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Silence Improves Anxiety Levels and Test Scores Among Children With Disabilities

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Walden University
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MPS, Manhattanville College, 2009

MA, Adelphi University, 2004

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

Students with disabilities may experience more anxiety when taking a test than do students without a disability. The purpose of this study was to assess whether a technique called *1-minute of silence* reduces anxiety and improves test scores among students with disabilities. The theoretical framework for this study was the theory of planned behavior/reasoned action and the health belief model. Two research questions were used, one to determine the difference in anxiety levels in students with special needs and the other to determine the difference in New York State (NYS) Math posttest scores in children with special needs (no silence, 1minute of silence). This study was a secondary quantitative data analysis. Convenience sampling rendered data to address 6 variables: dependent variables were (post) anxiety and NYS Math posttest scores; independent variables were intervention type (experimental and control); 2 covariates specified were pre-anxiety levels and NYS Math pretest. ANCOVA was used to assess each research question. Key results revealed that students with special needs who were given the 1-minute of silence technique ($N = 27$) over 4 weeks had lower levels of anxiety ($p \leq 0.001$) and higher test scores ($p < 0.001$), while students with special needs who were not given the 1-minute of silence technique ($N = 28$) had higher or stable levels of anxiety and lower or similar test scores. This study recommended that all educators use specialized teaching techniques for students with special needs, which can help to ensure their emotional and academic success. This study contributes to positive social change by demonstrating to educators that specialized teaching techniques are useful for students with disabilities and can help them to be as successful as their counterparts who are not disabled.

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Dedication

I would like to dedicate this achievement to my children – Offira, Itahy and Dalit - It is because of your unconditional love and encouragement that I was able to attain this degree and I am incredibly fortunate and grateful to have each of you in my life.

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To my daughter Offira: thank you for your love and encouragement. To my son Itahy: thank you for your love, support and helping me get back into the program. To my baby Dalit: I cannot thank you enough for your love, continuous support, guidance, editing, and patience. Without you this would not have been possible. To my granddaughter's -Daniella, Shiran, Yasmin, Ayala, Sivan, Talia, Brooke, Eliana, and Lily – I hope that this achievement will instill the love of lifelong learning in each and every one of you. Lastly, I would like to thank my parents for teaching me the importance of family, integrity, and most importantly education.

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Chapter 1: Introduction to the Study

This study was developed to assess whether a technique called 1-minute of silence ameliorated the levels of stress and anxiety and improved test scores among children with disabilities and subsequently to provide insight that fills the gap in the current literature. In addition, the study contributes to positive social change by demonstrating to educators that specialized teaching techniques are very useful for students with disabilities and can help them to be as successful as their nondisabled peers.

In the United States, the term *special needs* is used to describe individuals who are in need of assistance, which may include medical or psychological needs. According to the Institute of Education Services (IES, 2012), in fall 2008, approximately –95% of 6 to 21-year-old students with special needs received services in community public schools. Because public schools provide students with special needs assistance, many of these students are mainstreamed into general education classrooms.

The last century has seen major reform in the educational system in the United States. Over time, the system became more rigorous and students were required to complete testing to see that they performed on the same level as their peers. When children with disabilities are mainstreamed and held to similar standards as typical children, they often experience higher levels of stress and anxiety, especially when taking a test. In an era driven by growing measures of accountability that emphasizes test score outcomes, teachers of students with disabilities are constantly trying to find ways to help them attain knowledge, skills, and reduce the amount of anxiety and fear these children experience on a daily basis.

To date, few theories exist that explain stress and anxiety levels in children with disabilities, and how these levels may be alleviated through various modes of exercise. Moreover, no study exists that examines how the levels of stress and anxiety can be altered through various coping mechanisms designed especially for special needs children. In addition, little research exists in the domain of stress and anxiety in developmentally disabled school-aged children. The current secondary study will seek to make a social change by using a technique called 1-minute of silence to see whether the technique will lower anxiety levels and improve test scores with children with special needs.

Background

The term special needs is used to describe individuals who are in need of assistance, which may include medical or psychological needs. In the educational setting, *special education needs* is a term used to describe children with disabilities who require adjusted individualized education plans (IEP) to better serve those children. The IEP is mandated by the Individuals with Disabilities Education Act (IDEA, 2004). IDEA is a federal law that oversees services to children with special needs, in particular how school districts and public agencies service these children with early intervention, special education, and all related services. The IDEA defined children with disabilities as children with autism, emotional disturbances, having an intellectual disability, being hearing impaired, having multiple disabilities, or being deaf-blind, deaf, or orthopedically impaired. Additionally, other health impairments may include defined learning disabilities, speech and language impairments, traumatic brain injuries, and visual

impairments that include blindness (National Dissemination Center for Children with Disabilities, 2009).

Under IDEA 2004, Public Law 101-476, special education and related services should be designed in such a way that children with special needs are able to meet their specific learning needs; this should be available for children with disabilities from preschool through age 21. In addition to providing children with learning needs, students with special needs must be given the opportunity to learn additional academic skills, and/or employment and independent living skills, all of which are taught in public education. Therefore, many children with disabilities are mainstreamed. Approximately ninety -five percent of 6- 21-year-old students with special needs received services in community public schools (IES, 2012). Receiving services is essential in order for students with special needs to better cope with the stress of taking tests, which occurs several times throughout the academic year.

According to Lazarus and Folkman (1984), stress is a shared process where the surrounding environment causes stress, but the individual is able to deal with the stress in different ways. Wootton (2001), on the other hand, claimed the signs of anxiety and stress are caused by the same chemical response; stress is a normal reaction to a threatening situation, while anxiety is mainly caused by worry. In other words, anxiety is stress that continues after the stressor is gone. Fortunately, there are mechanisms to help cope with these remaining feelings of anxiety.

Sedgeman (2005) recommended helping anxious and stressed persons understand the nature of thought and teaching the ability to recognize the signs of not being in

control of negative thoughts to being able to disengage from it and access natural positive thoughts. In addition to recognizing signs of stress, being in control of it may reduce stress levels. Overall, children with disabilities find comfort in familiar surroundings and routine environments, which makes it essential to provide familiarity and routine throughout the year, especially around testing-time.

Self hypnosis, breathing techniques, and meditation have been studied as stress relievers for decades with adults but have not been fully examined with school-aged children, specifically children with disabilities. Furthermore, silence as a coping mechanism, particularly within a modified curriculum, has not been examined in children with disabilities. Bosacki (2005) suggested that silence should be made part of the curriculum and that we need to include an emotional dimension to the curriculum, one that combines silence into the everyday routine. This may show different ways a metacognitive curriculum can help eliminate anxiety in teachers and students alike.

Thus, this study was developed to assess whether a technique called 1-minute of silence ameliorated the levels of stress and anxiety and improved test scores among children with disabilities, and subsequently provide insights that fill the current gap in the literature. In addition, the study contributes to positive social change by demonstrating to educators that specialized teaching techniques are very useful for students with disabilities, and can help them to be as successful as their non-disabled peers. Data were collected for a study conducted in a New York City Public School using a variety of methods, including a background questionnaire, an anxiety level inventory, and NYS Math pre- and post-test scores.

In sum, little research exists in the domain of anxiety in developmentally disabled school-aged children; the current study aimed to alleviate the anxiety by using a technique such as silence. Moreover, few theories exist that explain stress and anxiety levels in children with disabilities, how these levels may be alleviated through various modes of exercise, and how the levels of stress and anxiety can be altered through various coping mechanisms. The current secondary study demonstrates that specialized teaching techniques are very usefull for students with disabilties because it can belp them be as successful as their counterparts who are not disabled.

Problem Statement

The purpose of this study was to assess whether a technique called 1-minute of silence reduces anxiety and improves test scores among students with disabilities. After having learned the 1-minute of silence technique and using it for 4 weeks, it was hypothesized that students' level of anxiety would be reduced and test scores would improve. Previous researchers have indicated that students with disabilities experience more anxiety when taking a test than students with no disability (Heiman & Precel, 2003; Lufi, Okasha, & Cohen, 2004; Peleg, 2009; Whitaker, Sena, Lowe, & Lee, 2007; Woods, Parkinson, & Lewis, 2010). Higher levels of anxiety due to academic demands may make coping with academic stressors more difficult, especially for students with disabilities. Outside disturbances, such as emotions that were not related to the test, negative self-concept (Peleg, 2009), low scores on past tests (Cizek & Burg, 2006), paying attention and not being able to concentrate, and low self-esteem may also contribute to special needs students reporting higher levels of stress and anxiety when

taking tests. These hurdles, and the apprehension during test taking, have a major effect on performance, emotional and behavioral well-being, and student's way of looking toward school (Cizek & Burg, 2006; Huberty, 2009).

Students with anxiety disorders often suffer from test anxiety, and although test anxiety and anxiety disorders have a lot in common, the conditions are very different (Huberty, 2009). Cassady (2010) and Cizek and Burg (2006) explained that people who suffer with anxiety disorders typically have trait anxiety. Trait anxiety shows that high levels of stress may have different outcomes that appear in different settings and situations. However, people who have test anxiety appear to also have state anxiety, which shows that their high level of anxiety depends on a specific location or situation, such as during testing or assessments (Cassady, 2010; Cizek & Burg, 2006). This, in turn, may lead to increasing levels of test anxiety (Cassady, 2010).

Researchers have suggested that middle school students more likely incur emotional and behavioral symptoms linked to test anxiety (Whitaker Sena, Lowe, & Lee, 2007). Peleg (2009) claimed that students who initially achieve low scores on an exam because of (a) insufficient studying or preparation, (b) helplessness, (c) and/or family pressures will subsequently suffer increased stress, have difficulty concentrating and paying attention, have lower self-esteem, and have memory loss while taking follow-up exams. In other words, if a student does poorly initially, he or she is more likely to have anxiety and apprehension at a later date.

While some have claimed there is a way to reduce students' anxiety levels during tests by teaching students to use effective test-taking skills and strategies (Carter et al.,

2005), others have mentioned sample test-taking skills. Sample tests may help the student prepare what to study and help students learn about the content of the curriculum and the kind of questions that may appear on tests (Lageres & Connor, 2009). Providing students with a test guide as well as test format may be another way of helping students cope with test anxiety and strategies (Walker & Schmidt, 2004). This approach may include, but is not limited to, performing a memory dump or download right after the test is handed out to the student. This includes listing only important details, definitions, formulas, dates, and words mainly used throughout the test, while writing details from memory and illustrations to promote recall (Rozalski, 2007; Walker & Schmidt, 2004). In addition to practical skills, various relaxation techniques may also be used.

Cizek and Burg (2006) stated that it is possible to teach students who suffer from test anxiety to use relaxation techniques that will lower anxiety such as (a) meditation, (b) praying, (c) taking breaks and deep breaths, (d) helpful self-talk, and (e) concentrating on past successes. Other researchers, such as Conderman and Pedersen (2010), suggested using a squeeze ball, while others believed exercise might be the method of choice (Lytle & Todd, 2009; Mulrine, Prater, & Jenkins, 2008). Although some methods have proven beneficial for students with anxiety, they are often time consuming and not always the technique of choice when sitting with his or her peers. Therefore, a technique called 1-minute of silence, which is not time consuming and can be done with peers, was used in this study. The 1-minute of silence technique taught students to close their eyes and focus their mind for 1 minute each day for 4 weeks.

Over the last 20 years, research has recognized the emotional hardships that students with special needs encounter and how their disability influences their level of anxiety, which ultimately impacts their academic performance and achievement. Peleg (2009) and Putwain and Daniels (2010) stated that students with special needs might feel vulnerable about being labeled, which may have adverse effects on their expectations of success and adds to the development of test anxiety. Thus, instead of believing they are prepared for the task and will do well, these students approach test taking with a sense of unpreparedness and apprehension, leading to failure or poor performances (Cassady, 2010). Although these students often blame outside factors on their failures, it is the internal factors, such as learned helplessness, that keeps them on the cyclical path of failure (Rothman, 2004).

In order to change their perception of themselves and their shortcomings, it is essential to provide students with disabilities techniques to conquer the internal and external conflicts. Providing the students with such a technique as the 1-minute of silence may prove advantageous when dealing with stress/anxiety and academic performance. Additionally, the technique illustrated the need for various techniques in the school setting for students with special needs. Thus, the purpose of the current study is to determine whether students with disabilities benefited from learning a relaxation technique prior to participating in standardized testing. In particular, the study demonstrated, after having learned the 1-minute of silence technique and using it for 4 weeks, students' level of anxiety was reduced and test scores improved.

Anxiety may have more serious consequences than previously believed, specifically for students with disabilities. Moreover, students with special needs are held to the same NYS testing standards as general education students, leading to an even more stressful and anxious atmosphere. Although all students experience some level of anxiety when given state testing, it is mainly the students with disabilities who have a much harder time coping with the psychosomatic reactions of anxiety.

Schools face an academic dilemma where not only are students held responsible for their academic success, but teachers bear the brunt of the burden. Unfortunately, when a teacher is responsible for general education students and those with special needs, it becomes much more difficult. Today, it is mandated by the No Child Left Behind Act (NCLB) that every student who is mainstreamed into the community public school system take state testing and be held to the same standards (Education Week, 2012). Students with disabilities must be taught ways to cope with the daily demands of public school, in particular anxiety and test taking. Although limited research exists on intervention techniques among students with disabilities in public schools (Koegel, Matos-Fredeen, Lang, & Koegel, 2011), a variety of interventions do exist (e.g., yoga and exercise) that could be used in classrooms; however, pinpointing or matching specific student characteristic to a specific intervention has not been identified (Landa, 2007; Ogletree, 2007). It is therefore difficult to identify what intervention will work best with the needs of each particular student (Yoder & Stone, 2006). Lang et al. (2010) stated that continuous research is needed to find valid classroom interventions that are effective and socially acceptable. The need to teach students with disabilities a coping mechanism,

such as the minute of silence technique, to reduce their stress/anxiety level was therefore imperative for this research.

To date, few theories exist that explain stress and anxiety levels in children with disabilities and how these levels may be alleviated through various modes of exercise. Moreover, no study exists that examines how the levels of stress and anxiety can be altered through various coping mechanisms designed especially for special needs children.

Purpose of the Study

Students with disabilities may experience more anxiety when taking a test than students with no disability (Cassady, 2010). The purpose of this secondary analysis quantitative causal comparative study was to assess whether a technique 1-minute of silence reduces anxiety and improves test scores among students with disabilities. Because little research exists in the domain of anxiety in developmentally disabled school-aged children, the current study aimed to alleviate the anxiety by using a technique, such as silence, to teach children to relax and focus on the task at hand. The current study reanalyzed the results of a prior New York City Department of Education (NYCDOE) study that focused on whether children with disabilities can have lower levels of anxiety and higher test scores when being taught a silence/relaxation technique. Ultimately, the results of the study support a new system in the national school system by providing schools with preventive and interventive methods that may be used in the classroom.

More specifically, the purpose of this secondary analysis study was to obtain statistically significant findings between silence, stress, academic scores, and the 1-minute of silence relaxation technique among a developmentally disabled school-aged population. Because little research exists in the domain of anxiety in developmentally disabled school-aged children, the current analysis aimed to show the benefits of learning and using the 1-minute of silence technique to alleviate anxiety.

This study was a secondary quantitative data analysis. Convenience sampling rendered data to address six variables: dependent variables were (post) anxiety and NYS Math posttest scores; independent variables were intervention type (experimental and control); two covariates specified were pre-anxiety levels and NYS Math pretest. The current analysis was also looking to see if, after using the 1-minute of silence technique, test scores improved among children with disabilities. Once again, this study aimed to improve test scores in the national school system by providing schools with preventive and interventive methods to lower anxiety levels by using the 1-minute of silence technique that may be used in the classroom.

Research Questions and Hypotheses

The research questions in this study were as follows:

Research Question 1 (RQ1): What is the difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1 minute of silence)?

$H1_0$: There is no difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1 minute of silence).

$H1_a$: There is a difference in anxiety levels, after controlling for anxiety levels, in students with special needs between intervention type (no silence, 1 minute silence).

- DV: Anxiety
- IV: Intervention type (no silence, 1 minute of silence)
- Covariate: Pre-anxiety levels
- Statistical analysis: ANCOVA

Research Question 2 (RQ2): What is the difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between intervention type (no silence, 1 minute of silence)?

$H2_0$: There is no difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between intervention type (no silence, 1 minute of silence).

$H2_a$: There is a difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between intervention type (no silence, 1 minute of silence).

- DV: NYS Math posttest scores
- IV: Intervention type (no silence, 1 minute of silence)
- Covariate: NYS Math pretest
- Statistical Analysis: ANCOVA

Theoretical Framework

The theoretical framework for this secondary study was the theory of planned behavior/reasoned action, and the health belief model (HBM). The theory of planned behavior/reasoned action was developed by Ajzen and Fishbein in 1980, and the HBM was developed in the 1950s by Hochbaum, Rosenstock and Kegels, while working at the U.S. Public Health Services (University of Twente, 2014). The theory of planned behavior/reasoned action suggests that an individual's behavior is determined by the individual's intention to carry out a certain behavior. It further implies that a person who uses self-control has the ability to perform the behavior at will: The stronger the desire to carry out a behavior, the more likely its desired outcome. Although the individual's purpose to perform a certain behavior may have favorable outcomes, it is necessary to take into consideration that anxiety, fear, and past experiences should be factored into behavioral intention and motivation. Thus, the intention to perform a behavior is influenced (Polit & Beck, 2010).

