators with a better understanding of the importance of the roles these subject matters play in the educational system.

Behind State Testing

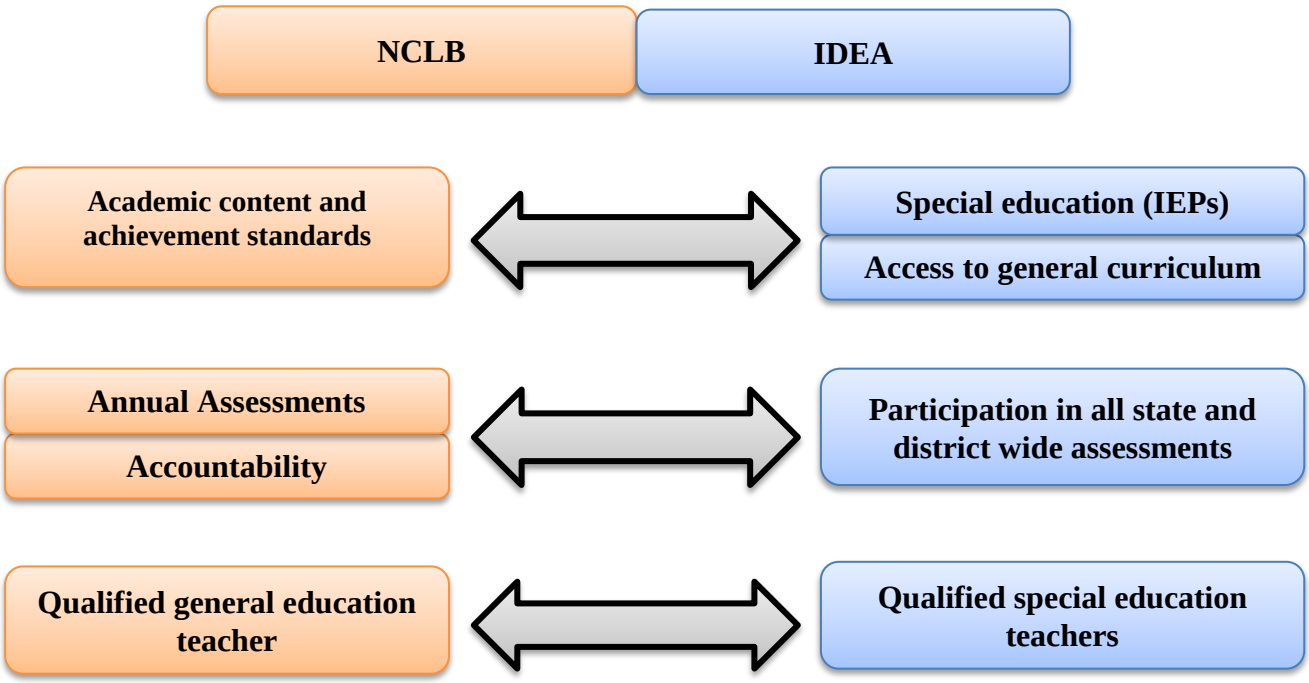
The 1997 IDEA amendments, signed by President Clinton on June 4th 1997, had a new focus on students with disabilities in regards to the improvement of their educational opportunities. Specifically, it focused on (1) identification of children with disabilities; (2) the development of an individualized education plan (IEPs); (3) educating children with disabilities with nondisabled peers; (4) setting higher expectations for students with disabilities; (5) encouraging collaboration between parents and teachers while strengthening the role of parents regarding their children's education; and (6) reducing excessive paperwork (Tavakolian & Howell, 2012). Zigmond (2003) noted the changes also require accessing the general education curriculum along with the requirements to participate in statewide assessments and accountability procedures. Tomlinson (2015) identified governments are concerned that students with disabilities cannot perform at the required higher levels and that IDEA had been canceled out by the NCLB Act of 2001 (Tavakolian & Howell, 2012).

The NCLB Act of 2001 was signed by President Bush in January of 2002 and expanded federal influences over the nation's public schools (Dee & Jacob, 2011). In reviewing the NCLB and the IDEA, Cortiella (2006) described the NCLB as having not only an emphasis on students who are from low-income families but also seeking to improve the overall education of all students. As opposed to the IDEA which focuses on individuals and how they can benefit from education by ensuring specialized services that are provided for students with disabilities (Cortiella, 2006). The NCLB Act has been leading the way for a more rigorous academic setting and through educational transitions states are working to find a balance with meeting

requirements and implementation. The NCLB Act and the IDEA provisions and requirements together provide the opportunity for individualized instruction for students with disabilities as well as school accountability. The overall progress and performance of students with disabilities is a shared responsibility between the general education teacher and the special education teacher (Cortiella, 2006). Figure two demonstrates how the NCLB Act and the IDEA complement each other in improving the overall academic performance of students with disabilities.

Figure 2

The NCLB and IDEA



(Cortiella, 2006)

Yell, Shriner, and Katsiyannis (2006) indicated the primary goal of the IDEIA was to improve the outcomes for students with disabilities by emphasizing requirements of the special education process; altering eligibility requirements and aligning the IDEA with the NCLB's

provisions which include evidence-based practices, ensuring students are educated by highly qualified personnel, and adequate yearly progress (AYP).

Per the Department of Education and Congress, schools have a tendency to rely on practices and programs which are not research-based and have yet to be proven to work (Yell & Drasgow, 2005). Educators need to remember the importance of practicing research-based strategies within the classroom setting not only because the term is clearly defined in the NCLB, but also due to the impact it can make on a student.

Peer-reviewed research has been defined as research which uses a systematic and rigorous process to examine and validate instructional strategies, using objective methods of science (Yell, Shriner, & Katsiyannis, 2006). This type of research relies on four elements: (1) valid data through direct observations and objective measures; (2) the use of rigorous data analysis; (3) examining, controlling, or assessing factors to eliminate alternative explanations; and (4) publishing in peer-reviewed journals (Yell, Shriner, & Katsiyannis, 2006). With these requirements, the recommendations have now moved from the basis of good practice to a law requirement. It is anticipated that the implementations will lead towards programs being more effective for students' receiving special education services.