According to Ajzen (1991), some behaviors may not need additional resources--such as an intervention--to have a positive outcome, but most performances depend on resources to enhance the behavior. In the current study, I used the 1-minute of silence technique as a resource to control the behavior and motivate the desired outcome. The individual who intends to perform the behavior and uses the theory of planned behavior will succeed in doing so (Ajzen, 1991). Furthermore, the individual who intends to perform the behavior, uses the theory of planned behavior, and performs the 1-minute of silence technique as a resource should succeed in his or her attained goal. In the current

study, students in the New York City Public School were taught the 1-minute of silence technique to alleviate anxiety and increase test scores.

The current study was also guided by the HBM, which was created much earlier than the theory of reasoning/theory of planned behavior. It was developed in the 1950s by Hochbaum et al., while working at the U.S. Public Health Services (University of Twente, 2014). According to the HBM, health behavior depends on perceived susceptibiltiy, perceived benefits, perceived severity, perceived barriers, indication to action, and the belief in ones personal power (Sharma & Romas, 2012). The purpose of this model is to have a person take a health-related action to improve a healthier lifestyle. It is a popular model in health education and health promotion since it provides guidance on how to plan an intervention by breaking down complex issues into smaller parts by using persuasion and encouragement to be able to achieve the behavior change goal.

The HBM and theory of planned behavior/reasoned action were chosen because these two theories suggest that the more the desire to engage in a particular behavior, the more likely its desired outcome. In other words, these two theories are the foundation for implementing a new technique, such as the 1-minute of silence, to achieve behavior change.

The NYCDOE is the largest public school system in the nation (NYCDOE, 2015). The city's mayor and chancellor oversee the entire school system, which services approximately 1.1 million students in about 1,400 schools (NYCDOE, 2012). Approximately 180,890 students with disabilities were part of the school system in 2006. According to the Council of the Great City Schools (CGCS, 2012), of the approximately

181,000 students with disabilities served directly through the Department of Education, about 79.8% are part of community schools, roughly 12.7% are part of District 75, and the remaining are taught in various nonpublic settings.

Students with special needs face a plethora of dilemmas including, but not limited to, being placed in inclusion settings, dealing with transitions from classroom to classroom or school to school, and coping with the inconsistency of educators now that so many of them are being distributed to the inclusive public school setting. Within the New York City Public School system, classroom sizes range from 22 to 34 students; this can be overwhelming for children with disabilities who are used to individualized attention. These children are mainstreamed or included into the general education setting and are held to the same standards as typically developing children. These variables may cause mainstreamed children with disabilities to be ridden with anxiety, leaving them feeling overwhelmed.

Anxiety is described as a basic human emotion that consists of fear and insecurity and appears when something seems to be a threat that harms the ego or self-esteem (Sarason, 1988). Unfortunately, high levels of anxiety and stress occur in academic settings, especially during testing and assessment. With the passage of the NCLB of 2001, mandates for testing changed in United States school systems. This has led to an increase in emotional and behavioral difficulties for all children.

New York City's Mayor Michael Bloomberg revealed his proposal to change special education in May 2003. The mayor understood that a change for students with special needs was necessary and a complete change of the special education structure in

New York City Public Schools was imminent. The mayor stated this change was long overdue, and the system had failed to help students learn and achieve expected academic levels. In his proposal, he stated that a segregated and failing system will not be tolerated. He further stated that today's reform reflects a commitment to provide high quality education and service for children with special learning needs (as cited in Hehir et al., 2005).

While reports from the Department of Education showed an overall progress in servicing the special learners, the students test scores lagged behind their peers. In June 2008, the NYCDOE published its 2007 test results for Grades 3 through 8 but did not include the students with disabilities. After much debate, the NYCDOE published the information by including scores from all students (NYCDOE, 2008). Although 80% of the general education student population scored at or above grade level in mathematics (i.e., scores of 3s and 4s on the test compared to 1s and 2s), only 43% of students with special needs scored at or above grade level (NYCDOE, 2008). This did not include students with special needs who took part in alternate assessments or were registered in District 75 (a special education district only–with severely disabled individuals). Out of these results, 64% of general education students met standards in English Language Arts, while only 24% of students with special needs met the same standards. This did not include students with disabilities who took part in alternate assessments or were registered in District 75.

The results showed an overall increase in test scores; however, students with disabilities still lagged behind their peers (NYCDOE, 2008). Although test scores, and

possibly anxiety, have improved for children in the general education system, students with special needs within the same system seem to still be ridden with high anxiety and low-test scores. In other words, students with special needs are being held to the exact same standards as typically developing general education students, possibly causing them higher levels of anxiety. Higher levels of anxiety may have a detrimental effect on students' testing abilities and can hinder their academic performance. Thus, an easy-to-use technique may prove miraculous for students with disabilities to help control their anxiety and improve their test scores.

Several studies have shown improvements in anxiety levels amongst students by using techniques such as yoga or meditation (CNN, 2007; MindBodyGreen, 2010). These techniques have been proven to work but can often be time consuming and not always the technique of choice when one is among his or her peers. Therefore, a technique called 1-minute of silence was used in this study. The 1-minute of silence technique teaches students to close their eyes and focus their mind for 1 minute each day for 4 weeks. Students were first given the Westside Test Anxiety Scale as well as the NYS Math test. Students were then taught the 1-minute of silence technique and used this technique for 4 weeks and were subsequently given the Westside Test Anxiety Scale and NYS Math test again to determine if a significant finding was revealed. An ANCOVA analysis was used to determine whether anxiety levels decreased and test scores increased for students with special needs when using the 1-minute of silence technique.

Nature of the Study

A quantitative causal comparative design exploring the difference in anxiety levels in students with special needs between intervention type (no silence, 1 minute of silence) was used as a framework for the secondary study. In addition, in the secondary study, I explored the differences in test scores between intervention type (no silence, 1 minute of silence) in students with special needs. A quantitative design was chosen for this secondary study rather than a qualitative design because findings were measured and expressed numerically. Numerical values were extrapolated from the NYS tests as well as the Westside Test Anxiety Scale.

An exploratory approach where students with disabilities are taught to practice 1 minute of silence each day for a period of 4 weeks was used. Half of the students were part of the experimental group, while the other half were in the control group. Those students in the experimental group participated in the intervention, while the students in the control group did not. These two variables (control and experimental) were the independent variables. I also used variables dependent upon treatment. The dependent variable for RQ1 was (post) anxiety, while the dependent variable for RQ2 was posttest scores. In addition to the independent and dependent variables, covariates existed, which demonstrated an extraneous variable that played a role in determining whether the outcomes were accurate. Thus, the covariate for RQ1 is pre-anxiety, while the covariate for RQ2 is pretest scores. In order to determine whether a change exists after treatment, it was essential to determine the scores of anxiety and test scores prior to treatment.

Students with special needs from J.H.S. 190 Russell Sage were recruited to participate in the treatment study. Students who gave consent as well as parents who gave consent to their child's participation in the study were placed in one of two groups (control or experimental). All students were given the Westside Test Anxiety Scale and the NYS Math test (covariates–pre-anxiety and pretest scores) prior to treatment. Students who were part of the experimental group were taught the 1-minute of silence technique, and used it each day for 4 weeks. Upon completion of the treatment, all students were given the Westside Test Anxiety Scale followed by the NYS Math test (dependent variables). Subsequently, upon completion of testing and intervention, all data were analyzed to yield statistical significance.

Definitions

1 minute of silence technique: 1-minute of silence is specified as each student sitting in his or her classroom seat with both feet on the ground, his or her hands in the lap, and a straight back for better air flow. Students are then instructed to close their eyes and try to clear their minds by thinking of the word silence. After 10 seconds of pure silence in the room, the researcher will turn over an hourglass, which will last for 1 minute. When the minute of silence is up, students will be instructed to keep their eyes closed while raising their hands to cup their eyes. They are then told to open their eyes in the palm of their hands and slowly lower their hands while looking at the tips of their fingers until their hands reach their laps. After having learned the technique, every student's respective teacher will ensure that the student performs the minute of silence technique prior to an exam/test.

The students selected not to participate in the intervention (control group) did not get 1 minute of silence prior to taking the test. It is important to keep in mind that the students in the experimental group were always be taught the minute of silence technique only with other students who are in the experimental group and will never do the technique in the presence of those in the control group or general education students.

Anxiety: According to Kaplan and Sadock (1996), anxiety is characterized by an unpleasant sense of apprehension and/or nervousness often accompanied by a feeling of worry, and certain autonomic symptoms, such as, perspiration, palpitation, headaches, stomach discomfort, and tightness in the chest.

Disability: According to the Americans with Disability Act (ADA, 1990), a person with special needs is an individual who (a) has physical deficiencies and/or mental deficiencies that significantly restrict tasks used in everyday life, (b) has a record of such a deficiency, or (c) is regarded as having such a deficiency.

Intervention:. The Encyclopedia Britannica (2012) defined an intervention as an approach to modify a behavior; it has an immediate, short-term, positive outcome, and where the ultimate goal to find a solution and help resolve a personal crisis within the individuals' immediate surroundings.

Special education: Special education is a method of teaching specifically created to help students with special needs to meet their demands. This means instruction that is uniquely designed and/or instruction that is modified to address a specific child's needs. These children are given an IEP according to their daily needs in school (NICHCY, 2012).

Special needs child: By definition, a child with disabilities is one who has been classified as having special needs. This disability may include a health or mental health condition(s) where early intervention, special education, or other related services and supports might benefit the child. A child with special needs is also one without identifiable disorders but who requires special services, supports, or monitoring (Social Security Administration, 2012).

Test score: A number or letter outcome that conveys an accomplishment either in points gained or by comparisons to a standard.

Assumptions

The current secondary study was based on an assumption that developmentally disabled children are capable of maintaining the high academic standards that typically developing students maintain. Unfortunately, the current educational system fails to realize that although these academic standards can be maintained, they must be maintained through various channels for children who have difficulty channeling their anxiety through typical means. Regrettably, this renders mainstreamed children with disabilities helpless and vulnerable to their disability and not in spite of it. Furthermore, it was assumed that if these children can develop a coping mechanism, such as the silence technique, they would ultimately maintain similar standards as typical children. In other words, if children with disabilities can cope with their stressors by using certain techniques, they can perform at their expected highest academic national standard.

Scope and Delimitations

Anxiety levels and test scores among students with disabilities were examined. Whether anxiety levels decrease and test scores increase when given an intervention (4 weeks of 1 minute of silence) was investigated. This area of research was chosen because few intervention studies focus on relieving test anxiety in children with disabilities.

Students with special needs from Grades 6, 7 and 8 who had an IEP were recruited from J.H.S. 190 Russell Sage, a New York City Public School, participated in the study. Of the 163 eligible students, a sample of 55 students was gathered to participate in the study ($N = 55$), based on certain inclusion and exclusion criteria. To be eligible, participating students were between the ages of 11 and 15, be proficient in the English language, attend J.H.S. 190 Russell Sage and have an IEP. All findings were statistically analyzed to determine the extent of generalizability to the overall population of students with disabilities.

In sum, the population and sample were defined using inclusion and exclusion criteria that were determined based on decisions that were made during the development of the dissertation. The delimitations, which were determined by the inclusion and exclusion criteria, defined the boundaries of the study. The scope of the research study only addressed the hypotheses and did not exceed the theoretical foundation in which this research study was based.

Limitations

Little research exists on treatment options for students to alleviate anxiety prior to testing. Moreover, no research exists, to date, that focuses on treatment for the anxiety of children with disabilities in community public school settings in relation to testing. The current secondary study contained 55 students with special needs from one city (New York) and one state (New York). The students were all from self-contained classrooms within a public school setting. The study did not go beyond the scope of the aforementioned limited population. Although it is essential to generalize findings to the overall population, this limited sample made it difficult to generalize the findings but does demonstrate a predictive nature of the treatment.

Future studies will need to be conducted on not only a larger sample of students with special needs but cross-culturally as well to see if differences exist. In addition, because the students were not randomly selected from the general population, further researchers will need to address how statistically significant the treatment is within a randomized study; this could mean using typically developing students as well.

Significance

To date, few theories exist that examine stress and anxiety levels in children with disabilities and how these levels may be alleviated through various modes of exercise. Moreover, no study exists that examines how the levels of stress and anxiety can be altered through various coping mechanisms designed especially for special needs children.

In the current NYCDOE, reforms have been made to improve the system while weeding out those flaws within the system. Teachers and students are held to a much more rigorous standard than they ever were in the past, but not without flaws. According to Mayor Michael Bloomberg's new reform stated in the Daily News on February 22, 2012, teachers are now ranked based on their students' test scores (Gonzalez, 2012). If stress and anxiety were not pivotal before, they are certainly at their highest now. Students now feel the tension and backlash associated with academic performance because they are held to individual and group standards. Additionally, students will now be affected indirectly by achieving high scores because their teachers' jobs are at risk. For students with special needs, this means that they will fare worse than they ever have in the past because their expectations and anxiety levels are higher than ever, having little resources to cope with any aspect of academia.

Because of the present reforms, the current secondary study may serve to identify a possible method that will help children with disabilities not only cope with stressors but improve their academic scores, making academic life easier all around. This technique may also change the way the current NYCDOE views children with disabilities in inclusive settings by offering them the means to a successful end. Furthermore, the method used in this study may help the National Board of Education improve their system, particularly for children with disabilities in inclusion.

The last century has seen major reform in the educational system in the United States. Students were taken out of home schooling to be placed into organized institutions where each child was taught the same material in an organized fashion. Over

time, the system became more rigorous, and students were required to complete testing to see that they performed on the same level as their peers. However, these changes were geared towards typically developing students and not students with disabilities. In the past few decades, reforms were made to address the needs of students with special needs.

Differentiated instruction became essential in schools to allow all students, not just typically developing students, to grasp the material and move forward to be academically successful since many students were lagging behind. Unfortunately, although many typically developing students seemed to be progressing appropriately, many students with special needs were, and currently are, finding the system harder than ever.

The increasing knowledge base, in conjunction with other academic demands, yields a very high anxiety environment for all students, but particularly for students with disabilities. Therefore, it is essential to encourage social reform/change within the school system to help all students make strides in learning. Social change includes modification of instruction within a social structure, which is categorized by changes in social behavior (Encyclopedia Britannica, 2012). In other words, changing behaviors within the school system may lead to higher academic success for students with disabilities who are already having difficulty with the current demands. A technique designed to alleviate the pressures of academia for students with disabilities may result in a social change across the national education system. The current secondary study was developed to make a social change by using an experimental intervention--1 minute of silence--for 4 weeks to

see whether the intervention would lower anxiety levels and improve test scores in children with special needs.

Summary

In Chapter 1, I provided a brief overview of the study's purpose and theory. I included a summary of the background of the national school system, which includes reform in federal and state laws. Additionally, an overview of the terms and definitions associated with stress and anxiety among children with special needs were displayed. The chapter addressed the academic requirements in the current NYC school system and gives the reader an outline of the research questions.

In Chapter 2, I review the existing literature on stress, anxiety, and test scores among children with disabilities in an inclusion school setting. Chapter 2 gives insight into the academic world of a student with special needs who is mainstreamed into an inclusion setting. Additionally, it provides information on the current study's technique for coping with academic stressors.

Chapter 2: Literature Review

Introduction

Students with disabilities may experience more anxiety when taking test than students with no disability (Cassady, 2010). The purpose of this study was to assess whether a technique called 1-minute of silence reduces anxiety and improves test scores among students with disabilities.

When mental health professionals, researchers, and school personnel discuss anxiety in school children, they are often addressing typical students who have a heightened level of anxiety due to school (Cassady, 2010). However, it is often the children with special needs who exhibit the highest amount of stress associated with school because they have additional hurdles they need to overcome, with fewer resources to help them cope (Cassady, 2010). For instance, a student with a learning disability faces multiple challenges, such as the use of multiple techniques to grasp material, utilization of extra time to process the information, and/or reception of additional assistance from a paraprofessional. These hurdles are only a small sample of what many children with disabilities must cope with in order to function successfully in the academic environment.

The current rate of children with pervasive developmental disorders (PDD) has increased drastically over the past few decades, with the current standard being 1 out of every 88 children (Costello, Egger, & Angold, 2005). As the number of children with special needs who enter the mainstream school system increases, so too does the number of school related reports of anxiety (Swearer, Wang, Maag, Siebecker, & Frerichs, 2012). It is usually around testing time that students experience the highest levels of anxiety

because they know they must perform better than they previously have, and they are being compared to their typical peers (Wigfield & Cambria, 2010).

Testing has always been a part of schooling, and the anxiety that comes with testing is nothing new. For decades, researchers and school officials have tried to create and employ techniques that they thought would ameliorate a student's level and ability to perform; these techniques focused on cognition, behavior, and skill-task (Neuderth, Jabs, & Schmidtke, 2009). Although the following techniques have been widely used in schools around the country, most of them did not produce the desired results, warranting more research.

Literature Search Strategy

This literature review includes a review of the history of special education, definitions of laws and regulations regarding students with disabilities as well as a brief history of the progress made in the world of special education. Also reviewed are the definitions and theories related to stress and anxiety disorders. Furthermore, focus is placed on test anxiety among students with special needs, as well as typical students, and their ability to cope with anxiety by using relaxation techniques to improve test scores. The literature review was conducted using a variety of library databases and search engines, including Walden University's online library, ProQuest dissertations, and databases such as PsychInfo and EBSCO.

Key Search Terms

Since the current study was aimed at determining whether or not a minute of silence is a viable tool in decreasing anxiety levels and increasing test scores amongst

students with special needs, key search terms used included the following: *history of special education, inclusive classrooms, test scores, test anxiety, stress, and coping strategies as well as special needs, No Child Left Behind, Individual Education Plan, general education, least restrictive environment, integrated co teaching, self-contained classroom, race to the top, common core, school phobia, social phobia, intervention, cognitive behavioral techniques, systematic desensitization, theory of planned behavior/reasoned action, health belief model*, and *1 minute of silence*.

Scope of Literature

Although little research exists in relation to the current study, comparative research beginning from 1978 until the present day was used to provide a background in the literature. Peer reviewed journals include, but are not limited to, *Learning Disability Quarterly, Journal of Educational Psychology, Journal of Educational Research* and *Journal of Abnormal Psychology*.

Lack of Research

Little research exists in the domain of anxiety among children with special needs; therefore, literature was used that contained anxiety studies with typical children in mainstream settings. In addition, little research exists on anxiety reduction techniques in children, thus the limited research that was garnered was used and compared to the current study to see if any correlations or similarities exist, which can then be relayed to children with special needs.

Theoretical Foundation

The theoretical foundation for this study was the theory of planned behavior/reasoned action and the HBM. Ajzen and Fishbein developed the theory of planned behavior/reasoned action in 1980. Hochbaum et al. developed the HBM, which was created much earlier than the theory of planned behavior/reasoned action in the 1950s while working at the U.S. Public Health Services (University of Twente, 2014).

The theory of planned behavior/reasoned action and the HBM were chosen because these two theories suggest that an individual's behavior is determined by the individual's intention to carry out a certain behavior. It further implies that a person who uses self-control has the ability to perform the behavior at will. In other words, these two theories are the foundation for implementing a new technique, such as the 1-minute of silence, to achieve behavior change. The theory of planned behavior/ reasoned action explains that when the intention towards a behavior is present, the outcome of the behavior becomes more favorable, and the HBM suggests that a person take health-related action to improve a healthier lifestyle.

Theory of Planned Behavior/Reasoned Action

The theory of planned behavior/reasoned action suggests that an individual's behavior is determined by the individual's intention to carry out a certain behavior. It further implies that a person who used self-control has the ability to perform the behavior at will: The stronger the desire to carry out a behavior, the more likely its desired outcome. Although the individual's intention to perform a certain behavior may have favorable outcomes, it is necessary to take into consideration that anxiety, fear, and past

experiences should be factored into behavioral intention and motivation. Thus, the intention to perform a behavior is influenced (Polit & Beck, 2010).

Health Belief Model

The HBM suggests that health behavior depends on perceived susceptibiltiy, perceived benefits, perceived severity, perceived barriers, indication to action, and the belief in ones personal power (Sharma & Romas, 2012). The purpose for this model is to have a person take a health-related action to improve a healthier lifestyle. It is a popular model in health education and health promotion since it provides guidance on how to plan an intervention by breaking down complex issues into smaller parts using by persuasion and encouragement to be able to achieve the behavior change goal.

Ajzen (1991) implied that some behaviors may not need additional resources--such as an intervention--to have a positive outcome, but most performances depend on resources to enhance the behavior. Ajzen (1991) stated that the individual who intends to perform the behavior and uses the theory of planned behavior would succeed in doing so. The current study used the 1-minute of silence technique as a resource to control the behavior and motivate the desired outcome.

According to the HBM, health behavior depends on perceived susceptibiltiy, perceived benefits, perceived severity, perceived barriers, indication to action, and the belief in ones personal power (Sharma & Romas, 2012). Sawyer et al. (2010) and Stallard et al. (2014) stated that evaluations of prevention programs that were specifically created for school children failed to provide positive outcomes. Moreover, Miller et al. (2011) claimed that even though the results of anxiety prevention programs seem to be more

encouraging, the studies have failed to find positive outcomes. In the current study, I used the 1 minute of silence technique to reach self-efficacy and aquire a new behavior.

Literature Review Related to Key Variables and/or Concepts

Prior research done on children in the public school system is limited but gives a good foundation to guide the current study. No research exists on children with special needs in the NYS public school system that are in Grades 6, 7 and 8 in regards to anxiety reduction and improvement in test scores, and little research exists in the domain of relaxation techniques for developmentally disabled school-aged children. The current study aimed to alleviate anxiety by using the 1-minute of silence technique to teach these children to relax and focus on the task at hand. Moreover, the current study was developed to improve test scores and lower anxiety levels among children with disabilities. The methodology in the study was used because a variety of methods such as the visual imagery and breathing technique, in combination, are easy to use, energy efficient, and are not time consuming, and these methods, in conjunction, may yield positive results.

For decades, researchers and school officials have tried to create and employ techniques that they thought would ameliorate a student's level and ability to perform; these techniques focused on cognition, behavior, and skill-task (Neuderth et al., 2009). Although the cognitive behavioral techniques have been widely used in schools around the country, most of them did not produce the desired results, warranting more research. In other words, due to the limited research on coping mechanisms with children with special needs, the 1-minute of silence technique was chosen because of its ease and

effectiveness with children with special needs who experience high anxiety during test taking.

Other techniques, such as cognitive behavioral methods, include relaxation techniques (Dundas, Wormnes, & Hauge, 2009). Relaxation therapy involves a combination of relaxation techniques that have shown to be somewhat effective in reducing test anxiety in students (Ergene, 2003; Johnson, Larson, Conn, Estes, & Ghiellini, 2009).

Another type of cognitive behavioral technique includes the skill-focused or study skills training, a method where students are taught skills to memorize specific information (Armstrong, 2010). It is a combination of learning study habits, reading comprehension, time management, and note taking. This technique focuses mainly on task-related skills and self-management. Many of these skills have been widely used by teachers to help their students to learn material quickly. This method is not seen as an intervention technique but rather as a way to learn and memorize material. Skill-focused or study skill training is not a relaxation technique to lessen anxiety levels but more an academic tool that helps to increase retention.

Systematic desensitization involves relaxation techniques to slowly diminish stressful situations (Novaco, 1978). It is a type of behavioral therapy based on the principle of classical conditioning where one gradually becomes less fearful by learning to relax muscles when shown a visual image of an object that conveys fear (Tasto, 1969). For example, a person who is afraid of mice may practice muscle relaxation when shown an image of a mouse as systematic desensitization, as being exposed to an image of a

mouse is intended to be less frightening than being exposed to an actual mouse. With different stimuli, this treatment will continue until all fears are gone and relaxation is retained in the presence of the most intense stimuli (McLeod, 2008). Another type of systematic desensitization is modeling. When something is modeled, a fearful individual will observe others on how they handle a situation without fear. By imitating and role-playing, one learns to reduce anxiety.

Visual imagery is another technique that can be taught to students easily, especially those with an overactive mind (Zipkin, 1985). For instance, visualizing an image of a beautiful island with the smell of the ocean is relaxing to most and can aide a child who is experiencing overstimulation in the school environment. Similarly, deep breathing is a technique that can be taught easily and has lasting effects (Margolis, 1990). Deep breathing can be described as slow, abdominal breathing that brings balance between the oxygen and carbon dioxide levels in the body (Nassau, 2007). The oxygen should be inhaled through the nose, held for a few seconds, and exhaled through the mouth. Zuercher-White (1998) stated that when one is trained to use this type of breathing, the body would automatically react and subsequently adjust to lessen the level of anxiety.

History of Special Education

Special education is a newly coined term that was not used centuries or even decades ago. Individuals who had special needs or disabilities were often considered unsuitable for learning and were not given the opportunity to enhance their cognitive skills. It was only toward the latter part of the 18th century (circa -1755) that the first

public school for the deaf was created in Paris by Abbe´ Charles Michel de Epée and a similar public school was created in Germany by Samuel Heinicke (Washington University School of Medicine, 2012). Circa 1760, Thomas Braidwood opened his first school in Edinburgh, which served deaf-mutes. Unfortunately, the school in Edinburgh closed down, although he eventually opened a new school in London in 1783, the Old Kent Road Asylum for the Deaf and Dumb.

The first public school for the deaf in the United States was founded in Hartford, Connecticut, in 1817. This school became known as The American Asylum for the Education and Instruction of the Deaf and Dumb. Laurent Clerc, a French teacher of the deaf, came to Harford, Connecticut and at the request of Thomas Hopkins Gallaudet to teach at the school. Clerc, who was deaf himself and trained according to the method of L'Epee, became the first deaf teacher teaching the hard of hearing in the United States. The school, now known as the American School for the Deaf, continues to teach educational and vocational skills to the deaf and hard hearing (Luckner & Muir, 2001).

After multiple schools for the deaf were opened, France opened its first school for individuals who were blind in 1784. The school was called Institut National des Jeunes Aveugles (INJA) and was a model for the rest of the world due to the implementation of Braille taught by Louis Braille (Henri, 1952). Simultaneously, the United States opened their first institution for the blind in 1832. However, it was as late as 1909 that the Modified Braille System was implemented in the classrooms in the New York Public School System. Although these schools catered to the blind and deaf, they did not address those who were affected by other disabilities. Unfortunately, it was only decades later

that people began to address the issue of emotional states in individuals with disabilities and opened their first schools in Europe, called institutions, for those with disabilities and the mentally ill (Gallaudet University, 2012).

In the United States, the first institution for those with mental retardation opened in 1850, called The Massachusetts School for the Idiotic and Feeble-Minded Children. This institution did not focus on the academic domain but rather on daily living skills (Constitutional Rights Foundation, 2012). By the 1920s, special education had its own curriculum and educators throughout the country. However, most of these disabled children were taught in separate classrooms where disabled children had little interaction with nondisabled peers (Constitutional Rights Foundation, 2012).

Changes came in the mid-1950s, when the integration of schools led to major reforms in the disability rights movement. A new law was enacted in 1965 named the Elementary and Secondary Education Act (ESEA), P.L. 89-10. This law included an all-inclusive plan addressing the disparity of educational opportunities for economically disadvantaged children. This law became the base upon which early special education legislation was written. In the early 1970s, some parents of children with disabilities began to argue that their children were being discriminated against when it came to their education. These parents claimed that the education their children received did not meet the needs of their children as they believed their children were able to learn and, if given the opportunity, become respectable citizens of society.

These claims were supported by studies that showed that approximately 60% of children with disabilities were not sufficiently serviced by the schools they attended

(Constitutional Rights Foundation, 2012; Fuchs, Mock, Morgan, & Young, 2003). This led to the amendment of education in 1974 to include education that is suitable for all children with disabilities (Selected Federal Statutes, 2012). By 1975, the All Handicapped Children Act (AHCA) was passed, which stated that all children, including those with special needs, must be included in public schools as well as part of the education reform.

Prior to this, children with disabilities were not educated, nor were they considered eligible for academia. It was only over a decade later that the Americans with Disabilities Act (ADA, 1990) was introduced and a clause incorporating special education students into civil rights legislation was added (Martin, 1991). ADA is a civil rights law that is based on the belief that people with disabilities should not be segregated or excluded from their communities; it provides protection for people with a variety of disabilities in many aspects of public life. This act was created to provide clear, punishable mandates regarding discrimination against individuals with special needs. It also ensured that the federal government was involved in enforcing those mandates on behalf of individuals with special needs. Most importantly, it gave congressional authority the power to uphold the fourteenth amendment in order to review all areas of day-to-day discriminations experienced by people with special needs (U.S. Department of Education, 2007).

Americans With Disabilities Act and IDEA

Over the years, many changes have been made to the ADA and have been renamed and amended several times. It was only in 1990 that The Education of the

Handicapped Act of 1990 became known as the Individuals with Disabilities Education Act (IDEA) with amendments made in 1997 and in 2004. IDEA, initially passed in 1975 (Public Law 94-142), guaranteed that children with special needs throughout the United States would receive the services they needed. IDEA specifies how states and public agencies service over six and a half million disabled infants, toddlers, children, and youths who qualify for services in early intervention, special education, and related services (United States Department of Education, 2004). A review of IDEA (P.L. 108-446; 2004) supports understanding of students with disabilities' rights in America's public schools. It is mandated under this federal law that every person with special needs is allowed to obtain a free and appropriate public education (FAPE) in the least restrictive environment. It is also indicated under the law that children receive the type of education and classroom environment that is age appropriate and best suits the student's individual developmental level. This ensures that all student placements have the specific needs of the child in mind (Autism Society, 2012).

Federal funding is granted to states that meet the explicit mandates proposed by IDEA. Criteria for receiving federal funding include: (a) giving students with disabilities a FAPE, (b) a program that is individualized to specific needs, (c) a placement in a classroom that provides an environment that is least restrictive, (d) allowing parents as well as students to be a part of the decision making process, and (e) confidentiality or protection for all procedures involved in the process. In addition, related services should also be provided to the student to enhance educational needs, but it must be written on the student's IEP.

The included related services, as defined by IDEA, include: (a) audiology services, which may include balance and related disorders; (b) psychotherapy; (c) early testing and assessment of children with special needs; (d) medical services (for evaluation and diagnoses only); (e) therapeutic treatments to help with daily living skills; (f) psychotherapy for the parents; (g) physiotherapy; (h) psychosomatic services; (i) restoration or refreshment of mind and body through relaxation; (j) rehabilitation analysis; (k) health services provided in school; (l) social work services; (m) treatment for communication and swallowing disorders; and (n) modes of transport. Services are not limited to those specifically mentioned. Any service that benefits a student and is developmental, corrective, or supportive may be added to the IEP. It is recorded as a related service and should be provided by a specialist in that particular field. This means that services such as the use of computer and/or any assistive technology that are not formally written as part of IDEA, but are needed on a part or full time basis, may be added to a student's IEP (Autism Society, 2012).

According to IDEA, there are 13 categories of disability. Autism, the first of the disabilities, is described as a neural disorder with impaired developmental, social, and communication deficits. It is usually detected before a child turns three years of age and negatively affects a child's educational development. Other observable differences are often linked with autism, and can include repetitive movements and/or activities, resistance to changes in daily routines, and unusual responses to sensory information.

The second category, deaf-blindness, is defined as a condition in which the individual has little or no beneficial sight and little or no beneficial hearing. Both can

cause severe communication, developmental, and educational deficits for which a typical special education program is unable to provide adequate service. The only appropriate programs are programs solely created for children with deafness and/or blindness. Unlike Deaf-blindness, the third category, deafness, is defined as a partial or total inability to hear. The hearing loss is so severe that the child is unable to process verbal information, with or without sound, which subsequently affects a child's educational development.

The fourth category, emotional disturbance, is defined as a disorder in which children show one or more of five characteristics over a long period of time that harms a child's educational development. These characteristics include: (a) the incapability to learn, unexplainable through intellectual, sensory, or physical health factors; (b) the incapability to satisfactorily build or maintain an interpersonal rapport with peers and teachers; (c) types of feelings or behavior that are inappropriate in normal situations; (d) a depressive state, pervasive unhappiness or sadness, or a frequently changing mood; and (e) a creating situations where personal fears, physical symptoms or school related problems interfere with the typical development of the child. In addition to these criteria, the expression, emotional disturbance, includes schizophrenia; however, it does not apply to children who come from socially unstable homes, unless a diagnosis or emotional disturbance is determined.

The fifth category, hearing impairment, is defined as having a problem with or damage to one or more parts of the ear resulting in compromised hearing. This may be permanent or temporary, but does affect a child's educational development. This category doesn't fall under the criteria of deafness.

The sixth category, intellectual disability, is defined as having severe cognitive deficits that negatively affect a child's educational development. Mental retardation may be evident in a child's adaptive behavior as well as in intellectual functioning. The seventh category, multiple disabilities, is defined as a combination of several disabilities. This may include cognitive deficiencies or intellectual disabilities as well as orthopedic or sensory impairments. These impairments can cause such severe educational deficits that a typical special education program that serves children with one of the impairments is unable to service a child with multiple disabilities. Deaf-blindness is not include.

The eighth category, orthopedic impairment, is defined as having a major orthopedic impairment that affects gross and fine motor skills. It may include congenital anomalies, such as a clubfoot, or the absence of an extremity, or other causes such as cerebral palsy, poliomyelitis, or amputations, all of which negatively affect a child's educational development. The ninth category includes other health impairments, is defined as having a combination of impairments that are or may become chronic health problems which again, may negatively harm a child's educational development. Examples of multiple disabilities include attention deficit hyperactivity disorders, and chronic or acute health problems, such as heart conditions or asthma, but these are only a few examples of another health impairments.

The tenth category, specific learning disability, is described as having difficulty learning in a typical setting because there may be severe areas of deficiency in processing spoken and written language. It is described as a one or more of the basic psychological reasons that involve limited educational understanding. It is usually detected though

observation by a professional who observes the lack of understanding and/or the inability to speak, think, listen, write, spell, read, or complete mathematical computations in a proper fashion. Conditions that fall under this category include brain injury, developmental aphasia, and dyslexia. Not included in this category are learning difficulties that are a result of visual, hearing, or motor disabilities. Mental retardation, emotional disturbance, or environmental, cultural, or economic difficulties are also not considered a result categorized with this disorder.

The most common of the categories, the eleventh category, is known as speech or language impairment. This disorder is characterized as having communication difficulties. These may include stuttering, language or voice impairment, and impaired articulation that may negatively affect a child's educational development.

The twelfth category, traumatic brain injury, includes those individuals who attained a brain injury caused by an external physical force. Brain injuries that are included in this category are those with total or partial functional disability that may or may not involve psychological and social difficulties, or both. These conditions may negatively affect a child's educational development. Traumatic brain injury is an expression that refers to open or closed head injuries that result in difficulties in development. These include cognition, attention, reasoning, memory, language, theoretical thinking, problem-solving, judgment, sensory, or interpretation of sensory information, motor skills. In addition, it also includes psychological behavior, social development, physical tasks, the processing of information, and speech. With this said,

the expression does not apply to brain injuries that are a result of genetics or injuries induced by birth trauma.