In order to be considered a highly qualified special education teacher, the following three requirements must be met: (1) at a minimum, holding a bachelor's degree from a college or university, (2) demonstrating subject-matter competence by passing a state-approved test, and (3) obtaining a full state teacher certification to teach special education by passing a state's special education licensing requirements (Yell, Shriner, & Katsiyannis, 2006). In an educational setting, there is also occasional assistance from a paraprofessional in providing services to students with disabilities. Since this does occur, the NCLB includes standards for paraprofessionals who work

in special education programs. The teacher is required to plan all the instruction and must evaluate the achievement of the students who the paraprofessionals work with. The paraprofessionals can assist teachers with classroom management, computer instruction, translation services, one-to-one tutoring, parental involvement activities, and instructional support within the academic setting under the direct supervision of a highly qualified teacher (Yell, Shriner, & Katsiyannis, 2006).

Accountability systems are required by the NCLB and must include (1) annual testing of public school students in reading and mathematics in grades three through eight and (2) ratings of school performance (overall and key subgroups) if they are making AYP toward their state's proficiency goals (Dee & Jacob, 2011, p. 3). Statewide assessment systems are required by the NCLB and must be aligned to state standards.

Dee and Jacob (2011) defined the legislation requiring states conducting an annual student assessment on the basis of approved standards. These state standards are known as the Texas Essential Knowledge and Skills (TEKS) for public schools from kindergarten to year 12. The TEKS are detailed instructions of the required curriculum for every course taught in the public educational setting. The State Board of Education (SBOE) adopts the TEKS for each subject of the required curriculum. The members are nominated educators, parents, and business and industry representatives (Texas Education Agency, 2015c). Schools would receive rewards if they did make adequate yearly progress (AYP) (Dee & Jacob, 2011). The purpose of the assessment is to measure how students are progressing toward meeting expectations of the required academic standards. Through greater accountability, this legislation aimed at closing the achievement gaps between groups of students, directly affecting every school district and charter school in the state (Texas Education Agency, 2015a). Every year, the percentage of

students who score at the proficient level should continue to increase until the overall goal of having student performance to be 100 percent at least at the proficient level based on the annual test (Tavakolian & Howell, 2012).

As changes progress through legislation for a stronger academic support system, academic testing has increased along with the pressure of passing scores. Trohanis (2008) suggested that the opportunity for students with disabilities to participate in everyday community activities with their peers requires an increase in multiple variables such as training highly qualified personnel, applying innovated strategies to academic practices to reach all learners, and providing adequate support for students with disabilities. Educators are searching for the best option to assist students in reaching their potential academic achievement. As the 21st century learners become more apparent, teaching styles must be changing to keep up with the advances in education.

Summary

The review of the literature was done to support the study's proposed hypotheses. Through the literature review, the importance of the least restrictive environment for students with disabilities was documented. The goal is to have every student with disabilities be provided instruction in the least restrictive environment possible. To do so, educators must be able to provide the adequate support within the any academic setting. It is expected for all stakeholders to collaboratively work together in order to meet all expected academic requirements regarding academic standards, testing accountability, and adequate instructional support.

Zettell (1977) advocated that with proper educational services, students with disabilities would have the opportunity to become productive citizens who can contribute to the society. As education progresses towards 21st century learning, it is important to teach students more than

just memorizing terms and facts. They must be provided with experiential learning activities so that they may analyze, synthesize, and evaluate the information and become problem-solvers. Through standardized testing, the measurement of progress on student success was supposed to be the overall goal, but has now turned into an expectation guide for students to meet, which may leave out critical learning skills. Identifying the setting students with disabilities are most successful is the first step to creating a learning environment conducive to meeting all learners' needs and adequately providing an impactful education which could lead towards closing the gaps in education.

CHAPTER III

METHOD

Introduction

The primary purpose of the study was to test the hypotheses that 5th grade students with disabilities receiving academic instruction in a segregated setting perform differently than do those receiving instruction in an inclusive setting on the basis of academic achievement in reading, mathematics, and science. This chapter describes the research method, including the design, subject selection, instrumentation, data collection, and data analysis.

Research Design

The study utilized an ex post facto, casual-comparative research design. Focusing on examining the relationship between the independent and dependent variables are suggested. This type of study does not involve the manipulation of the independent variable; it is done to identify potential cause-effect relationships by forming groups of individuals in whom the independent variable is present or absent, followed by comparing the groups on the basis of one or more dependent variables (Gall, Gall, & Borg, 2007).

In this study, the independent variable was the educational placement with two levels. The segregated level was identified by only the students with disabilities. The comparison level consisted of students with disabilities in the general education setting. The outcome measures were academic achievement in reading, science, and mathematics.

Subject Selection

The subjects for the study were recruited from an urban school district in South Texas. At the beginning of the 2014-2015 school year, when the study began, the school district served 39,414 students and employed 2,902 certified teachers. Of the 2,902 certified teachers, 63.50%

had bachelor's degrees, 35.40% had master's degrees and 1.10% had doctoral degrees; 268 (9.23%) were special education teachers. Student enrollment numbers were 19,860 at the elementary level, 9,026 at the middle school level, and 10,528 at the high school level. The distribution of the ethnicity was 79.40% Hispanic, 13.80% White, 4.00% African American, and 2.80% other. There were 38,675 students who took the STAAR test, of which, 2,920 (7.55%) were 5th graders and 3,469 (8.97%) were students in special education.

For the purpose of the study, the characteristic-present group consisted of a non-probability sample of 20 5th grade students with an instructional arrangement code of 42. The comparison group consisted of 50 5th grade students with an instructional arrangement code of 40. At the time of conducting the study, instructional arrangement codes were based on the amount of time students received special education services in either an inclusive or segregated setting. According to the instructional arrangement code of 42, services were directly provided by special education teachers in special education settings for at least 21.00% and less than 50.00% of the academic school day. The instructional arrangement code of 40 signified that all academic instruction was provided in a general education setting. The study was delimited to 5th graders because it is generally considered a Student Success Initiative (SSI) grade at which students are transitioning from the elementary into the middle school level. The SSI is a requirement for grade advancement for students enrolled in grades five and eight, taking the reading and mathematics achievement tests (Texas Education Agency, 2017d). Permission to conduct the study was obtained from the Institutional Review Board (IRB) at Texas A&M University-Corpus Christi (Appendix A).

Instrumentation

In the year 2012, the State of Texas Assessments of Academic Readiness (STAAR) was implemented to measure academic achievement as an annual assessment for students from the third grade to the end-of-course assessments in high school. Along with the change to the STAAR, the modified version was changed as well. The STAAR Accommodated (STAAR A) replaced the modified version of STAAR, which created to raise the standards of testing geared towards special education. The scale score for the STAAR A mirrors the scale score set for the STAAR (Texas Education Agency, 2015b).