Lastly, the thirteenth category, known as visual impairment including blindness, is described as having a deficiency in vision that negatively affects a child's educational development. The expression consists of both partial sight and blindness (20 U.S.C. 1401(3) (A) and (B); 1401(26); Hallahan & Sayeski, 2010). IDEA mandates that each student, including those in all thirteen categories previously outlined, be taught according to his or her ability.

No Child Left Behind

While revisions were made to IDEA several times and many strides were achieved in the special education system, it still mandates that each child be taught according to ability, which contradicts No Child Left Behind (NCLB). President George W. Bush announced only three days after taking office as the 43rd President of the United States, the NCLB proposal, which became an act less than one year later. NCLB (2001) reformed education by setting high academic standards and measurable goals for *all* children, so they would not fall through the cracks and get left behind. It requires that all governmentally administrated schools that receive federal funding run an annual state-wide standardized exam and ensure that there is Adequate Yearly Progress (AYP) made. AYP means that each year students must do better than the students from the previous year; every grade must perform better than the previous class to ensure a brilliant class ten years down the road. Additionally, the act ensures that no child will be stuck in a

failing school; once a school reaches standards that are considered sub-par, the school must either raise their scores, or risk being shut down.

NCLB (2001) consists of different titles and sections and describes the requirements for which the school districts receive funding. For example, Improving The Academic Achievement Of the Disadvantaged means that a school that is at risk, and did not reach their AYP, is considered In Need of Improvement Year 1 (Greatschools.org, 2012). This title is aimed at ensuring that all students have an equal academic opportunity to receive a high-quality education and to demonstrate skill or ability when taking challenging state exams and academic assessments. Moreover, states, school districts, and schools became more accountable regarding student achievement and the necessity to improve academic standards (U.S. Department, 2001).

In addition to a high quality education, testing and testing requirements have improved over the past decade, starting with the passing of NCLB. With the implementation of this act, schools are mandated to evaluate every student in Grades 3 through 8 yearly and once in Grades 10 through12 on English Language Arts, Reading, and Math. In addition, NCLB mandates that by 2012, 90% of students with learning disabilities must at least accomplish a proficient grade level (Bedell & Larrainza, 2009). Amendments and modifications to NCLB and IDEA have improved the inclusion of students with special needs in general education classrooms and receive a general education curriculum (Cole, 2006). Although NCLB has enhanced American educational system in some ways, it still has imperfections (Duncan, 2012).

After 10 years of raising the standards according to NCLB, students are still performing at or below grade level. It can only be explained as a failed system that needs restructuring. According to Duncan (2012), we are ready for a new NCLB Act given that it has been a decade and the current system still has flawed policies and is exposed to too many achievement gaps. Our schools and districts deserve flexibility when it comes to testing strategies and should be allowed to use a wide range of strategies to achieve high educational standards rather than a one-size-fits all accountability system (Duncan, 2012).

Individual Education Program

The United States Department of Education created a program called the IEP, which was designed solely to address the needs students with disabilities may have. An IEP is developed for the purpose of creating means whereby a student with special needs has access to the school, the core curriculum and in due course, academic success, bearing in mind the student's exceptional learning needs (New York City Task Force for Quality Inclusive Schooling [NYCTFQIS], 2010). This program includes guidelines that public school administration and staff must follow to guarantee that each child with a disability is given a fair and rigorous education.

Before a school can offer a child special education and related services, the student's parent(s) and/or guardian(s) must give their written consent. Each child who attends public school must have an IEP to be able to receive special education and related services. Each IEP must be strictly individualized. The IEP helps school administration, teachers, parents, students, and related service providers to work as a team to improve the

education for children with disabilities. The Committee on Special Education (CSE) team, which includes the Special Education Teacher Service Support (SETSS) provider, general education teacher, parents, counselor, school psychologist, speech therapist, and other related support provider(s), and if possible the student, come together and discuss the needs of this particular student in order to create the IEP. Together, the committee tries to use their knowledge and expertise to create an education plan that will aid the student so he or she can be part of, and thrive in, the general education classroom.

The IEP includes, among other important information, the student's current level of academic and social performance, how the disability may affect the performance, the classification of the student's disability, measurable annual goals and short-term instructional objectives and benchmarks (NYCTFQIS, 2010). The IEP serves as a guide for all involved to deliver the support and services the student with disability needs. By law, the IEP mandates to include the child's current levels of academic performance, the annual educational and social goals, the special education and related services requirements, specific accommodations, the ability to participate in state and district-wide exams, transition services, and measured progress.

To start an IEP, the student's possible needs for special education and/or related services, which is followed by a specific evaluation of the student. It is also essential to review the records of the student's present academic performance and developmental and functional needs. If the student is eligible, an IEP meeting is scheduled. It is mandated that this meeting be held within 30 days of determining that the student qualifies for special education and related services. If a meeting is not held within 30 days of

evaluation, then a complaint is filed with the United States Department of Education to have the meeting re-held.

The initial meeting usually includes the parent, the school psychologist, a teacher certified in special education, a teacher certified in general education and/or content matter, related service provider(s), and individuals from the school and district. After the meeting, the IEP is written and services are provided accordingly. Student academic and social progress is measured and reported regularly to the parents or guardians. While an IEP is reviewed annually, a reevaluation is usually done every three years. This evaluation, known as a tri-annual, is typically conducted by a school psychologist.

To help decide what types of services a student with a disability may need, the committee evaluates the results of classroom tests, teacher observations, psychological tests, observations by parents, and others, namely school administrators and the child's physician report (Vocational and Educational Services for Individuals with Disabilities, 2012). In other words, the level of understanding and progress in academic and skill areas, which may include activities of daily living, level of mental functioning, adaptive behavior, and measured rate of growth in gaining skills and understanding, are assessed to determine the level of services needed. The IEP committee also discusses specific information about the student, such as strengths and weaknesses of the student, statewide and district-wide tests, and the results of an evaluation. Special consideration, such as the child's behavior toward peers and adults, self-esteem, social adjustments to school, relationships with parents and/or guardians, and community environment are discussed.

Furthermore, the extent of a student's motor and sensory development, physical

abilities, and overall health, or limitations pertaining to the academic development are assessed to determine the level of physical therapy and occupational therapy required. Once these particular needs are addressed, limited proficiency in English, communication needs, and how parents can help enhance their child's education are also discussed. If a student is categorized as having a visual impairment or blindness, or categorized with deafness or difficulty hearing, specific assistive technology may be discussed to help the needs of the child. Based on the child's needs, the team will determine whether a specific device or service is required to help the child.

The most important part of the committee meeting is to determine each student's needs, and how to help enhance the student's academic performance. Overall, teachers, related service providers, administration, and other school personnel strive to advance the student's abilities to meet the annual goals stated on the student's IEP. In addition, each student with special needs should be encouraged to take part in their progress in the general classroom, to partake in extracurricular activities, and engage in interaction with other children with special needs as well with typical children.

Not only does an IEP require goals and services, but it requires the acknowledgment of intervention, accommodation and/or modification. If the IEP committee decides that a student is in need of a specific service or device (this may be an intervention, accommodation, or other modification), it will be written in their IEP. It is mandated that a copy of the IEP be given to the parents at no cost. Everyone who is involved in the implementation of the IEP should not only have access to the document but must know his or her responsibilities towards the mandates.

For example, if a student needs accommodations, he or she must be given one or more of the following: extra time on tests, a separate test location, a scribe, a technological device to hear or see, test questions and directions read and re-read aloud when applicable. Additionally, if a student needs modifications, they must be given the curriculum based on a modification of the standards – e.g., require knowledge of 80% of the core curriculum. At the conclusion of the IEP meeting, the committee will write up the IEP and include all support and services the school will provide for the student.

Models of General Education and Special Education

The education provided in public schools is required to fulfill curricula to enhance students' overall knowledge base and provide a foundation for academic studies. The curriculum typically consists of English Language Arts (ELA), Math, Science, and Social Studies. Currently, although most students in the general education setting are typical students, there are a percentage of students with disabilities who are placed into the general education classroom, which is known as inclusion. The students with disabilities who are mainstreamed into inclusive settings all have an IEP. The philosophy of inclusive education is that students with disabilities are part of the general education classroom and follow the general education curriculum, but receive assistance according to their IEP.

IDEA mandates that the IEP team will try, as a starting point, to consider placement into a general education classroom as the proper placement. If the IEP team decides that the Least Restrictive Environment is not the general education classroom, they may consider the general education classroom only part of the day, with the

remainder of time spent with extra services. All of this information must be written on the child's IEP with an explanation as to why the general education classroom is not appropriate for the entire day (NYCTFQIS, 2010).

The first option to a Least Restrictive Environment is one that allows the student to participate in general education classrooms at least 50% of the day, while the rest of the time is spent in either a resource room and/or receiving special services, such as, occupational therapy, speech pathology, or physical therapy. Resource rooms are classrooms where the student receives one-on-one or small group academic assistance from the special education teacher. The term Least Restrictive Environment, when used appropriately, shows the need to find the most constructive placement for each child within a continuum of services (NYCTFQIS, 2010).

Another type of classroom placement is called Integrated Co-Teaching (ICT). Previously referred to as Collaborative Team Teaching (CTT), the name was changed in 2010 when the service became part of the New York State continuum. All school districts in New York State are now required to use the term ICT. The reason for this is that each service that is offered to a student is consistent between school districts (United Federation of Teachers, 2012). Students with special needs who are placed in this type of setting are taught in a general education classroom with children their own age. ICT gives students the opportunity to be educated side by side with their non-disabled peers but benefit from the support of a general education teacher and a special education teacher working alongside (United Federation of Teachers, 2012). Together, both teachers create lessons and classroom activities while modifying the lessons, if necessary. Modifications

are changes made to the curriculum to accommodate and meet the needs of the student(s). The NYC Continuum of Services for Students with Disabilities describes ICT as follows: it "ensures that students master specific skills and concepts in the general education curriculum, as well as ensuring that their special education needs are being met, including meeting alternate curriculum goals" (Board of Education of the City of New York, 2012, p. 31).

The third and final type of placement is a special class service that supports students whose learning needs cannot be met within the general education classroom, even with the support of additional aids and services. This particular classroom setting is often called a self-contained classroom (Chen, 2009). These services are offered within district community schools, specialized schools, state operated/supported schools, and Special Education for Students with Special Needs approved non-public schools (NYC Continuum of Services for Students with Disabilities, 2012). The services that students who fall into this category receive include: (a) specified instruction and/or behavioral support; (b) modified curriculum, modified step for step information, specialized learning methods, and special classroom conditions as necessary to help the student succeed and achieve set annual goals; and (c) individualized instruction, additional supervision from an adult trained in special education, and/or individual intervention. Students may receive the provided services for the entire school day or only as part of the school day. Unlike in regular classrooms with a large number of students, students are grouped based on similar education needs within self-contained classrooms.

These classes may include students with similar or different disabilities, but they will have the same educational needs (NYC Continuum of Services for Students with Disabilities, 2012). The number of students in self-contained classrooms in a community school varies; generally, self-contained classrooms are comprised of about 12 students in elementary and middle schools and 15 students in a high school setting. These classes include a teacher who is certified in special education and sometimes a paraprofessional is present in the classroom. In addition, specialized schools have a variety of self-contained classes consisting of: (a) 12 students, a special education teacher, and a paraprofessional; (b) eight students, a special education teacher, and a paraprofessional; (c) six students, a special education teacher, and a paraprofessional; or (d) 12 students, with one special education teacher, and 4 paraprofessionals (NYC Continuum of Services for Students with Disabilities, 2012). Both community schools and specialized schools cater to the diverse needs of students coping with a variety of disabilities, such as autism, developmental issues, and/or behavioral concerns. In addition, community schools may also focus on students with specific academic struggles (Rodriguez & Caplan, 1998).

Although there are several different types of classrooms that accommodate children with special needs, it is nonetheless essential for each teacher, whether trained in general or special education, to be aware of each child's needs and what environment is necessary for that child to thrive. In order to become a competent and compassionate teacher, several qualities are required: patience, perseverance, readiness to adapt to student and administrative demands, and a pleasing personality (Unicef, 2001). With intelligence, wisdom, and patience, a teacher can bring out the best in his or her students.

Since most students consider their teacher a role model, they highly value the teacher's input.

Today, teachers are faced with much more than just the act of teaching; they are held responsible for their students' test scores, which cause more stress and anxiety to teachers and students alike. Teachers who strive to excel will push their students to perform better, while students, although they want to succeed, may have fear of failure, which is especially noticeable in students with disabilities. Theory suggests that fear of failure can be separated into two categories: over striving and self-protection (Bryan, Sonnefeld, & Grabowski, 1983). Although each has its benefits in terms of success or self-preservation, each may also compromise the academic process, making it an uncertain process for students who suffer from anxiety, low self-esteem, and are vulnerable to learned helplessness (Martin & Marsh, 2003). According to Romano (1997), it is important for educators to be aware of how their students are able to cope with feeling tense and/or stressed. In other words, teachers should familiarize themselves with the stressors that commonly affect children within the classroom so that they can reduce the stressors by changing them or eliminating them altogether. This knowledge can help educators to better understand their students and assist them academically.

Student and School Evaluations

Due to political pressures many changes occurred in the 1970s to reform the public school system and hold teachers responsible for the academic success of their students (Fairchild & Zins, 1986; Mulvenon, Connors, & Lenares, 2001). As a result of this pressure on public schools, the Associated Press – Stanford University (2010)

conducted a survey to determine who was to blame for the failures in the educational system. The majority of adults surveyed blamed neither teachers nor school administrators but rather blamed the students' parents for the failures in the educational system. The adults surveyed claimed that a lack of discipline and low expectations caused serious problems in schools, which resulted in low test scores for students, as well as teachers (AP-Stanford University, 2010).

Others blamed the rising level of poverty, teacher quality, and the continuous measure of standardized tests to the failing system (Friedman, 2012). However, the U.S. Department of Education (2012) stated that these failures have nothing to do with poverty, but are the result of the way teachers instruct their students. According to the department, poor test results mean that teachers are not teaching students properly and need to implement new teaching strategies with modifications and differentiations to their teaching methods for better test results. In addition, the U.S. Department of Education stated that annual student test results are indicative of areas where teachers need teaching skill improvement, and in turn must seek continuous professional development. Moreover, the U.S. Department of Education claimed that if teachers cover the curriculum and teach it well, students will not only gain knowledge and improve academically, but will also excel in test taking (ProCon.org, 2013).

According to Jacobs (2007), in order for schools to improve their students' test scores, administrators must demand that teachers teach testing strategies to their students. Teachers, on the other hand, find that teaching students for a specific test causes their students to lose the necessary critical thinking skills needed to achieve higher cognitive

functioning (Biggs & Tang, 2011). However, China institutes teaching to a standardized test as the teaching method of choice and was considered a leader in educational achievement in 2009. In that same year, China ranked number one in reading, math, and science on the Programme for International Student Assessment (PISA; Dillon, 2010). On the other hand, after the passing of NCLB the United States dropped from the 18th spot in ranking to the 31st place in math, with similar outcomes in reading and science. Due to this decrease in academic achievement, political pressure for the United States to be a world leader in education became once again imminent after a brief lull in political activity surrounding education from 2001 to 2009.

Race to the Top

Recently, President Barack Obama signed into law a program called Race to the Top. The President's ultimate goal is to once again make this nation the world leader in college graduates (U.S. Department of Education, 2013). To achieve this goal by 2020, the program has to create and implement an evaluation program that is reliable and valid, and will show accurate evidence of students' knowledge and performance. This assessment should also be measured against specific learning standards and seen as a tool to make sure that all students have the necessary skills to succeed in college and in their place of employment. This evaluation will become a major indicator in our educational systems.

The collected data will provide administrators, educators, parents, and students a way to evaluate if teaching and learning makes the continuous improvements that this evaluation system aimed for (U.S. Department of Education, 2013). Funding will be

given to states based on the performance of their students and their measured test scores, stressing higher graduation rates and higher test scores (U.S. Department of Education, 2013). The goal is for all states to use a curriculum that has clear objectives and is aligned to standards that prepare students for college and careers (U.S. Department of Education, 2013).

Common Core Learning Standards

For many years, academic standards varied among states, resulting in inequalities among students. The implementation of the Common Core Learning Standards is the first step to overcome the achievement gap (Core Standards, 2012). According to the Common Core State Standards Initiative, the Common Core Learning Standards have been accepted by as many as 45 states, the District of Columbia, 4 territories, and the Department of Defense Education Activity. With these newly approved standards, teachers throughout the country will work under the same guidelines, making sure that students achieve the knowledge that they are expected to achieve (Sloan, 2010).

New York was among the first states to adopt the new standards, hoping to improve the quality of teaching and learning and prepare students for higher academic achievement. In the 2011 – 2012 school year, every teacher in New York was expected to use at least one Common Core educational unit; for the current school year, 2014-2015, grades 3 through 8 are aligned to the Common Core Learning Standards in English Language Arts and Mathematics. New York State high school students who started ninth grade in the fall of 2013 were offered English courses based on the Common Core Curriculum and expected to pass a new English regents exam to be able to graduate

(EngageNY, 2013). The Common Core Curriculum focuses on critical thinking and abstract reasoning in reading comprehension and math, with new tests to meet this curriculum.

Testing has become the endeavor by which a successful system was judged, and although the belief in standardized testing may be a good system for this purpose, it does have its flaws. A primary flaw of this system is that not all students and teachers are able to deal with one teaching or learning method. On the contrary, the United States is an extremely diverse nation, where race, language, and ethnicity collide, creating an even greater demand for diverse teaching. With that in mind, the population with special needs must be taken into account. The question remains as to whether they should be held to the same standards or two separate tests should be created, one for typical students and one for students with special needs.

Former Washington, DC school chancellor Michelle Rhee disagreed with this latter suggestion (Rhee & Nyankori, 2011). She claimed that using different tests for students with special needs would be biased and separating them would create two unequal structures, one with accountability and one without it. According to Ms. Rhee this then becomes a civil rights issue (Rhee & Nyankori, 2011). A system that works for all students is necessary, however, and the Race to the Top program indicated the need to create a new curriculum. For years, the federal administration has advocated for differentiated instruction, which maximizes learning for all students (Hall, Strangman, & Meyer, 2011).

A differentiated instruction model combines traditional methods and strategies with interdisciplinary instruction, aspects of critical thinking, brain research, and explanations of a good understanding of subject matter. The origins of differentiated instruction stems from the gifted and special education programs, and was created as a means to accommodate different learning styles, different level of readiness, and interests in mixed schools and classrooms (Rutledge, 2003). It remains to be seen in the coming years if the Common Core Curriculum will close the achievement gap, enhance student performance, and fulfill the President's goal to overcome student inequalities.

Testing

Changes to the educational system in the United States have been ongoing. Since the mid-1800s, educational policymakers have tried to implement programs that would enhance the quality of education and make it available to all students (Pedulla et al., 2003); testing became a major part of this enhancement. By the beginning of World War I (1914), Frederick J. Kelly created the first published multiple-choice test known as The Kansas Silent Reading Test (Fisher, 2008). He believed that the quality of education and overall knowledge could be measured through testing. However, years later he changed his mind, but was unable to do away with this form of standardized testing (Fisher, 2008).

More recent testing started with the Elementary and Secondary Education Act (ESEA), which was signed by President Lyndon B. Johnson in 1965. This act was created to raise academic standards. Twenty years later, President Ronald Reagan claimed that the American education standards were too low and the bar needed to be raised (Kosar, 2003). Both acts included testing and accountability, which would make education more

equitable. Fortunately, between those two time points, education went through additional reforms to include persons with special needs.

In 1975, the introduction of the IDEA was the beginning of an educational reform specifically for those with special needs. In 2001, NCLB was created to address educational inequalities. According to NCLB, the higher the educational standards in public schools, the better the results will be in student performance. The way to evaluate these standards is by reviewing the results of standardized testing. Standardized tests are designed to evaluate students under similar conditions, which includes the same questions, the same method of administering the test, and the same method of scoring. Thus, after NCLB was implemented, standardized testing has become an annual mandate and the standards became an evaluative tool of student performance.

Before 2001 and prior to the NCLB, standardized testing was not the basis for school success or failure, nor was it geared toward student age or educational level, but only a measure to determine if students were educated according to their needs. Only in the past few decades has testing become the means by which a successful system was judged. Political pressure to address the failing education system resulted in a new type of standardized tests that evaluated school systems and subsequently determined student success (Mulvenon et al., 2001).

Anxiety

Anxiety is a physiological response to a known stressor that may cause physical, psychological, and/or emotional harm (Cohen, Kessler, & Gordon, 1995). Anxiety is associated with a number of disorders that affect approximately 40 million American

adults over 18 years of age (National Institute of Mental Health [NIMH], 2013). Unfortunately, less is known about the exact number of children who experience anxiety because children often do not have the language to give it a name, nor do they have the awareness about anxiety to know what is occurring (Johnson & Myers, 2007). Many school-aged children experience school related anxiety, which can fall under the classification of social phobias. According to the American Psychiatric Association - DSM IV- TR (2000), the diagnostic criteria for a social phobia include: (a) a fear of being embarrassed by others when in social or performance situations involving exposure to unknown people or possible being analyzed by others; (b) exposure to feared social situations which almost always inflames anxiety, and become a predisposition to a panic attack; (c) the feared situations are avoided or are endured with intense anxiety and distress; (d) the evasion, anxious anticipation, or suffering in the feared social or performance situation interferes significantly with the person's normal routine, academic/occupational functioning, or relationships, or social activities or there is a marked agony about having the phobia; and (e) in individuals under 18, the length of time is at least six months.

Anxiety is often thought to accompany certain types of individuals from specific backgrounds, but anxiety does not discriminate (Walker & Greene, 1989). Anxiety can develop in individuals from high or low socioeconomic statuses, individuals with varying disabilities or no disability at all, as well as persons of all nations and races (Spencer & Castano, 2007). With that said, anxiety can become worse over time so it is essential to prevent or find an intervention as early as possible in individuals that are predisposed to

having higher levels of anxiety (Reiss, Peterson, Gursky, & McNally, 1986).

Children are the most vulnerable to stress and anxiety as they have few resources to deal with negative symptoms. As children enter the school system, they are subject to a plethora of demands, such as structured school days, new material, and test taking, which may leave children feeling confused, overwhelmed, and anxiety-ridden. Many children not only feel the need to keep up with the class material demanded by the school system, but they feel the need to also keep up with their peers in order to avoid humiliation that may result in low self-worth and self-esteem. All of these demands can lead to increased anxiety associated with going to school, which is why children often experience symptoms of school phobia.

According to the DSM IV-TR (2000), school phobia falls under the category of Social Phobias and should not be confused with school refusal or avoidance, which is a consequence of school phobia. School avoidance and refusal is a result of having a social phobia, particularly school phobia. School phobia and school avoidance in students is a growing issue that impacts not only the student, but the entire family, teachers, school administrators, and psychologist (Schoolphobia.net, 2013). School-aged children who exhibit high levels of stress associated with school factors, including peer relations and test-taking, have such severe anxiety that they often develop co-occurring psychological and physiological issues that become worse over time. For example, children who have high levels of anxiety are more likely to experience depression (Craig, 1998).

When mental health professionals, researchers, and school personnel discuss anxiety in school children, they are often addressing typical students who have a

heightened level of anxiety due to school. However, it is often the children with special needs who exhibit the highest amount of stress associated with school because they have additional hurdles they need to overcome, with fewer resources to help them cope. For instance, a student with a learning disability faces multiple hurdles, such as the use of multiple techniques to grasp material, utilization of extra time to process the information, and/or reception of additional assistance from a paraprofessional. These hurdles are only a small sample of what many children with disabilities must cope with in order to function successfully in the academic environment.

The current rate of children with pervasive developmental disorders (PDD) has increased drastically over the past few decades, with the current standard being 1 out of every 88 children (Costello, Egger, & Angold, 2005). Thus, more children with special needs are being placed into mainstream schools. In addition to PDD, other disorders that fall under the special needs guidelines include hearing impairment, learning disability, and being emotionally disturbed. It is these children, in particular, who are mainstreamed into inclusive settings. In other words, these children must learn to be on par with typical children, follow the same standards and curriculum, at the same pace, and must receive similar test scores.

Furthermore, it is these children who not only experience the highest levels of anxiety due to their inability to manage stress, but they require and benefit from coping mechanisms to function properly in the academic environment. As the academic environment changes to allow more children with special needs into the inclusion/mainstream setting, so does the amount of children who are being diagnosed

with special needs. Moreover, as the number of children with special needs who enter the mainstream school system increases, so too does the amount of school related reports of anxiety (Swearer, Wang, Maag, Siebecker, & Frerichs, 2012).

Oftentimes, children with special needs who are mainstreamed into the typical classroom have a hard time dealing with academic demands because there is little structure in the everyday school environment. Although classes are usually held at the same time during the week, there is little daily routine, which can have a detrimental effect on their psychological and emotional well-being. Having little structure and help can bring on symptoms of anxiety (Berney, 2004). When children with disabilities feel that they cannot maintain a positive grasp on their surroundings, they begin to experience higher heart rate, sweating, nausea, and problems processing information (Kirchner, 2011). These factors alone can lead a student to have difficulty encoding and decoding classroom material, which may result in memory lapse, a student feigning illness, or in the most extreme case, school avoidance (Zeidner & Matthews, 2010).

One specific factor that can increase anxiety levels among students with special needs is testing. It is usually around testing time that students experience the highest levels of anxiety, because they know they must perform better than they previously have, and they are being compared to their typical peers (Wigfield & Cambria, 2010). Students often experience overwhelming anxiety during testing when they are less familiar with the material and have a hard time comprehending material. For example, Richardson and Woolfolk (1980) found that some aspects of math, such as problem solving and logical thinking, were particularly anxiety provoking for students. Similarly, anxiety theorists

(e.g., Sarason 1986; Wine, 1980) stated that test anxiety interferes with academic achievement.

In a study conducted by Wigfield and Meece (1988), 720 fifth through twelfth graders were tested to measure their levels of anxiety (worry and emotionality) when they took math tests. It was found that most students experienced worry and emotionality related to taking the test; they reported many students experienced nervousness, fear, and discomfort. Wigfield and Meece's study, along with other research, has shown that students with a high levels of anxiety are extremely worried when it comes to failure. (Sarason, 1986; Wine, 1980). It is clear that students experience anxiety when test taking, but what is less clear is the anxiety associated with social standing, particularly for students with disabilities.

In addition to having difficulty with academic demands, students with special needs also face social demands in the school environment; they must "fit in" with their peers in order to maintain a healthy wellbeing. Students with special needs are more likely to have a hard time maintaining positive relationships with peers; they are also more likely to have false relationships with other students in order to self-preserve (Matheson, Olsen, & Weisner, 2007). As a natural survival response, it is human nature to seek equilibrium. In other words, we are designed to try to maintain a positive balance so that we do not experience high levels of stress and anxiety.

Much like typical students, students with special needs try to maintain equilibrium by creating positive relationships. The only difference between typical and special needs students is that students with special needs have a harder time maintaining positive

relationships because they often lack the necessary skills needed to read and relate to social cues (Hurlbutt & Chalmers, 2002). For children who have a PDD and fall under the autism spectrum, they often lack social skills or exhibit behavior that is not socially acceptable, which tends to result in either isolation or bullying.

According to the U.S. government (Stop bullying.gov, 2013), youth with disabilities are at an increased risk of being bullied; the problem of victimization is especially salient for children with special needs. Bullying is associated with many negative outcomes, including depression, anxiety, insomnia, health complaints, loss of interest in activities, and a decrease in academic achievement (Stop bullying.gov, 2013). Children with special health needs, including food allergies, are at an increased risk of bullying, which can include other children teasing them about their allergies or exposing them to the foods with which they experience allergic reactions; in this case bullying becomes a case of life and death (Stop bullying.gov, 2013).

Similarly, in a study conducted on children who stutter it was found that they are at a 61% increase of experiencing bullying compared to children who do not stutter, and that a bidirectional relationship exists between high levels of anxiety and bullying (Blood, Boyle, Blood, & Nalesnik, 2010). Children with learning disabilities, who already have a difficult time concentrating on school work, must add another obstacle to their academic success when they are being bullied (Sharp, Smith, & Smith, 2002).

Due to the high levels of bullying among students with special needs, particularly in the inclusive setting, students with special needs experience incredibly high levels of anxiety associated with bullying. Moreover, being a victim of bullying while having a

disability is associated with high levels of emotional and interpersonal problems (Reiter & Lapidot-Lefler, 2007), which may lead to academic failure. Difficulty creating and maintaining positive relationships is an additional hurdle that children with disabilities face in the school environment, and this hurdle is likely to lead to high levels of anxiety resulting in having a school phobia.

In addition to bullying, students experience high levels of anxiety in relation to testing. In a study that demonstrates the physiological, as well as psychological, effects of stress on testing, Luebbe, Bell, Allwood, Swenson, and Early (2010) found that anxiety brought on by negative thoughts were related to a more negative information processing style. Luebbe et al. postulated that anxiety, similar to depression, can lead to a negative information processing style, or inability to process information properly, which results in poor functioning in and out of the classroom. Due to the detrimental effects that test taking can have on students' academic standing, it is essential to create and utilize mechanisms and strategies that children with special needs can utilize to alleviate the level of anxiety and perform better academically.

Both biological and genetic factors, such as having a special need, can increase one's vulnerability to stress and anxiety, as can social and environmental factors (Moore, Williams-Taylor, & Nguyen, 2009), such as test-taking. Thus, although all students experience varying levels of anxiety, it is mainly the students with disabilities who require the greatest amount of help to attain academic success. In all, it is the factors, such as bullying and test taking that increase a student's level of anxiety. Taken together, these aforementioned factors show that the ever-demanding academic environment is

increasing stress and anxiety levels, particularly among students with special needs. Furthermore, these factors demonstrate that now, more than ever, coping mechanisms for reducing anxiety are pivotal in the academic world to achieve success.

Test Anxiety

Anxiety is a physiological response to an alleged environmental stressor. An environmental stressor may be brought on by external or internal demands. These demands may have different effects on people and some do not have the resources to adapt (Fallin, Wallinga & Coleman, 2001; Monat & Lazarus, 1985). According to Eysenck, Derakshan, Santos, and Clavo (2007), anxiety is an emotional and motivational state of mind occurring in threatening situations and NIMH (2013) described stress as a response to changes in brain function that have an effect on the body, both emotionally and physically.

Although all individuals deal with stress and anxiety differently, stress can be extremely debilitating for many, particularly children (Davis, Whiting, & May, 2012). Many school-aged children encounter school-related stressors, such as failing grades, peer interactions, tests, and demanding teachers. According to (Large, 1999), stress is part of every student's life, and a care free childhood seems almost impossible. Because stress is so widespread amongst students, an overabundance of academic issues, behavioral problems, and drug use have increased (Fallin, Wallinga, & Coleman, 2001; Romano, 1997).

In the past few decades, the negative relationship between anxiety and student performance has shown that some students have very specific symptoms involved with

test taking that may reduce the chance of performing according to their capabilities. These symptoms may include a lack of concentration or remembering, also known as intellectual symptoms. Others may show psychological symptoms, such as the fear of failing or being dumb, or having low self-esteem. Physical symptoms include headaches, heart palpitation, and nausea. Certain students may feel so sick just thinking about the test that they cannot even begin the test.

Standardized tests are stressful for all students, but may be even more stressful for younger children and students with special needs. According to Cizek (2001), who conducted research to measure test anxiety among younger children, "testing will increase anxiety in even the brightest students, and makes young children vomit or cry, or both". Ohanian reported that instructions on how to react and what one should do if a student vomits were part of the test exam booklet. With the increase of testing and the anxiety associated with these tests, assessments of the impact test anxiety has on test scores is needed (Ohanian, 2002, p. 1).

A variety of definitions exist for test anxiety. Suinn (1968), for example, defined test anxiety as having a sense of tension with the inability to think or remember or having difficulty understanding simple sentences or following directions on an exam. Levine (2002), on the other hand, compared anxiety to a computer virus where it attacks the memory and deletes it completely from the computer. Furthermore, Feifer and DeFina (2005) claimed that high anxiety levels cause severe limitations when problem-solving. A study by Zatz and Chassin (1983) showed that highly test-anxious students reported more

task-debilitating thoughts, and an inability to concentrate, leading to a desire to escape the test site by, for example, feigning illness.

Deffenbacher (1978) showed that highly anxious persons under stress react with personalized self-oriented responses, which take all attention away from the task; therefore, less time is spent on the task itself and performance decreases. Thus, with a conscious mind, the highly anxious may try to avert the attention away from that specific task because of worry and emotionality that were brought on by that specific task (Deffenbacher, 1978). Deffenbacher's findings showed that a high-stress group of students reacted more negatively to testing, spent less time on the task, and experienced more worrisome thoughts and greater interference from anxiety. While Deffenbacher described anxiety and "worrisome thoughts" as two separate entities (p. 250), Wootten (2001) believed that anxiety is caused by worry. She stated that anxiety and worry are just two different words to describe the same experience. Harpell (2010) described worry as a cognitive state defined by a lack of confidence in one's ability to achieve a specific goal and a fear that this will be observed and assessed by others.

In a study on test anxiety and academic performance, 262 typical children in fourth and fifth grade were given a test anxiety scale and math exams at the beginning and end of the year (Cox, 1964). The results indicated a negative correlation between test anxiety and performance on math exams. That is, when test anxiety decreased, math scores went up.

Similarly, Hunsley (1985) examined the nature of the impact of test anxiety on academic performance, though his study focused on college-level students rather than

elementary students. Sixty-two college students were evaluated on their expectations, thoughts, and performance on exams taken in a statistics class. Results indicated a negative correlation existed between test anxiety and academic performance; students with higher ratings of anxiety, had lower exam results, and vice versa. The results of this study highlight that test anxiety is not merely an affliction for young students, but also has negative impacts on academic performance amongst postsecondary students.

Cassady (2010) claimed that high levels of unnecessary stress during testing or assessment activities may lead to increasing levels of test anxiety, and Spielberger and Vagg (1995) stated that a test anxious student is more disposed to worrisome thoughts, is more tense, and may have negative feelings. While test anxiety in earlier years was called emotionality (Liebert & Morris, 1976; Spielberger & Vagg, 1995), more current research describes it as *physiological hyperarousal* (Joiner et al., 1999). According to Beidel (1998), symptoms that go along with both emotionality and physiological hyperarousal are sweaty palms, rapid breathing, and an increased heart rate. All these physiological changes cause worry, and Stöber and Pekrun (2004) indicated that worry is a direct correlate with lower test performance.