The psychometric properties of each individual item with respect to the other on-grade-level items are included in the vertical scale item-selection guidelines. Each item selected met the criteria of the classical test and item response theories. The following psychometric criteria were reported: item difficulties ranging from 0.20 to 0.90; Point-Biserial correlation coefficients greater than or equal to 0.20; and Rash item fits between 0.80 and 1.20 (Texas Education Agency, 2013). External validity studies were conducted by the Student Assessment Division, which manages and oversees the development, administration, scoring, and analysis of the Texas assessment program, namely, STAAR, STAAR-A, STAAR L, STAAR Alternate 2, STAAR Modified, TELPAS, and TASK (Texas Education Agency, 2013).

For the purpose of the study, the 2014-2015 STAAR scores in reading, science, and mathematics for 5^{th} grade students were used. The proportion of correct answers to the total number of items in each STAAR Reporting Category was used as outcome measures.

Achievement in 5^{th} grade STAAR reading was measured by three Reporting Categories and a total of 46 items. Reporting Category one focused on understanding/analysis across genres with 10 items. Reporting Category two focused on understanding/analysis of literary texts with

19 items. Reporting category three focused on understanding/Analysis of informational texts with 17 items.

Achievement in 5th grade STAAR science was measured by four Reporting Categories and a total of 44 items. Reporting Category one measured matter and energy with eight items. Reporting Category two measured force, motion, and energy with 10 items. Reporting category three measured earth and space with 12 items. Reporting category four measured organisms and environments with 14 items.

Achievement in 5th grade STAAR mathematics was measured by four Reporting Categories and a total of 50 items. Reporting Category one assessed numerical representations and relationships with eight items. Reporting Category two assessed computations and algebraic relationships with 24 items. Reporting Category three assessed geometry and measurement with 12 items. Reporting category four assessed data analysis and personal financial literacy with six items.

Data Collection

The raw STAAR A data on reading, science, and mathematics were obtained from the Texas Education Agency's Student Assessment Division along with the demographic data on gender, ethnicity, socio-economic status, and the student's instructional arrangement. Permission to use the data for the purpose of the study was obtained (Appendix B).

Data Analysis

The raw data were desegregated to identify the special education students who had been coded as either 40 or 42. The raw data were exported into the Statistical Package for the Social Sciences (SPSS), which was used for the purpose of data manipulation and analysis. The level

of significance was set, a priori, at 0.05. Descriptive statistics were used to organize and summarize the data.

A series of Fisher's Exact Probability test was performed to compare the two groups on the basis of gender and socio-economic status. It was used because in the two by two contingency tables, there were cells with expected frequencies of less than five (Daniel, 1995).

The reading and science STARR category scores were correlated. A series of multivariate analysis of variance (MANOVA) was performed to test the hypotheses that the inclusive and segregated groups performed differently on the basis of these two outcome measures. The mathematical expression, vector, is used to represent each subject's score on more than one response variable. The mean of the vectors for each group is called a centroid, and MANOVA is used to compare group differences on the basis of the centroid, followed by univariate F test for the purpose of post hoc analysis (Stevens, 2009). The Box's M and Leven's F tests were used to test the homogeneity of co-variances matrices and the homogeneity of variance assumptions, respectively.

The mathematics category scores were not correlated with each other. A series of t-test for Independent Samples was performed to test the group differences on the basis of each of the four mathematics category scores. For the comparisons in which the homogeneity of variances assumption was not met, Welch approximate t was used (Field, 2013).

The homogeneity of the variances and co-variances matrices assumptions were violated. The data were transformed by obtaining the square root of the measures, which is recommended when raw data are skewed and variances are heterogeneous (Field, 2013). All analyses were replicated, using the transformed data.

Gender was treated as a confounding variables, because it was associated with some of the outcome measures and did not interact with the independent variable. The data were re-analyzed, using gender as the co-variate. Adjusted means were computed by: Adjusted mean = Unadjusted mean for level j – b (the mean of the covariate for level j – the grand mean of the covariate), where b is the common regression coefficient (Stevens, 2009).

The mean difference effect size, Cohen's d, was computed to examine the practical significance of the findings and characterized as .2=small, .5=medium, and .8=large (Cohen, 1988).

A detailed power analysis was performed to estimate the required sample sizes to achieve statistical significance. The simulations were conducted, using the SPSS. The following programs determined the required sample sizes, which are discussed in Chapter IV.

Reading:

```
matrix data var = group rowtype_ y/factor=group.
begin data
1 mean .45
1 n 40
2 mean .33
2 n 40
. stddev .15
. corr 1.0
end data.
manova y by group(1,2)/print=cellinfo(means) signif(efsize)/matrix=in(*)/power/design.
```

Mathematics:

matrix data var = group rowtype_ y/factor=group.

begin data

1 mean .36

1 n 50

2 mean .27

2 n 50

. stddev .18

. corr 1.0

end data.

manova y by group(1,2)/print=cellinfo(means) signif(efsize)/matrix=in(*)/power/design.

Science:

matrix data var = group rowtype_ y/factor=group.

begin data

1 mean .55

1 n 50

2 mean .38

2 n 20

. stddev .14

. corr 1.0

end data.

manova y by group(1,2)/print=cellinfo(means) signif(efsize)/matrix=in(*)/power/design.

CHAPTER IV

RESULTS

Introduction

The purpose of the study was to examine the impact of academic setting on academic achievement in reading, mathematics, and science among 5th grade special education students. The hypotheses were that 5th graders with disabilities receiving academic instruction in a segregated setting would perform differently in reading, mathematics, and science than did those receiving instruction in an inclusive setting. The level of significance was set, a priori, at 0.05. The following research questions guided the study:

1. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in reading?

2. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in science?

3. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in mathematics?

The quantitative data were obtained from the Texas Education Agency. The data were coded and entered into the computer. The Statistical Package for the Social Sciences (SPSS) was used for the purpose of data analysis.

A Profile of the Subjects

The available demographic data consisted of gender, ethnicity, socio-economic status, and special education status. The students receiving special education services in the inclusive and the segregated setting were 50 and 20, respectively. All were Hispanic. In the inclusive group, there were more males (94.00%, $n = 47$) than were females (6.00%, $n = 3$), while the

segregated group consisted of an even number of males (50.00%**,** *n* = 10) and females (50.00%, *n* = 10). Gender differences were statistically significant (*Fisher's Exact p* < 0.001). The majority of the students in the inclusive group and all students in the segregated group were economically disadvantaged; however, group differences were not statistically significant (*Fisher's Exact p* = 0.09). Results are summarized in Table 1.

Table 1

A Profile of Subjects

	Inclusive Group (n = 50)		Segregated Group (n = 20)	
Demographic Characteristic	f	%	f	%
Gender [a]				
Female	3	6.00	10	50.00
Male	47	94.00	10	50.00
Socio-economic Status [b]				
Economically Disadvantaged	42	84.00	20	100.00
Not Economically Disadvantaged	8	16.00	0	0.00

[a] Fisher's Exact p < 0.001
[b] Fisher's Exact p = 0.09

Reading Achievement

Academic achievement in reading was measured by three reporting categories and a total of 46 items. The reporting categories were: (1) Understanding/Analysis across Genres (10 items), (2) Understanding/Analysis of Literary Texts (19 items), and (3) Understanding/Analysis of Informational Texts (17 items). The means and standard deviations for the reading category scores are reported in Table 2.

Table 2

STAAR Reading Achievement Measures

	Inclusive Group (n = 50)		Segregated Group (n = 20)	
STAAR Reporting Category	M*	SD	M*	SD
Reading Category 1	0.48	0.22	0.38	0.15
Reading Category 2	0.45	0.23	0.31	0.12
Reading Category 3	0.44	0.22	0.32	0.16

*Proportion of correct answers

Note: Reading Category 1: Understanding/Analysis across Genres
Reading Category 2: Understanding/Analysis of Literary Texts
Reading Category 3: Understanding/Analysis of Informational Texts

The homogeneity of variances assumption, as tested by the Leven's test, was not met for any of the reading category scores. Results are summarized in Table 3.

Table 3

Homogeneity of Variances Assumption, STAAR Reading Achievement Measures

STAAR Reporting Category	df1	df2	Levene's F	P
Reading Category 1	1	68	4.97	< 0.05
Reading Category 2	1	68	9.40	< 0.01
Reading Category 3	1	68	4.7	< 0.05

Note: Reading Category 1: Understanding/Analysis across Genres
Reading Category 2: Understanding/Analysis of Literary Texts
Reading Category 3: Understanding/Analysis of Informational Texts

The three test scores were correlated with one another and all associations were statistically significant at the 0.01 level. Results are shown in Table 4.

Table 4

Correlation Matrix for STAAR Reading Category Scores

	Reading Category 1	Reading Category 2	Reading Category 3
Reading Category 1	1.00		
Reading Category 2	0.52*	1.00	
Reading Category 3	0.62*	0.75*	1.00

*p < 0.01

Note: Reading Category 1: Understanding/Analysis across Genres, Reading Category 2: Understanding/Analysis of Literary Texts, Reading Category 3: Understanding/Analysis of Informational Texts

The assumption of equality of covariance matrices was not met (*Box M* = 15.00, *p* < *0.05*). The MANOVA showed group differences were not statistically significant, *Wilks Λ* = 0.90, $F(3, 66) = 2.47$, $p = 0.07$. Mean difference effect sizes, as computed by Cohen's d, were used to examine the practical significance of the findings. The effect sizes ranged from 0.60 to 0.88, suggesting that although the difference between the two groups on the basis of the centroid was not statistically significant, effect sizes were meaningful and favored the inclusive group. Results are summarized in Table 5.

Table 5

Mean Difference Effect Sizes, STAAR Reading Achievement Measures

STAAR Reporting Categories	Mean Differences	Effect Size*
Reading Category 1	0.10	0.60
Reading Category 2	0.15	0.88
Reading Category 3	0.12	0.72

* 0.20 = small effect, 0.50 = medium effect, > 0.80 = large effect

Note: Reading Category 1: Understanding/Analysis across Genres, Reading Category 2: Understanding/Analysis of Literary Texts, Reading Category 3: Understanding/Analysis of Informational Texts

Science Achievement

Academic achievement in science was measured by four reporting categories. The reporting categories were: (1) Mater and Energy (8 items), (2) Force, Motion, and Energy (10 items), (3) Earth and Space (12 items), and (4) Organisms and Environments (14 items). The means and standard deviations are shown in Table 6.

Table 6

STAAR Science Achievement Measures

	Inclusive Group (n = 50)		Segregated Group (n = 20)	
STAAR Reporting Category	M*	SD	M*	SD
Science Category 1	0.55	0.23	0.37	0.15
Science Category 2	0.61	0.19	0.49	0.21
Science Category 3	0.54	0.17	0.31	0.15
Science Category 4	0.51	0.22	0.34	0.14

*Proportion of correct answers

Note: Science Category 1: Matter and Energy
Science Category 2: Force, Motion, and Energy
Science Category 3: Earth and Space
Science Category 4: Organisms and Environments

The homogeneity of variances assumption, as tested by the Leven's test, was not met for reporting categories one and four. Results are summarized in Table 7.

Table 7

Homogeneity of Variances Assumption, STAAR Science Achievement Measures

STAAR Reporting Category	df1	df2	Levene's F	P
Science Category 1	1	68	4.20	< 0.05
Science Category 2	1	68	<0.01	0.97
Science Category 3	1	68	0.42	0.52
Science Category 4	1	68	7.68	< 0.01

Note: Science Category 1: Matter and energy
Science Category 2: Force, Motion, and Energy
Science Category 3: Earth and Space
Science Category 4: Organisms and Environments

The science category scores were correlated with each other and all associations were statistically significant at the 0.01 level. Results are shown in Table 8.

Table 8

Correlation Matrix for STAAR Science Category Scores

	Science Category 1	Science Category 2	Science Category 3	Science Category 4
Science Category 1	1.00			
Science Category 2	0.49*	1.00		
Science Category 3	0.62*	0.59*	1.00	
Science Category 4	0.48*	0.53*	0.62*	1.00

*p < 0.01

Note: Science Category 1: Matter and Energy
Science Category 2: Force, Motion, and Energy
Science Category 3: Earth and Space
Science Category 4: Organisms and Environments

The assumption of equality of covariance matrices was met (*Box M* = 14.70, *p* = 0.20). The MANOVA showed the group differences were statistically significant, *Wilks Λ* = 0.71, *F*(4,

65) = 6.62, $p < 0.01$. The post hoc analysis showed that the inclusive group outperformed the comparison group on all science category scores. Results are summarized in Table 9.