For the past 30 years, testing school-aged children in the United States has increased rapidly. NCLB (2001) mandates that a minimum of 95% of all students in grades 3-8 in each state will be tested annually, with an expectation that no student will achieve test scores below grade level. Schools are also held accountable for their students' success and due to the accountability the need to increase the students' testing scores are of utmost importance. With this said, the pressure of test taking may lead to

more test anxiety in students, especially those with special needs, who are held to the same standards. Although the Common Core Learning Standards were not fully implemented in the classrooms, the NYCDOE decided to administer the first Standardized English Language Arts test that is aligned with the Common Core Learning Standards on April 16th through 18th, 2013.

Parents and students alike were extremely nervous and many protested this new testing. Community meetings were held throughout the city to discuss the stress factor that many students face. One parent in Staten Island reported that his son woke up in a panic because he forgot to fill in a bubble answer (Spencer, 2013). Merryl H. Tish, the chancellor of the state Board of Regents, stated she understands the anxiety that comes with this new test taking. In a visit to the Academy of Arts and Letters in Fort Greene, Brooklyn, she said, "…, I relate to test anxiety," but "we can't wait. We have to just jump into the deep end" (Spencer, 2013, p. A17).

With the current educational reform, the New York Post published an article written by Susan Edelman regarding high anxiety over New York's tough new Common Core exams in grades 3-8. She stated that these tests will be more difficult than any test in the history of the United States (Edelman, 2013,p. 6). On the other hand, Shael Polakow-Suransky, the chief academic officer for city schools said, "Even if kids don't do as well as you'd like, it's good to know where you stand." She continued on to say that "Fewer kids are going to pass at the beginning, but once we set a new bar, the kids will rise to the challenge. It's going to take a few years" (Edelman, 2013, p. 6). Students take many exams during their school years and past research shows that anxiety has a tremendous

effect on test taking, more than originally thought. According to Cassady (2010) and Huberty (2009), approximately 25% to 40% of students suffer from test anxiety, and the anxiety during test taking interferes with performance.

Test Anxiety Among Students With Special Needs

Though researchers have studied the field of test anxiety fairly extensively over the past few decades, not enough research exists in regards to the assessment of test anxiety among student with special needs. In an era driven by growing measures of accountability that emphasizes test score outcomes, teachers of students with disabilities are constantly trying to find ways to help students with special needs attain the knowledge, skills, and positive attitudes needed for successful test taking. Previous literature shows that students with special needs experience more anxiety when taking tests than those students with no disability (Heiman & Percel, 2003; Lufi, Okasha, & Cohen, 2004; Peleg 2009; Woods et al., 2010).

While it is difficult to estimate the number of students with test anxiety, some current studies claim that more than 33% of school-age students, with or without disabilities, have some form of test anxiety (Methia, 2004). Casbarro (2005) suggested the reason behind this high estimated percentage may be due to the increased amount of test preparation and test taking. In addition, literature suggests that test anxious students do not perform up to their potential and have difficulty learning and memorizing new material, which in turn results in lower test scores (Hancock, 2001).

Peleg (2009) conducted a more current study that further examined this effect by assessing, academic achievement, test anxiety and self-esteem among Arab students with

and without learning disabilities in order to compare typical students with those with learning disabilities. The results indicated lower levels of self-esteem and higher levels of test anxiety were found among children with special needs. It is also noted that test anxiety affects approximately 10%-30% of all students, with a much higher occurrence among students with learning disabilities (Peleg, et al., 2009). In addition, Peleg mentioned that approximately 20% of students who fear test taking leave school before graduating because of repeated academic failure.

Research over the past twenty years has recognized the emotional difficulties that many students with special needs encountered and how their disability influences their level of anxiety, which ultimately impacts their academic performance and achievement (Peleg, 2009). One of the major struggles lies in how to reduce the amount of test anxiety these students experience. In order to change their perception of themselves and their shortcomings, it is essential to provide the students with disabilities techniques to conquer the internal and external conflicts.

While some claim there is a way to decrease students' anxiety levels while taking tests by teaching students to use helpful test-taking skills and strategies (Carter et al., 2005), others mention sample test taking. Sample tests may help the student prepare what to study and help students learn about the content of the curriculum and the types of questions that may appear on tests (Lageres & Connor, 2009). Wigent (1996) claimed that to be able to lessen the anxiety of a student, one needs to help prepare the student for the assigned task. He also stated that all tests do not measure what they are designed to measure and it should be taken into account that not all students can be measured in the

same manner as others. It is therefore of utmost importance to find a remediation technique (coping mechanism) to alleviate student stress and increase academic success, particularly among students with disabilities.

Anxiety Reduction Techniques

Testing has always been a part of schooling, and the anxiety that comes with testing is nothing new. For decades, researchers and school officials have tried to create and utilize techniques that they thought would ameliorate a student's level and ability to perform; these techniques focused on cognition, behavior, and skill-task (Neuderth, Jabs, & Schmidtke, 2009). Although the following techniques have been widely used in schools around the country, most of the following techniques did not produce the desired results, warranting more research.

All strategies that have been created and used over the past decades with students are Cognitive Behavioral techniques (CBt). Techniques that have been used most often come from cognitive behavioral methods, include relaxation techniques (Dundas, Wormnes, & Hauge, 2009). Relaxation therapy involves a combination of relaxation techniques that have shown to be somewhat effective in reducing test anxiety in students (Ergene, 2003; Johnson, Larson, Conn, Estes, & Ghiellini, 2009).

Another type of CBt includes the skill-focused or study skills training, a method where students are taught skills to memorize specific information (Armstrong, 2010). It is a combination of learning study habits, reading comprehension, time management, and note taking. This technique focuses mainly on task-related skills and self-management. Many of these skills have been widely used by teachers to help their students to learn

material quickly. This method is not seen as an intervention technique but rather as a way to learn and memorize material. Skill-focused or study skill training is not a relaxation technique to lessen anxiety levels, but more an academic tool that helps to increase retention.

Systematic desensitization involves relaxation techniques to slowly diminish stressful situations (Novaco, 1978). It is a type of behavioral therapy based on the principle of classical conditioning where one gradually becomes less fearful by learning to relax muscles when shown a visual image of an object that conveys fear (Tasto, 1969). For example, a person who is afraid of mice may practice muscle relaxation when shown an image of a mouse as systematic desensitization, as being exposed to an image of a mouse is intended to be less frightening than being exposed to an actual mouse. With different stimuli, this treatment will continue until all fears are gone and relaxation is retained in the presence of the most intense stimuli (McLeod, 2008). Another type of systematic desensitization is modeling. When something is modeled, a fearful individual will observe others on how they handle a situation without fear. By imitating and role playing, one learns to reduce anxiety.

Visual imagery is another technique that can be taught to students easily, especially those with an overactive mind (Zipkin, 1985). For instance, visualizing an image of a beautiful island with the smell of the ocean is relaxing to most, and can aide a child who is experiencing overstimulation in the school environment. Similarly, deep breathing is a technique that can be taught easily and has lasting effects (Margolis, 1990). Deep breathing can be described as slow, abdominal breathing that brings balance

between the oxygen and carbon dioxide levels in the body (Nassau, 2007). The oxygen should be inhaled through the nose, held for a few seconds, and exhaled through the mouth. Zuercher-White (1998) stated that when one is trained to use this type of breathing, the body will automatically react and subsequently adjust to lessen the level of anxiety.

Yet another technique that has been used since ancient times to relieve stress is yoga. There are several types of yoga, which is a Hindu art that aims to align the body, mind, and spirit (Long, 2012). According to Long, Huntley, and Ernst (2001) the benefits of yoga include improving the circulatory system, the digestive system, the hormonal system, and the respiratory system. Their study indicated that many allopathic physicians refer their patients to this holistic approach to alleviate pain, anxiety, and stress. The main purpose of practicing yoga is to find peace within oneself.

Although different types of yoga exist, the yoga that is practiced the most in the United States is called *hatha* (Sorosky, Stilp, & Akuthota, 2008). This form of yoga is particularly popular because Americans see yoga more as a type of exercise and strength training than a technique for aligning mind, body, and spirit (Hart, 2008). Although the spiritual component of yoga is not forgotten, the main focus of this type of yoga is on posing and breathing correctly. Breathing correctly and being able to maintain a pose not only strengthens the muscles but improve concentration, allowing the mind to become clear of thoughts (Coward, 2002). In short, the emphasis of hatha yoga is to control the body's senses in order to gain control and strength. This technique has not only been shown to improve physical health, but also psychological health. Javnbakht, Kenari, and

Ghasemi, (2009) showed that hatha yoga, in particular, improved levels of depression and anxiety in women.

Although many people believe that yoga is beneficial to mind and body, some may still feel that a technique that involves physical exercise is not a viable technique for use in the classroom. Arguments against the use of yoga may include that one needs the space to practice and it must be practiced several times a week on a continuous basis. There is limited space in classrooms, which may make forms of hatha yoga impractical.

One type of yoga that can be used in the classroom, however, is laughter yoga. This type of yoga was discovered in the 1990s by Dr. Madan Kataria in Mumbai while doing research on stress (Nagendra, Chaya, Kataria, & Manjunath, 2007). Although it is considered a new type of yoga, it does have some elements included from the ancient form of yoga, such as deep breathing. Dr. Kataria, a medical doctor from India, studied laughter as a technique to improve mental and physical health. He claimed that our body cannot distinguish between pretend and sincere laughter. While testing this technique, he found that even if the laughter is not genuine the chemistry in the body still reacts as though it is. His initial thoughts suggested that pretend laughing was contagious because individuals laughed while looking at each other. However, after conducting a laughter session with a group of 12-year-old girls who are blind he found that even blind individuals benefited from his laughing exercises.

To Dr. Kataria's surprise, he found that the sound of laughter resulted in a similar outcome (Laughter Yoga International, 2013). Singh (2008), a teacher who used this technique in 2007 in primary schools in Madrid, Spain, and Rotterdam, The Netherlands,

found that the effects of laughter yoga on students reduced stress and anxiety levels and increased their energy levels. Although this may be true, one needs to keep in mind that not every teacher is able to teach this technique to their students. Additionally, not every administration may be open to this type of technique without having trained professionals/teachers who know the difference between a laughing technique and flat out mockery.

At the same time, many do believe that relaxation techniques help relieve some stress and anxiety in students. Lohaus and Klein-Hessling (2003), who recruited 160 fourth and sixth-grade students to observe the effects of muscle relaxation techniques on test anxiety, found that relaxation techniques learned over a short period of time can have a calming effect on students. With this in mind, teaching students who suffer from test anxiety to become aware of and lessen their symptoms of anxiety may result in an increase of test scores and decrease the negative side-effects of test anxiety.

Anxiety may have more serious consequences than previously believed, especially for students with special needs (Beddow, 2012). Moreover, students with special needs/disabilities are held to the same NYS testing standards as typical, general education students, leading to an even more stressful and anxious atmosphere. Although all students experience some level of anxiety when given state testing, it is mainly the students with special needs who have a much harder time coping with the psychosomatic reactions to anxiety.

With the increase of standardized test taking in the U.S., students are more aware than ever that their test results will have an enormous impact on their future. This brings

on not only feelings of pressure to perform well and achieve high scores, but also the panic of not being able to complete the task properly. Due to the increase in pressure related to testing, students now feel the tension and backlash associated with academic performance because they are held to individual and group standards. Additionally, students are now affected indirectly by achieving high scores because their teachers' jobs are at risk.

For students with disabilities, this means that these students may fare worse than they have in the past because the expectations placed on them are higher, resulting in higher anxiety levels. If these children can develop a coping mechanism, such as the *minute of silence* technique, this may help to reduce the anxious feelings and minimize negative side effects of test anxiety so they can perform to the best of their abilities and potentially maintain similar standards as typical children.

Summary and Conclusions

Due to the present national reforms, the current secondary study may serve to identify a possible method that will help children with disabilities not only cope with stressors, but improve their academic scores, making academic life easier all around. Because little research exists in the domain of relaxation techniques for developmentally disabled school-aged children, the current study aimed to alleviate anxiety by using the 1-minute of silence technique to teach these children to relax and focus on the task at hand. Moreover, the current study was developed to improve test scores and lower anxiety levels among children with disabilities. The 1-minute of silence technique may also change the way the current NYCDOE views children with disabilities in inclusive

settings by offering them the means to a successful end. Furthermore, the method used in this study may help the National Board of Education improve their system, particularly for children with disabilities in inclusion. Ultimately, the study has the potential to improve test scores in the national school system by providing schools with preventive and interventive methods that may be used in the classroom.

It is currently known that children with special needs who are currently mainstreamed into the public school setting have a hard time keeping up with their typical peers. It is also known that these students benefit best from techniques that are immediate and easy to use to alleviate stress, espcially prior to testing. Unfortunately, not enough research exists to document the benefits of a technique that can be used immediately prior to state testing, which is why the current study was developed to shed light on the 1-minute of silence technique to ameliorate students anxiety and improve test scores in an era driven by academic success. In other words, this study addresses the gap in the current literature and gives data to demonstrate the benefits of a technique known as the 1-minute of silence to reduce stress in the already stressful environment for children with special needs. It also demonstrates that an improvement in test scores is correlated with stress/anxiety reduction. We are headed into a future where academic success is paramount.

To reiterate, prior research done on children in the public school system is limited, but gives a good foundation to guide the current study. No research exists on children with disabilities in the NYS public school system that are in Grades 6, 7 and 8, in regard to anxiety reduction and improvement in test scores. The current study was the

first study to demonstrate that an easily used, immediate technique, the 1-minute of silence alleviates stress and improves test scores in children with special needs.

Chapter 3 will review the methodology of the study as well as the statistical analyses used to assess data. The following chapter will give an oversight on the target population as well as recruitment procedures and consent; it will provide a detailed description of the research design and rationale, as well as an explanation of each variable.

Chapter 3: Research Method

Introduction

The purpose of this study was to assess whether a technique called 1 minute of silence reduces anxiety and improves test scores among students with disabilities. This chapter includes an overview of the study's design, sample, and methodology as well as the rationale behind this particular experimental design. Additionally, the statistical analyses that were used to garner information on the study's significance will be detailed. Moreover, a brief discussion will be given on the sample used and why this particular population was chosen. The theoretical framework for the study was the theory of planned behavior/reasoned action, and the HBM. Two research questions were used to determine the difference in anxiety levels in students with special needs and the difference in NYS Math posttest scores in children with special needs (no silence and 1-minute of silence). The study was a secondary quantitative data analysis. Convenience sampling rendered data to address six variables. An ANCOVA was used to statistically assess each research question.

The primary study on which this secondary study was based received institutional review board (IRB) approval from the NYCDOE to conduct the study in New York City schools. All documents and methodology have been meticulously examined by the NYCDOE and have met criteria for ethical standards with minimal risk. In the current study, I reanalyzed the results of a prior NYCDOE study that focused on whether children with disabilities can have lower levels of anxiety and higher test scores when being taught a silence/relaxation technique. Ultimately, the results of the study support a

new system in the national school system by providing schools with preventive and interventive methods that may be used in the classroom.

More specifically, the purpose of this secondary analysis study was to obtain statistically significant findings between silence, stress, academic scores, and 1-minute of silence relaxation technique among a developmentally disabled school-aged population. Because little research exists in the domain of anxiety in developmentally disabled school-aged children, in the current analysis, I aimed to show the benefits of learning and using the 1-minute of silence technique to alleviate anxiety.

Research Design and Rationale

This study was a secondary quantitative data analysis. Convenience sampling rendered data to address six variables: dependent variables were (post) anxiety and NYS Math posttest scores; independent variable was intervention type (experimental and control); two covariates specified were pre-anxiety levels and NYS Math pretest. Convenience sampling uses individuals who are readily available and not necessarily chosen at random. Convenience sampling allows a researcher to act within a specific period of time and under conditions that help with the collection of the data.

ANCOVA in the secondary study was used to assess each research question. Using the ANCOVA technique offered me a statistical method to test if a covariate (an additional variable other than the independent and dependent variable), as in this case the pre-anxiety levels and the NYS Math pretest, affects the dependent variable. Using an ANCOVA allowed statistical testing between the levels of the independent variable (no silence, 1-minute of silence) as well as across the different research questions.

Research questions in this study include:

RQ1: What is the difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence)?

$H1_0$: There is no difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence).

$H1_a$: There is a difference in anxiety levels, after controlling for anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence).

- DV: Anxiety
- IV: Intervention type (no silence, 1-minute of silence)
- Covariate: Pre-anxiety levels
- Statistical analysis: ANCOVA

RQ2: What is the difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1-minute of silence)?

$H2_0$: There is no difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1-minute of silence).

$H2_a$: There is a difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1-minute of silence).

- DV: NYS Math posttest scores
- IV: Intervention type (no silence, 1-minute of silence)
- Covariate: NYS Math pretest
- Statistical Analysis: ANCOVA

A structured view of the two hypotheses, including a dependent variable, two independent variables, and a covariate is displayed in Table 1. For RQ1, the dependent variable was anxiety and the independent variable was intervention type (control group, experimental group). The control group consisted of students who did not receive the 1-minute of silence technique prior to taking the test, while the experimental group consisted of students who did receive the 1-minute of silence technique prior to taking the test. Additionally, the covariate for RQ1 was pre-anxiety levels.

For RQ2, the dependent variable was NYS Math posttest scores and the independent variable was intervention type (control group, experimental group). The control group consisted of students who did not receive 1-minute of silence prior to taking the test, while the experimental group consisted of students who did receive the 1-minute of silence prior to taking the test. Additionally, the covariate for research question two was a NYS Math pretest. An ANCOVA analysis was run for both hypotheses.

Table 1

Hypotheses and Related Methodological Components

Hypotheses	Independent variable	Dependent variable(s)	Covariate	Statistical technique
*H*1	Intervention type (no silence, 1 minute silence)	Anxiety	pre-anxiety level	ANCOVA
*H*2	Intervention type (no silence, 1 minute silence)	NYS Math posttest scores	NYS Math pretest	ANCOVA

The primary study was guided by using a causal comparative research method. Causal comparative infers that the independent variables cause the dependent variable(s) to vary. ANCOVA in the secondary study was used to assess each research question. Using the ANCOVA technique offered me a statistical method to test if a covariate (an additional variable other than the independent and dependent variable), as in this case the pre-anxiety levels and the NYS Math pretest, affects the dependent variable. Using an ANCOVA allowed statistical testing between the levels of the independent variable (no silence, 1 minute of silence) as well as across the different research questions.

Theoretical Models

A structured view of the two hypotheses is displayed in Figure 1 and Figure 2. Figure 1 displays Hypothesis 1, including an independent variable, dependent variable and a covariate. The dependent variable specified in Figure 1 is anxiety, the independent variable is intervention type (no silence, 1 minute of silence), and the covariate is pre-anxiety levels. Figure 2 displays Hypothesis 2. The dependent variable specified in Figure 2 is NYS Math posttest scores, the independent variable is intervention type (no

silence, 1 minute of silence), while the covariate is NYS Math pretest scores. An ANCOVA analysis was run to assess both hypotheses.

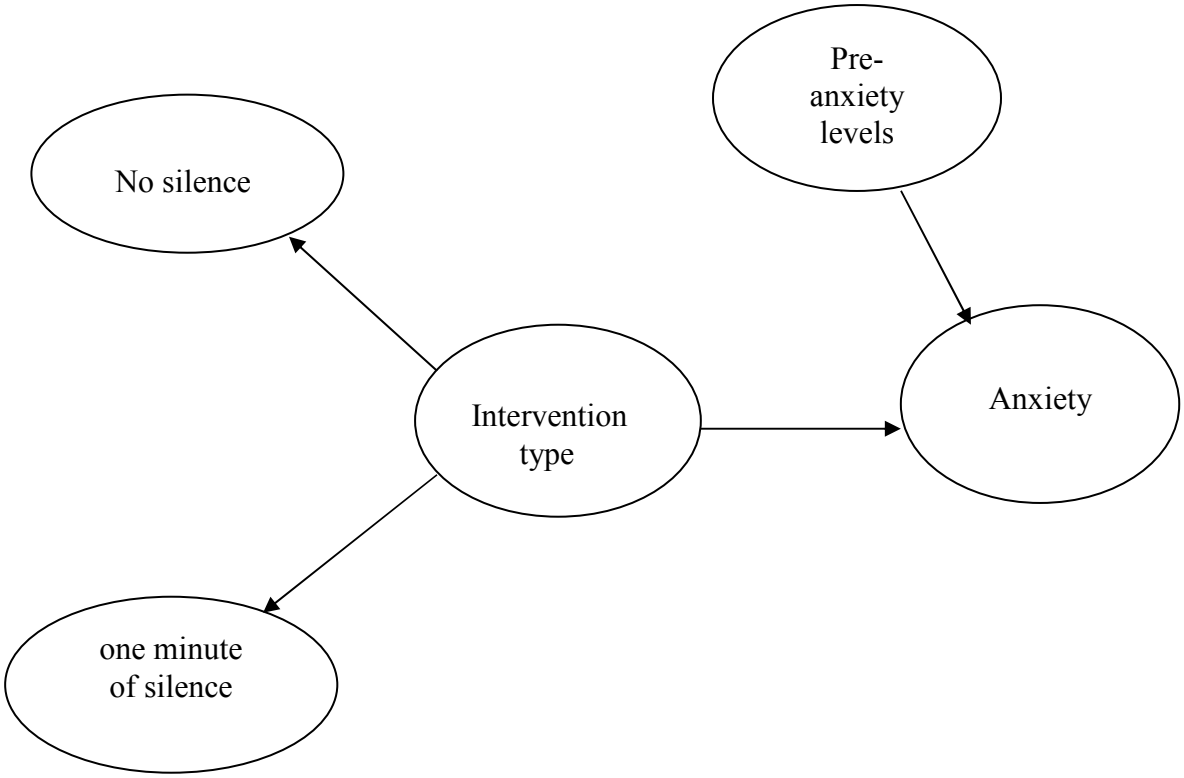

*Figure 1.*Theoretical model for Hypothesis 1.

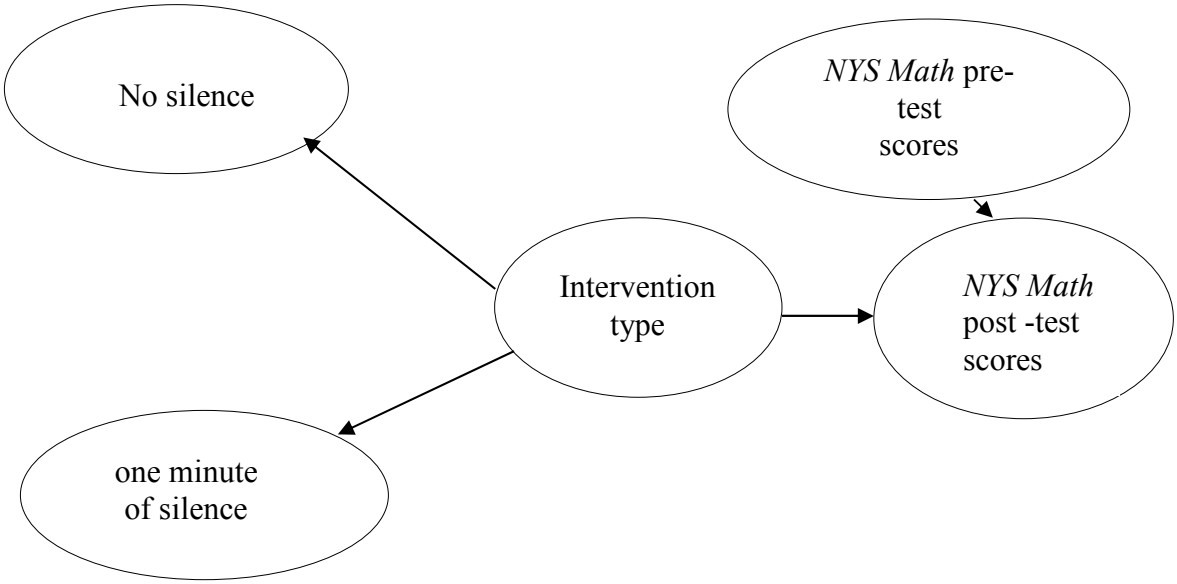

Figure 2. Theoretical model for Hypothesis 2.

Methodology

Population

The studied population was composed of students from J.H.S. 190 Russell Sage. J.H.S. 190 Russell Sage is a large junior high school/middle school located in Forest Hills, New York. Although there were approximately 1,007 students serving Grades 6, 7, and 8 in general education and special education, only 163 were students with special needs who had an IEP(NYCDOE, 2011-2012). Of the 163, a sample of 55 students was garnered for the study ($N = 55$). All participants were from self-contained classrooms within the school. J.H.S. 190 Russell Sage is a diversified environment that consists of varying ethnic and racial backgrounds (Data as of 2011 rough estimates Asian = 38%, Caucasian = 30%, Hispanic = 24%, African-American or Black = 8%, and multiracial = 0%; NYCDOE, 2010-2011).

Sampling and Sampling Procedures

This study was a secondary quantitative analysis of data conducted in self-contained classrooms in a New York City Public School. The purpose of the study was to compare statistically significant findings between silence, stress, and academic scores among a developmentally disabled school-aged population.

A convenience sampling technique was used to obtain a sample from the target population. Convenience sampling uses individuals who are readily available and not necessarily chosen at random. Convenience sampling is often used in research to collect data that is representative of the targeted population. StatPac claimed that “this method is

often used during research efforts to get an estimate of results, without incurring the cost or time required to select a random sample" (p. 1).

Convenience sampling allows a researcher to act within a specific period of time and under conditions that help with the collection of the data. Because convenience sampling sacrifices generalizability, it may not provide sufficient representation of the population being studied. In other words, the sample that was used for the study may not fully represent the population as a whole. Therefore, replication of data may be necessary to validate the results of the study (Keppel & Zedeck, 2001). Although there may be insufficient evidence, convenience sampling is considered the best way obtaining a sample population when time and conditions prohibit random sampling (Neuman, 2003). Thus, convenience sampling allows the researcher to seek an estimation of the likelihood when obtaining the truth (i.e., via random sampling) is conditionally prohibitive.

The sample extracted from the target population consisted of students from J.H.S. 190 Russell Sage, who were between age 11 and 15 and speak fluent English. Additionally, students who were serviced in a self-contained classroom and had an IEP were included in the sample.

To be eligible for the NYCDOE study, students met specific criteria: (a) They were required to be between the ages of 11 and 15, (b) be proficient in the English language, (c) attend J.H.S. 190 Russell Sage, (d) have an IEP, and (e) be in a self-contained classroom. Even though gender and ethnicity was part of the demographic

information, it was not a factor for inclusion; both boys and girls of all ethnic backgrounds were eligible to partake in the study.

When conducting a power analysis, three factors are taken into consideration: The intended power of the study, the effect size, and the level of significance used to reject the null hypothesis (alpha). Study power is the probability of rejecting a false null hypothesis; sufficient power to reject a false null hypothesis is 80% or .80 (Keuhl, 2000). Effect size is an estimated measure of the strength of the relationship between variables in a study (Cohen, 1988). According to Cohen (1988), the effect size is characterized as Cohen's f^2 small, medium, and large, where each level is associated with an effect size (e.g., small = .10, medium = .25, large = .40). The level of significance, known as alpha, is the lowest level of significance at which the null hypothesis will be rejected, assuming the null hypothesis is accurate (Donnelly, 2007). Thus, in order to be confident when rejecting the null hypothesis, the alpha must be set at .05, the power at .80, and the effect size at .25. By setting the standards at these levels, there needs to be a sample size of 128 participants (Faul, Erdfelder, Lang, & Buchner, 2007). If a smaller sample size is required, the standards must be adjusted accordingly.

The central limit theorem of probability states that a sufficient sample of independent random variables will likely to be distributed normally (Rice, 1995). Moreover, as the size of the sample increases, the distribution of the sample mean steadily approaches a more normal distribution. Therefore, it is expected that a sample size of 55 ($n = 55$) was sufficient to represent the population mean (μ) and provided meaningful statistical results.

Procedures for Recruitment, Participation, and Data Collection

The studied population was composed of students from J.H.S. 190 Russell Sage is a large junior high school/middle school located in Forest Hills, New York. Although there were approximately 1,007 students serving Grades 6, 7, and 8 in general education and special education, only 163 were students with special needs who had an (NYCDOE, 2011-2012). Of the 163, a sample of 55 students was garnered for the study ($N = 55$). All participants were from self-contained classrooms within the school. J.H.S. 190 Russell Sage is a diversified environment that consists of varying ethnic and racial backgrounds (Data as of 2011 rough estimates: Asian = 38%, Caucasian = 30%, Hispanic = 24%, African-American or Black = 8%, multiracial = 0%; NYCDOE, 2010-2011).

The sample extracted from the target population consisted of students from J.H.S. 190 Russell Sage, who were between age 11 and 15 and speak fluent English. Additionally, students who were serviced in a self-contained classroom and had an IEP were included in the sample. A background questionnaire was given to each student. Each questionnaire had a number written at the top so that no identifying information was obtained within the questionnaire as a measure of confidentiality. Students were asked to answer questions on a questionnaire pertaining to their grade level, gender, age and their primary language (Appendix C). Students gave the questionnaire back to their respective teachers collectively, and were then given to the researcher to maintain confidentiality. Anonymity remained the highest priority in the study.

Prior to collecting data, consent and assent forms were given to all parents of students with special needs, and subsequently, upon consent the questionnaires were

given to all participating students (Appendix A and B). The consent form stated the objectives and goals of the study; who will be conducting the research; explained the risks and benefits associated with the study, as well as the participants' civil rights according to the Individually Identifiable Health Information and Health Insurance Portability and Accountability Act. After consent and assent was obtained, students were asked to fill out the questionnaire, which consisted of questions relating to the students age, grade level, gender and primary language. Once the parents and the students agreed to the terms of the study specified in the informed consent letter, the data collection process commenced.

All students were given the Westside Test Anxiety Scale and the NYS Math test prior to the intervention (no silence, 1-minute of silence). Students in the experimental group practiced the 1-minute of silence technique for 4 weeks. After 4 weeks, all students were again given the Westside Test Anxiety Scale followed by the NYS Math posttest. After collecting the data (anxiety levels and test scores), scores were analyzed to determine whether significant differences existed in anxiety levels as well as test scores. Students were debriefed upon completion of the study: they were told that if they had any questions in the future they could contact the primary researcher.

Intervention Type

This study was a secondary quantitative data analysis. The purpose of this study was to assess whether a technique called 1-minute of silence reduces anxiety and improves test scores among students with disabilities. The intervention type consisted of two groups: a control and an experimental group. The control group was not taught the

1-minute of silence (no silence), while the experimental group was taught the 1-minute of silence technique. To reiterate, the control group contained students who did not partake in the intervention (no silence), and the experimental group contained students who did partake in the intervention (1-minute of silence). 1-minute of silence is specified as each student sitting in their classroom seat with both feet on the ground, their hands in their laps, and a straight back for better air flow.

Students were then instructed to close their eyes and try to clear their minds by thinking of the word silence. After 10 seconds of pure silence in the room, the researcher turned over an hour-glass, which lasted for one minute. When the 1-minute of silence was up, students were instructed to keep their eyes closed while raising their hands to cup their eyes. They were then told to open their eyes in the palm of their hands and slowly lower their hands while looking at the tips of their fingers until their hands reach their laps.

After having learned the technique, every student's respective teacher was to ensure that each student performs the 1-minute of silence technique prior to taking an exam/test. The students selected not to participate in the intervention (control group) did not receive 1-minute of silence prior to taking the test/exam. It is important to note that the students in the experimental group were always taught the 1-minute of silence technique only with other students who were in the experimental group, and never performed the technique in the presence of those in the control group or general education students.

Instrumentation and Operationalization of Constructs

Two instruments were used to assess the differences in each dependent variable (anxiety and test score) after controlling for the covariate (pre-anxiety level and pretest score). The two instruments were the Westside Test Anxiety Scale and the NYS Math test. The Westside Test Anxiety Scale, developed by Dr. Richard Driscoll, was created and/or modified in 2004. The NYS Math tests were created by the NYCDOE in 2008 and 2009.

The Westside Text Anxiety Scale was used to determine differences in pre and post anxiety after having learned the1-minute of silence. In other words, students were given the Westside Test Anxiety Scale before taking the pretest and again prior to taking the posttest. The NYS Math test was used to determine differences in pre and post test scores after having learned the 1-minute of silence. In addition, a demographic questionnaire was given to each student to determine their grade level, gender and age.

Permission to use the Westside Test Anxiety scale is given on the form itself. In addition, permission to use the NYS Math tests was given by the NYCDOE.

Westside Test Anxiety Scale

The Westside Test Anxiety Scale, developed by Dr. Richard Driscoll, is a 5-point Likert-type scale ranging from 5-1, with 5 = *always true* and 1 = *never true*. The Westside Test Anxiety Scale consists of 10 questions pertaining to test anxiety and is constructed to measure anxiety impairments, particularly on performance impairment, which may interfere with concentration (Driscoll & Westside Psychology, 2004). The Westside Text Anxiety Scale was used to measure a students' anxiety level before and after the intervention (no silence, 1-minute of silence). The scale is a reliable and valid

scale according to the American Test Anxiety Association (AMTAA) and is considered to be a highly sensitive measure of test anxiety impairment used throughout the school system (Driscoll & Westside Psychology, 2004; Appendix D).

The NYS Math tests are standardized tests that are considered reliable and valid according to the NYCDOE. (Appendix G).

Anxiety

Anxiety is defined as a feeling of worry, unease or nervousness, usually about an occurrence of which the results are unclear. Anxiety often leads to compulsive behavior or panic attacks (NIMH, 2012). Anxiety is scaled at the interval level and was measured using the Westside Text Anxiety Scale. Questions 1 – 10 were used to assess anxiety levels. Each question on the Westside Test Anxiety Scale is measured on a 5-point Likert scale with responses ranging from 5 – 1. In this case, 5 = *always true*, 4 = *usually true*, 3 = *sometimes true*, 2 = *seldom true*, and 1 = *never true*. Anxiety level were extracted from primary sources.

Pre-anxiety Levels

Pre-anxiety level was defined as an anxiety level of a student prior to participating in the intervention (no silence, 1-minute of silence). Pre-anxiety was measured using the Westside Test Anxiety Scale to determine all students' baseline level of anxiety prior to taking the pretest and receiving the intervention.

Anxiety Levels

Anxiety levels are defined as a student's anxiety level prior to taking the posttest after participating in the intervention (no silence, 1-minute of silence). Anxiety was

measured using the Westside Test Anxiety Scale to determine all students' level of anxiety before taking the posttest, but after having received 4 weeks of intervention.

NYS Math Test

The NYS Math test is a standardized test given annually to each student. The study used six archived NYS Math tests from 2008 and 2009. Each test was specifically designed for the appropriate grade level. For example, 6th graders received the 6th grade edition of the NYS Math test, and so forth. In addition, the pretest consisted of an archived 2008 NYS Math test and the posttest consisted of an archived 2009 NYS Math test. Both NYS Math tests for 6th graders consisted of 25 questions, both NYS Math tests for 7th graders consisted of 30 questions, and both NYS Math tests for 8th graders consisted of 27 questions. These six standardized tests were used to measure the student's NYS Math pretest and posttest scores before and after the intervention (no silence, 1-minute of silence). The NYS Math tests are standardized tests that are considered reliable and valid according to the NYCDOE. (Appendix G).