Table 9

Post Hoc Analysis, STAAR Science Achievement Measures

STAAR Reporting Category	SS	df	MS	F
Science Category 1	0.49	1	0.49	10.85**
Science Category 2	0.20	1	0.20	5.16*
Science Category 3	0.70	1	0.70	26.53**
Science Category 4	0.38	1	0.38	9.38**

*p < 0.05, ** p < 0.01

Note: Science Category 1: Matter and Energy, Science Category 2: Force, Motion, and Energy Science Category 3: Earth and Space, Science Category 4: Organisms and Environments

Mean difference effect sizes, as computed by Cohen's d, were used to examine the practical significance of the findings. The effect sizes ranged from 0.55 to 1.25, favoring the inclusive group. Results are summarized in Table 10.

Table 10

Mean Difference Effect Sizes, STAAR Science Achievement Measures

STAAR Reporting Categories	Mean Differences	Effect Size*
Science Category 1	0.18	1.08
Science Category 2	0.12	0.55
Science Category 3	0.22	1.25
Science Category 4	0.16	1.00

* 0.20 = small effect, 0.50 = medium effect, > 0.80 = large effect

Note: Science Category 1: Matter and Energy, Science Category 2: Force, Motion, and Energy Science Category 3: Earth and Space, Science Category 4: Organisms and Environments

Mathematics Achievement

Academic achievement in mathematics was measured by four reporting categories. The reporting categories were: (1) Numerical Representations and Relationships (8 items), (2) Computations and Algebraic Relationships (24 items), (3) Geometry and Measurement (12 items), and (4) Data Analysis and Personal Financial Literacy (6 items). The means and standard deviations are shown in Table 11.

Table 11

STAAR Mathematics Achievement Measures

	Inclusive Group (n = 50)		Segregated Group (n = 20)	
STAAR Reporting Category	M*	SD	M*	SD
Mathematics Category 1	0.35	0.22	0.22	0.11
Mathematics Category 2	0.37	0.18	0.24	0.09
Mathematics Category 3	0.36	0.17	0.27	0.14
Mathematics Category 4	0.40	0.21	0.31	0.16

*Proportion of correct answers

Note: Mathematics Category 1: Numerical Representation and Relationships
Mathematics Category 2: Computations and Algebraic Relationships
Mathematics Category 3: Geometry and Measurement
Mathematics Category 4: Data Analysis and Personal Financial Literacy

The homogeneity of variances assumption, as tested by the Leven's test, was not met for reporting categories one, two, and four. Results are summarized in Table 12.

Table 12

Homogeneity of Variances Assumption, STAAR Mathematics Achievement Measures

STAAR Reporting Category	df1	df2	Levene's F	P
Mathematics Category 1	1	68	8.91	< 0.01
Mathematics Category 2	1	68	12.92	< 0.01
Mathematics Category 3	1	68	1.07	0.30
Mathematics Category 4	1	68	3.66	< 0.01

Note: Mathematics Category 1: Numerical Representation and Relationships
Mathematics Category 2: Computations and Algebraic Relationships
Mathematics Category 3: Geometry and Measurement
Mathematics Category 4: Data Analysis and Personal Financial Literacy

Not all mathematics category scores were correlated with each other, as shown in Table 13.

Table 13

Correlation Matrix for STAAR Science Category Scores

	Math Category 1	Math Category 2	Math Category 3	Math Category 4
Mathematics Category 1	1.00			
Mathematics Category 2	0.41*	1.00		
Mathematics Category 3	0.24	0.53*	1.00	
Mathematics Category 4	0.21	0.57*	0.40*	1.00

*$p < 0.01$

Note: Mathematics Category 1: Numerical Representation and Relationships
Mathematics Category 2: Computations and Algebraic Relationships
Mathematics Category 3: Geometry and Measurement
Mathematics Category 4: Data Analysis and Personal Financial Literacy

Since all mathematics scores were not correlated with each other, the use of a MANOVA was not appropriate. Instead, a series of t-test for Independent Samples was performed to test the

group differences on the basis of each of the four category scores. Welch approximate t was used for the comparisons in which the homogeneity of variances assumption was not met. Mean difference effect sizes were used to examine the practical significance of the findings. The effect sizes ranged from 0.42 to 0.96, favoring the inclusive group. Group differences on the basis of categories one, Numerical Representation and Relationships, and two, Computations and Algebraic Relationships, favoring the inclusive group, were statistically significant. Results are summarized in Table 14.

Table 14

Mean Difference Effect Sizes, STAAR Mathematics Achievement Measures

STAAR Reporting Categories	Mean Differences	t	Effect Size*
Mathematics Category 1	0.13	3.29**	0.83
Mathematics Category 2	0.13	3.81**	0.96
Mathematics Category 3	0.09	2.05	0.50
Mathematics Category 4	0.09	1.75	0.42

* 0.20 = small effect, 0.50 = medium effect, > 0.80 = large effect

** $p < 0.01$

Note: Mathematics Category 1: Numerical Representation and Relationships
Mathematics Category 2: Computations and Algebraic Relationships
Mathematics Category 3: Geometry and Measurement
Mathematics Category 4: Data Analysis and Personal Financial Literacy

Analysis of Transformed Data

As reported earlier, the homogeneity of variances assumption was not met for some of the measures. The data were transformed by obtaining the square root of the measures, which is recommended when raw data are skewed and variances are heterogeneous. All analyses were replicated, using the transformed data. For reading, group differences remained not statistically

significant, *Wilks Λ* = 0.91, $F(3, 66) = 2.11$, $p = 0.10$. For science, group differences were remained statistically significant, *Wilks Λ* = 0.69, $F(4, 65) = 7.45$, $p < 0.01$, and the inclusive group outperformed the segregated group on the basis of all category scores. For mathematics, group differences on the basis of categories one, Numerical Representation and Relationships, $t(68) = 2.24$, $p < 0.05$, and two, Computations and Algebraic Relationships, $t(68) = 2.96$, $p < 0.01$, remained statistically significant. Additionally, differences on the basis of category three, $t(68) = 2.19$, $p < 0.05$, Geometry and Measurement, which were not statistically significant on the basis of the original data, were also statistically significant.

Co-variate Analysis

As reported earlier, gender differences were statistically significant. Gender was also associated with some of the category scores. Males outperformed the females on the majority of the outcome measures. Therefore, gender was treated as a potential confounding variable, and a series of co-variate analysis was performed to compare the inclusive and segregated groups on the basis of outcome measures, adjusted for gender.

Group differences on the basis of adjusted reading scores remained not statistically significant, *Wilks Λ* = 0.94, $F(3, 65) = 1.51$, $p = 0.22$. On the basis of adjusted science scores, group differences remained statistically significant, *Wilks Λ* = 0.80, $F(4, 64) = 3.85$, $p < 0.01$. Post hoc analyses showed that the inclusive group outperformed the segregated group on the basis of categories one (Matter and Energy), three (Earth and Space), and four (Organisms and Environments). On the basis of the adjusted mathematics scores (Table 15), none of the differences was statistically significant, and the effect sizes ranged from 0.29 for category one to 0.48 for category two, which were less than the ones obtained for the unadjusted data (Table 14); nevertheless, meaningful.

Table 15

Group Differences on Mathematics Scores Adjusted for Gender

	Inclusive Group (n = 50)			Segregated Group (n = 20)				
	M1*	M2*	SD	M1*	M2*	SD	F	p
Math Category 1	0.35	0.32	0.22	0.22	0.25	0.11	1.43	0.23
Math Category 2	0.37	0.36	0.18	0.24	0.26	0.09	3.87	0.05
Math Category 3	0.36	0.35	0.17	0.27	0.27	0.14	2.19	0.14
Math Category 4	0.40	0.40	0.21	0.31	0.30	0.16	2.41	0.12

*Proportion of correct answers

Note: Math Category 1: Numerical Representation and Relationships
Math Category 2: Computations and Algebraic Relationships
Math Category 3: Geometry and Measurement
Math Category 4: Data Analysis and Personal Financial Literacy

M1 = Observed Mean
M2 = Adjusted Mean

Power Analysis

The sample sizes were unequal. Group differences on the basis centroids of reading scores were not statistically significant. As was shown in Table 5, effective sizes were meaningful. A power analysis of the data, using the total scores, showed that statistical significance would have been achieved had there been 40 subjects in each group, as shown in SPSS Output 1.

SPSS Output 1

Power Analysis – Reading

Tests of Significance for y using UNIQUE sums of squares

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	1.76	78	.02		
group	.29	1	.29	12.80	.001

None of the group differences on the basis adjusted mathematics scores were statistically significant; however, effect sizes were meaningful. A power analysis of the data on the basis of the adjusted total scores showed that statistical significance would have been achieved with 50 subjects in each group, as shown in SPSS Output 2.

SPSS Output 2

Power Analysis – Mathematics

Tests of Significance for y using UNIQUE sums of squares

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	3.18	98	.03		
group	.20	1	.20	6.25	.014

The unequal sample sizes, as was shown in the results, did not affect the science results, and the power analysis confirmed it. Results are shown in SPSS Output 3.

SPSS Output 3

Power Analysis – Science

Tests of Significance for y using UNIQUE sums of squares

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	1.33	68	.02		
group	.41	1	.41	21.06	.000

Summary of the Results

On the basis of the raw, transformed, and adjusted reading scores, the differences between the inclusive and segregated groups' centroids were not statistically significant. However, the effect sizes were meaningful and favored the inclusive group.

On the basis of the raw, transformed, and adjusted science centroids, group differences were statically significant, favoring the inclusive group. The group differences on the basis of the raw, transformed, and adjusted category scores were also statistically significant with the exception of category two (Force, Motion, and Energy) for adjusted scores.

On the basis of the raw mathematic scores, which were analyzed using univariate statistics because they were not correlated with each other, group differences on the basis of categories one and two were statistically significant, favoring the inclusive group. On the basis of transformed scores, the differences on the basis of categories one, two, and four were statistically, favoring the inclusive group. On the basis of the adjusted scores, none of the differences was statistically significant. Results are summarized in Table 16

Power analysis showed that lack of statistical significance in raw, transformed, and adjusted reading scores could have been due to unequal and inadequate sample sizes. Similarly, the lack of statistical significance in adjusted mathematics scores could have been due to unbalanced sample sizes. The mean difference effects sizes were meaningful and favored the inclusive group.

Table 16

A Summary of the Results

	Raw Data	Transformed Data	Adjusted Data
Reading Centroid	NS	NS	NS
Reading Category 1	NA	NA	NA
Reading Category 2	NA	NA	NA
Reading Category 3	NA	NA	NA
Science Centroid	SIG	SIG	SIG
Science Category 1	SIG	SIG	SIG
Science Category 2	SIG	SIG	NS
Science Category 3	SIG	SIG	SIG
Science Category 4	SIG	SIG	SIG
Mathematics Category 1	SIG	SIG	NS
Mathematics Category 2	SIG	SIG	NS
Mathematics Category 3	NS	SIG	NS
Mathematics Category 4	NS	NS	NS

Note: NS - No statistically significant difference between inclusive and segregated groups.

SIG - statistically significant difference between inclusive and segregated groups, favoring the inclusive group.

NA – The post hoc was not applicable because group differences on the basis of the centroids were not statistically significant.

Reading Category 1: Understanding/Analysis across Genres
Reading Category 2: Understanding/Analysis of Literary Texts
Reading Category 3: Understanding/Analysis of Informational Texts

Science Category 1: Matter and Energy
Science Category 2: Force, Motion, and Energy
Science Category 3: Earth and Space
Science Category 4: Organisms and Environments

Mathematics Category 1: Numerical Representation and Relationships
Mathematics Category 2: Computations and Algebraic Relationships
Mathematics Category 3: Geometry and Measurement
Mathematics Category 4: Data Analysis and Personal Financial Literacy

CHAPTER V

SUMMARY, CONCLUSIONS, AND DISCUSSION

Introduction

Since the mid-1970s, school districts have been trying to place students with disabilities in the least restricted environment. As governments strive to create a more inclusive society, an inclusive academic setting for students with disabilities has become a priority (Tkachyk, 2013). The NCLB Act of 2001 expanded federal influences over the nation's public schools (Dee & Jacob, 2011). NCLB has been leading the way for a more rigorous academic setting and states have been providing highly qualified teachers to help make the difference. As changes progress through legislation for a stronger academic support system, academic testing has also been emphasized to meet the required standards. In doing so, all stakeholders are actively involved in trying to identify what should be implemented to ensure students are provided with enough rigor and adequate instruction within the classroom.

The purpose of the study was to examine the impact of academic setting on academic achievement in reading, science, and mathematics among 5th grade students with disabilities. The hypotheses were that 5th graders with disabilities receiving academic instruction in a segregated setting perform differently in reading, science, and mathematics than do those receiving instruction in an inclusive setting. The following research questions guided the study:

1. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in reading?

2. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in science?

3. How do 5th grade students with disabilities in segregated and inclusive settings differ in academic achievement in mathematics?

Summary of the Results

On the basis of the raw, transformed, and adjusted reading scores, the differences between the inclusive and segregated groups' centroids were not statistically significant. However, the effect sizes were meaningful and favored the inclusive group.

On the basis of the raw, transformed, and adjusted science centroids, group differences were statically significant, favoring the inclusive group. The group differences on the basis of the raw, transformed, and adjusted category scores were also statistically significant with the exception of category two (Force, Motion, and Energy) for the adjusted scores.

On the basis of the raw mathematic scores, which were analyzed using univariate statistics because they were not correlated with each other, group differences on the basis of categories one (Numerical Representation and Relationships) and two (Computations and Algebraic Relationships) were statistically significant, favoring the inclusive group. On the basis of transformed scores, the differences on the basis of categories one, two, and four (Data Analysis and Personal Financial Literacy) were statistically significant, favoring the inclusive group. On the basis of the adjusted scores, none of the differences was statistically significant.

Power analysis showed that lack of statistical significance in raw, transformed, and adjusted reading scores could have been due to unequal and inadequate sample sizes. Similarly, the lack of statistical significance in adjusted mathematics scores could have been due to unbalanced sample sizes. The mean difference effects sizes were meaningful and favored the inclusive group.

Conclusions

The researcher conducted the study to examine the impact of academic setting on academic achievement in reading, science, and mathematics among 5th graders receiving special education services. Three null hypotheses were tested. Gender was a confounding variable and showed that males were outperforming the females in the overwhelming majority of the outcome measures. After adjusting the data on the basis of gender, in this non-probability sample of 5th graders with disabilities, it was concluded that academic achievement in reading and mathematics was not impacted by academic setting. Academic achievement in science was impacted by the intervention and favored the inclusive setting. Effect sizes were meaningful and favored the inclusive setting. Due to non-experimental nature of the study, no causal inferences were drawn and due to non-probability nature of sampling, results cannot be generalized to all 5th graders with disabilities. It was also concluded that gender must be taken into consideration in designing instructional settings for children with disabilities.

Discussion

The study used an ex post facto, casual-comparative research design, examining the link between academic setting and academic achievement, focusing on 5th graders with disabilities. The subjects for the study were recruited from an urban school district in South Texas and the data were obtained from the TEA.

As education progressed through the years, students with disabilities began to have the opportunity to access the adequate educational support they required. The transformation of classrooms for students with disabilities became an important topic for school districts; for example, designing and implementing inclusive settings and co-teaching strategies. However, not all districts and schools could eliminate segregated classrooms. The study's urban school

implement the co-teaching model. Shin, Lee, and McKenna (2016) indicated that although co-teaching is regularly used to provide support for students with disabilities in inclusive settings, at times there is actually a gap between what the actual classroom practice is and the overall effectiveness of co-teaching. Friend, Cook, Hurley-Chamberlain, and Shamberger (2010) identified co-teaching as a way students with disabilities can have access to the general curriculum and being able to benefit from receiving specialized instruction which can in turn meet students' individual needs.

Since the No Child Left Behind Act of 2001, standardized testing has become the leading measure of accountability with an overall goal of reaching a 100% proficiency on the basis of the annual test (Tavakolian & Howell, 2012). Through greater accountability, this legislation aimed at closing the achievement gaps between groups of students, directly affecting every school district and charter school in the state (Texas Education Agency, 2015a). With the demand of increasing student performance, examining student placement in regards to the accountability measure became important. As changes progress through legislation for a stronger academic support system, academic testing has increased along with the pressure for passing scores. Educators are searching for the best option to assist students in reaching academic achievement. This study provided an additional understanding of the potential benefits of academic placement for students with disabilities on the basis of the outcome measures of the STAAR Accommodated test.

The study's findings did not fully support the a priori hypotheses in relation to academic setting's impact on reading and mathematics. Rueda, Gallego, and Moll (2000), whose least restrictive environment (LRE) provided the study's theoretical framework, argued that the context of the setting, and not the physical setting, is the instructional setting's most important

factor. In other words, students' classroom involvement as well as personal, social, and community existence may be instrumental in their developmental growth and learning (Rueda, Gallego, & Moll, 2000).

There could be a number of reasons for the study's findings which did not support all hypotheses. For example, the study's inclusive classrooms might have not been following the proper protocol in conducting the teaching/learning processes. There were unequal sample sizes (inclusive = 50, segregated = 20) and the homogeneity of variances assumption was not met for some of the outcome measures, suggesting that the subjects did not come from the same population. The adjusted data on the basis of gender, which was a confounding variables, showed different results for mathematics. A series of power analysis showed that statistical significance in reading and mathematics would have been achieved had there been more subjects. The effect sizes for all outcome measures were meaningful and favored the inclusive sample. In short, the results of the study provided some support for the hypotheses, suggesting that inclusive setting can be instrumental in impacting academic achievement.

Implications

Students with disabilities, who are placed in an inclusive setting, may still be treated by the teacher as if the setting is segregated, and if so, it may adversely affect their academic achievement. For example, students with disabilities who are seated all together without other students in a specified area within a classroom, or do not receive inclusive support by a special education educator during academic instruction, and/or not receiving adequate accommodations as indicated in their individual educational plans. This form of segregation within the classroom can be based on teachers' attitudes or understanding of the inclusive setting. Lee, Yeung, Tracey, and Barker (2015) reported the impact of teachers' attitudes on learning in an inclusive

classroom is significant. These potential issues can be possibly linked to students' less than desirable performance on academics.

Students being segregated within a general education classroom can create a division within the room. When that does occur, there is a high possibility the general education teacher is under the assumption s/he is not responsible for the student's academic performance, but rather the responsibility falls solely on the special education teacher. There can be a misunderstanding of division, say, "these are my students and those are yours" when in fact they all need to receive the same attention. This may be due to educators not knowing how to collaborate and co-teach within the inclusive classroom (Shin, Lee, & McKenna, 2016).

There can also be the possibility that students with disabilities are not receiving the academic support needed through inclusive. If a special education teacher is assigned multiple grade levels to oversee without additional support, then at times students with disabilities may not have the inclusive support because of the educator's various responsibilities. If this does occur, then there is a high possibility that students with disabilities may fall behind in the curriculum, and if so, the academic gap may grow even further.

The lack of support within the classroom as well as the lack of accommodations being provided within the general education setting may also hinder the academic achievement of students with disabilities. Additionally, if there is not an effective communication between the general education teacher and the special education teacher, the development and execution of effective lesson plans can adversely be affected; thus, negatively impacting the teaching/learning process. Shin, Lee, and McKenna (2016) indicated teachers' expressed anxiety regarding the co-teaching model and its implementation is due to unclear individual roles which may lead to an initial negative perception.

Since testing requirements continue to pressure those in education and federal funding is connected to accountability ratings, districts continue to make instructional adjustments to create a nurturing learning environment that is appropriate for all learners. However, if there is not adequate support with an inclusive classroom, students can still run a high risk of not being academically successful.

When identifying some of the areas of concern, we must also look at the steps needed to address the issues. Since not all campuses provide inclusive support to student with disabilities, there has to be an implementation phase where educators are supported throughout the transition. In order to reach a positive outcome, educators would have to realize that change is needed.

For a successful implementation of inclusive settings, general education and special education educators must be provided with support and training. The transition to provide students with disabilities academic instruction in an inclusive setting requires special education educators, because some students may need in-class support to be successful. If the campus currently has special education teachers providing instruction in segregated settings, the same teachers can be assigned to provide the instruction in inclusive settings.

Team building relationships are needed when having more than one educator in a classroom. Being able to have an open communication amongst each other and create a cohesive teaching environment takes time. It would be imperative to have training for team building skills, the co-teaching model, and managing behaviors in the classroom. Through team building, educators would have a greater opportunity to learn to collaborate with each other. Friend and Cook (2010) identified collaboration as a key element of co-teaching and provide educators with the opportunity to recognize mutual goals, responsibilities, and accountability.

Close monitoring of the first year of transition is critical to ensure the special education educator is actively participating in the classroom and does not become viewed as an assistant or being there for only monitoring behaviors. The goal should be to train general education and special education teachers who can be effective in inclusive classrooms.

Recommendation for Further Research

The study's delimitations, limitations, and assumptions provide opportunities for further research: (1) due to non-probability nature of the sampling technique, external validity was limited to the study's participants; (2) the study was delimited to 5th grade students; (3) the study was delimited to only one school district in South Texas; (4) the study was delimited to the independent variable of academic placement for students with disabilities; (5) the study was delimited to the outcome measures of academic achievement in reading, science, and mathematics; and (6) it was assumed the existing data used for the completion of the study accurately measured the criteria. To increase the generalization of the results, the researcher recommends: (1) replications of the study in other school districts within Texas; (2) replications of the with other grade levels; (3) replications of the study with the online version of the STAAR test; (4) additional examination of the 5^{th} grade mathematics achievement and the instructional setting; (5) further investigation as to why female students with disabilities perform lower than do their male counterparts and what can be provided to close the gap; and (6) qualitative investigations of teachers and parents regarding the advantages and disadvantages of the academic setting for students with disabilities.

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Appendix A

TEXAS A&M UNIVERSITY
CORPUS CHRISTI

OFFICE OF RESEARCH COMPLIANCE
Division of Research, Commercialization and Outreach

6300 Ocean Drive, Unit 5844
Corpus Christi, Texas 78412
O 361.825.2497 • F 361.825.2755

Human Subjects Protection Program | Institutional Review Board

APPROVAL DATE:	May 3, 2016
TO:	Ms. Roana Garcia
CC:	Dr. Kamiar Kouzekanani
FROM:	Office of Research Compliance Institutional Review Board
SUBJECT:	Initial Approval

Protocol Number:	IRB #58-16
Title:	Assessing the Link between Academic Placement and Academic Achievement in Reading, Mathematics, and Science among 5th Graders with Disabilities
Review Category:	Qualifies for Exemption

Approval determination was based on the following Code of Federal Regulations:

Eligible for Exemption (45 CFR 46.101)

Criteria for exemption has been met (45 CFR 46.101) - The criteria for exemption listed in 45 CFR 46.101 have been met (or if previously met, have not changed).

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

Provisions:

Comments: The TAMUCC Human Subjects Protections Program has implemented a post-approval monitoring program. All protocols are subject to selection for post-approval monitoring.

This research project has been granted the above exemption. As Principal Investigator, you assume the following responsibilities:

1. Informed Consent: Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project unless otherwise waived.
2. Amendments: Changes to the protocol must be requested by submitting an Amendment Application to the Research Compliance Office for review. The Amendment must be approved before being implemented.
3. Completion Report: Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the Research Compliance Office.
4. Records Retention: All research related records must be retained for three years beyond the completion date of the study in a secure location. At a minimum these documents include: the research protocol, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to

participants, all correspondence to or from the IRB or Office of Research Compliance, and any other pertinent documents.

5. Adverse Events: Adverse events must be reported to the Research Compliance Office immediately.
6. Post-approval monitoring: Requested materials for post-approval monitoring must be provided by dates requested.

Appendix B

You have received 2 secure files from PIR@tea.texas.gov.

Use the secure links below to download.

Public Information Request
Release Documents at No Charge
April 25, 2016

Roana Rivera

TEA PIR #26122

Dear Roana Rivera:

On January 6, 2016, the Texas Education Agency (TEA) received your public information request (PIR). Final clarification of this request was received on April 21, 2016. A copy of your original request and clarification is enclosed. To the extent it exists, the requested information is provided to you with this letter and includes a copy of the original request. PIR # **26122** is considered closed.

If you have any questions or wish to discuss this matter further, please contact me at (512) 463-3464 or by email at PIR@tea.texas.gov.

Sincerely,
Dana Colbert
Public Information Coordinator
Enclosure: Request Clarification
Responsive Data

Secure File Downloads:

Available until: **25 May 2016**

Click links to download:

26122 Responsive Data.zip
105.14 KB

Re PIR # 26122 Clarification Received.msg
123.50 KB

You have received file link(s) sent via Accellion Secure File Transfer. To retrieve the file(s), please click on the link(s). To learn how your company can benefit from Accellion Secure File Transfer, please visit http://www.accellion.com