NYS Math Pretest Scores

NYS Math test is a standardized test given annually to each student. The study used archived NYS Math tests from 2008 and 2009, respectively. Both tests, 2008 and 2009, have an equal level of difficulty, without one being more difficult than the other. The NYS Math pretest score was defined as a student's NYS Math test score prior to participating in the intervention (no silence, 1-minute of silence). The NYS Math pretest score was measured using the NYS Math test from 2008. The study used three NYS Math tests, one specifically for 6th graders, one for 7th graders, and one for 8th graders.

Questions 1 through 25 were used to assess NYS Math pretest scores for 6th graders. Questions 1 through 30 were be used to assess NYS Math pretest scores for 7th graders, and questions 1 through 27 were be used to assess NYS Math pretest scores for 8th graders. NYS Math pretest scores were extracted from primary sources.

NYS Math Posttest Scores

NYS Math posttest score was defined as a student's NYS Math test score after participating in the intervention (no silence, 1-minute of silence). The NYS Math posttest score was measured using the NYS Math test from 2009. The study used three NYS Math tests, one specifically for 6th graders, one for 7th graders, and one for 8th graders. Questions 1 through 25 were used to assess NYS Math posttest scores for 6th graders. Questions 1 through 30 were used to assess NYS Math posttest scores for 7th graders, and questions 1 through 27 were be used to assess NYS Math posttest scores for 8th graders. NYS Math posttest scores were pulled out from primary sources.

Data Collection

The study received Institutional Review Board approval from the NYCDOE to conduct the study in New York City schools. It is registered as research study (498) with the Principal Investigator as Hanna Matatyaho. Subsequently, due to the nature of the study (secondary study), the study received IRB approval from Walden University and is registered under # 02-26-14-0100856.

Permission from the principal of J.H.S. 190 Russell Sage was obtained to allow the study to be held at the J.H.S. 190 Russell Sage. The researcher was, and currently is,

an employee of Public School 177 Q and serves as a SETSS provider at J.H.S. 190 Russell Sage.

Prior to collecting data, consent and assent forms were given to all parents of students with special needs, and subsequently, upon consent the questionnaires were given to all participating students (Appendix A and B). The consent form stated the objectives and goals of the study; who will be conducting the research; explained the risks and benefits associated with the study, as well as the participants' civil rights according to the Individually Identifiable Health Information and Health Insurance Portability and Accountability Act.

After consent and assent was obtained, students were asked to fill out the questionnaire, which consisted of questions relating to the students age, grade level, gender and primary language. Once the parents and the students agreed to the terms of the study specified in the informed consent letter, the data collection process commenced.

All students were given the Westside Test Anxiety Scale and the NYS Math test prior to the intervention (no silence, 1-minute of silence). Students in the experimental group practiced the 1-minute of silence technique for 4 weeks. After 4 weeks, all students were again given the Westside Test Anxiety Scale followed by the NYS Math posttest. After collecting the data (anxiety levels and test scores), scores were analyzed to determine whether significant differences existed in anxiety levels as well as test scores.

Intervention Involving Manipulation of an Independent Variable

This study is a secondary quantitative analysis. The intervention used in this study is known as the 1-minute of silence technique. 1-minute of silence is specified as each student sitting in their classroom seat with both feet on the ground, their hands in their laps, and a straight back for better air flow. Students were then instructed to close their eyes and try to clear their minds by thinking of the word silence. After 10 seconds of pure silence in the room, the researcher turned over an hour-glass, which lasted for one minute. When the 1-minute of silence was up, students were instructed to keep their eyes closed while raising their hands to cup their eyes. They were then told to open their eyes in the palm of their hands and slowly lower their hands while looking at the tips of their fingers until their hands reach their laps. The 1-minute of silence technique was created by the researcher by combining several methods of treatment, such as the visual imagery method and the deep 1-minute of silence technique. The Westside Test Anxiety Scale was created by Richard Driscoll and the NYS Math tests were created by the NYS DOE.

The primary study on which this secondary study was based received Institutional Review Board (IRB) approval from the NYCDOE to conduct the study in New York City schools. It is registered as research study 498 with the Principal Investigator as Hanna Matatyaho. All documents and methodology have been meticulously examined by the NYC Department of Education and have met criteria for ethical standards with minimal risk.

Operationalization

Six variables were identified and defined including two dependent variables, two independent variables, and two covariates. The dependent variables were postanxiety

and NYS Math posttest scores, while the independent variables were intervention type (experimental and control). The two covariates specified were pre-anxiety levels and NYS Math pretest. Each variable is measured by using a specified scale. Anxiety is measured by using the Westside Test Anxiety Scale and test score is measured by receiving the scores of the NYS Math test.

The scores for the Westside Test Anxiety Scale is calculated using a Likert scale from 1-5, with 1 being never true and 5 being always true. Then, the scores are added to create a finite score, which can be as high as 50 - the highest level of anxiety. The NYS Math test scores are calculated based on the number of correct answers out of the possible number of answers. For example, if there are 25 questions and the student gets 20 correct, then its 20 out of 25, which is 80% correct.

Data Analysis Plan

Statistical software for the Social Sciences (SPSS) was used to find statistical significance among the data collected. The data will be stored and kept in a locked cabinet for a period of 5 years after which all information will be destroyed.

RQ 1 states: what is the difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence)? The dependent variable is anxiety, the independent variable is intervention type (control/no silence vs. experimental/1-minute of silence), and the covariate is pre-anxiety levels. $H1_0$: There is no difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence). $H1_a$: There is a difference in anxiety levels, after

controlling for anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence).

RQ 2 states: What is the difference in NYS Math posttest score, after controlling for NYS Math pretest scores, in students with special needs between intervention type (no silence, 1-minute of silence). The dependent variable is NYS Math posttest scores, the independent variable is intervention type (control/no silence vs. experimental/1-minute of silence), and the covariate is NYS Math pretest scores. $H2_0$: There is no difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1-minute of silence). $H2_a$: There is a difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1-minute of silence).

The scores for the Westside Test Anxiety Scale is calculated using a Likert scale from 1-5, with 1 being never true and 5 being always true. Then, the scores are added to create a finite score, which can be as high as 50 - the highest level of anxiety. The NYS Math test scores are calculated based on the number of correct answers out of the possible number of answers. For example, if there are 25 questions and the student gets 20 correct, then its 20 out of 25, which is 80% correct.

Assumptions, or the data analysis plan, for ANCOVA include homogeneity of variance, independence of error, normality, and linearity. In addition to the above assumptions, it is assumed that the covariate for hypothesis 1, pre-anxiety levels, is related to anxiety, but unrelated to intervention type (control/no silence vs.

experimental/1-minute of silence). Moreover, it is assumed that the covariate for Hypothesis 2, NYS Math pretest scores, is related to NYS Math posttest scores, but unrelated to intervention type (control/no silence vs. experimental/1-minute of silence). All hypotheses will be tested using typical procedures as recommended by Tabachnick and Fidell (2007).

An ANCOVA was used to analyze the variables in the first and second hypotheses. The assumption of equality of variance was also assessed with the Levene's test. In addition, Post Hoc pairwise comparisons were conducted to assess where the differences were. An ANCOVA is a statistical tool used to compare one variable in two or more groups by taking into account a third stable variable, known as the covariate. The ANCOVA is considered a robust statistic in which assumptions can be violated with relatively minor effects (Howell, 2010). Results will be interpreted by garnering 'F' scores, probability, partial eta squared, and post hoc pairwise comparisons.

Threats to Validity

Limitations of the NYCDOE study included threats to the reliability and validity. Limitations are addressed at the beginning of the study to prevent or minimize threats from occurring (Creswell, 2009). Limitations to validity can exist in research as well. Validity exists if the observed effect of the independent variable (intervention) on the dependent variable (anxiety) are not caused by extraneous factors.

External Validity

Threats to external validity exist if extraneous factors cause the independent variable to have an effect on the dependent variable. In the current secondary study, one

example of an extraneous factor could be if a disruption occurs while 1-minute of silence technique is occurring. If a high degree of validity will occur we will be able to conclude that we have strong evidence of causality.

Internal Validity

Internal validity addresses the true cause of the outcome observed in the study (Creswell, 2009). In other words, a threat to internal validity may occur if participant's answer questions in a way the researcher expects rather than responding honestly. Another threat to internal validity can be seen in convenience sampling. Because convenience sampling sacrifices generalizability, it may not provide sufficient representation of the population being studied. In other words, the sample that was used for the study may not fully represent the population as a whole. Therefore, replication of data may be necessary to validate the results of the study (Keppel & Zedeck, 2001). Although there may be insufficient evidence, convenience sampling is considered the best way obtaining a sample population when time and conditions prohibit random sampling (Neuman, 2003). Thus, convenience sampling allows the researcher to seek an estimation of the likelihood when obtaining the truth (i.e. via random sampling) is conditionally prohibitive.

There were no threats to construct validity. However, because of the small sample size, there may be threats to statistical conclusion validity based on the small number of students in the sample. The central limit theorem of probability states that a sufficient sample of independent random variables, will likely to be distributed normally (Rice, 1995). Moreover, as the size of the sample increases, the distribution of the sample mean

steadily approaches a more normal distribution. Therefore, it is expected that a sample size of 55 ($n = 55$) was sufficient to represent the population mean (μ) and provided meaningful statistical results.

Delimitations

Delimitations refer to the boundaries or scope of the study. Delimitations may contain the inclusions and exclusion decisions made throughout the development of the proposal. For instance, theoretical perspectives may be altered during the process, which would lead to changes in questions or variables within the study. In addition, to compensate for participant morality, participant requirements will be overstated by the researcher. Overstating the participant requirement may account for the participants who failed to meet the criteria to complete the study, thus giving the researcher a sample size that best represents the target population (Creswell, 2009).

Ethical Procedures

The study received Institutional Review Board approval from the NYCDOE to conduct the study in New York City schools. It is registered as research study # 498 Subsequently, due to the nature of the study (secondary study), the study received IRB approval from Walden University # 02-26-14-0100856.

The consent and assent forms were reviewed and approved by the NYCDOE. In addition to reviewing the consent and assent forms, the NYCDOE IRB also reviewed the instruments in order to ensure that the study met the ethical guidelines. The consent and assent forms were given to each participant and their parent(s) to review and sign. This ensured that parents and students alike were aware of the studies purpose as well as risks

and benefits associated with the study prior to participating. The consent form also respected the identity of all participating parties as no identifying information was collected at any point during the study. All ethical concerns were addressed and were implemented to ensure participant protection and confidentiality.

The consent form ensured confidentiality, privacy, and anonymity of each participant. Moreover, the consent form ensured that each individual was aware that the study was completely voluntary and participation was not required. They were also offered to choose not to continue in the middle of the study, if participation made them feel uncomfortable proceeding with the study. The data will be stored and kept in a locked cabinet for a period of 5 years after which all information will be destroyed.

Summary

This secondary causal comparative research study was designed to look at the difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1-minute of silence). Additionally, this chapter addressed the difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between intervention type (no silence, 1-minute of silence). This chapter provided a description of the methodology used to achieve the intent of the study. This chapter also gave a detailed description of the sample, data collection procedures, and data analysis. Finally, ethical concerns were addressed and were implemented to ensure participant protection and confidentiality.

Chapter 4 will provide a detailed description of the data collected, the data procedures and analysis, and the results of the study as they relate to the hypotheses and research questions.

Chapter 4: Results

Introduction

This study was a secondary quantitative analysis of data conducted in self-contained classrooms in a New York City Public School. I used the theory of planned behavior/reasoned action and the HBM. The purpose of the study was to compare statistically significant findings between silence, stress, and academic scores among a developmentally disabled school-aged population. The primary analysis focused on test scores among students with special needs, without taking anxiety into account, whereas the current secondary analysis focuses on anxiety levels as well as test scores among students with special needs. The independent variable in this study was the intervention type (no silence [control] vs. 1-minute of silence [experimental]) and the dependent variables were the anxiety levels (pre-anxiety vs. post anxiety) and the test scores (pretest vs. posttest).

The purpose of this study was to assess whether a technique called 1 minute of silence reduces anxiety and improves test scores among students with disabilities. Two research questions were used: one to determine the difference in anxiety levels in students with special needs and the difference in NYS Math posttest scores in children with special needs (no silence, 1 minute of silence). This study was a secondary quantitative data analysis. Convenience sampling rendered data to address six variables:

dependent variables were (post) anxiety and NYS Math posttest scores; independent variables were intervention type (experimental and control); two covariates specified were pre-anxiety levels and NYS Math pretest. According to the hypotheses, there is a difference in anxiety levels, after controlling for anxiety levels, in students with special needs between those receiving the technique (no silence, 1 minute of silence); there is a difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between those receiving the technique (no silence, 1 minute of silence).

The results of the current secondary study are presented in this chapter. I begin with an explanation of the data collection methods, followed by a presentation of the analyses of the study, done through descriptive statistics in SPSS. Then, a discussion of the results was organized into three sections: (a) an analysis and discussion of the demographics of the study, (b) an analysis and discussion of the research questions, and (c) a discussion and summary of the results.

Data Collection

The data for the study were retrieved from a 2014 NYCDOE research study (#498) conducted by Hanna Matatyaho who was the Principal Investigator for the New York Department of Education. The study took place at the J.H.S. 190 Russell Sage, which is a Middle School in Queens, New York. Prior to collecting data, a consent and assent form were given to all parents of students with special needs, and upon consent, questionnaires were given to all participating students (Appendix A and B). The consent form stated the objectives and goals of the study, the risks and benefits associated with

the study, and participants' civil rights according to the Individually Identifiable Health Information and Health Insurance Portability and Accountability Act.

After consent and assent were obtained, students were asked to fill out the demographic questionnaire, which consisted of questions relating to the students grade level, gender, siblings, primary language, and ethnicity. Once the parents and the students agreed to the terms of the study specified in the informed consent letter, the data collection process was initiated. The participants were then divided into two intervention types (no silence [control] vs. 1 minute of silence [experimental]). All students were given the Westside Test Anxiety Scale and the NYS Math (pre) test prior to the intervention (no silence, 1 minute of silence). Students in the experimental group practiced 1 minute of silence a day for 4 weeks, whereas students in the control group did not participate. After 4 weeks, all students were again given the Westside Test Anxiety Scale followed by the NYS Math posttest. After collecting the data (anxiety levels and test scores), scores were analyzed to determine whether significant differences existed in anxiety levels as well as test scores. From the inception of recruitment to the end of data analysis a span of approximately 6 weeks had elapsed.

The descriptive variables in this study consist of demographic information, such as grade, gender, language, siblings, and ethnicity. The sample size was reduced from 60 to 55, because five students did not provide consent and were therefore eliminated from the study. Of the 55 students (N = 40) 72.7% identified themselves as male and (*N* = 15) 27.3% identified themselves as female. The majority of the participants were Hispanic (*N* = 17, 30.9%), and most of the participants had siblings (*N* = 47, 85.5%). There appeared

to be a smaller percentage of Caucasian-American or White (*N* = 7, 12.7%), African American or Black (*N* = 11, 20%), and Asian (*N* = 7, 12.7%), compared to their Hispanic counterparts. Only one participant was Native American, while the Biracial participants consisted of (*N* = 4) 7.3%, and the rest of the students identified themselves as Other (Guyanese; *N* = 8, 14.5%). At home, the majority of students spoke English (*N* = 29, 52.7%) or were Bilingual (*N* = 24, 43.6%). Only two students reported that only Spanish was spoken in the home, which represented 3.6 % of the total amount of participating students. Although secondary demographics (grade, gender, language, siblings and ethnicity) were analyzed, no significance was reported. In other words, the secondary variables did not affect levels of anxiety or test scores. See Table 2.

The population consisted of only special education students in self-contained classrooms (*N* = 55) from sixth, seventh, and eighth grade. The study was conducted in approximately 4 weeks' time. Almost all of the students in self-contained special education classrooms (and their parents) agreed to partake in the study (55 gave consent, while five did not give consent) out of a possible 60 students. The requirements for this study included students with an IEP. All students in self-contained classrooms have an IEP and were thus considered eligible to partake in the study. Moreover, the population used in this study was the quintessential population, since all students were from self-contained inclusion classrooms.

In addition, in order to determine statistical significance, SPSS 21 was used to find statistical significance among the data collected. ANCOVA was used to analyze the variables in the first and second hypotheses. An ANCOVA is a statistical tool used to

compare one variable in two or more groups by taking into account a third stable variable, known as the covariate.

Treatment Fidelity

Treatment was administered as planned, with each student in the experimental group receiving an anxiety test and NYS Math pretest, then 4 weeks of intervention (1 minute of silence*)*, followed by another anxiety test and NYS Math posttest.

There were no adverse events related to the intervention. Everything was conducted appropriately and methodology progressed as needed in a timely fashion.

Results

The descriptive variables in this study consist of demographic information, such as grade, gender, language, siblings, and ethnicity. The sample size was reduced from 60 to 55 because five students did not provide consent and were therefore eliminated from the study. Of the 55 students ($N = 40$) 72.7% identified themselves as male and ($N = 15$) 27.3% identified themselves as female. The majority of the participants were Hispanic ($N = 17$, 30.9%), and most of the participants had siblings ($N = 47$, 85.5%). There appeared to be a smaller percentage of Caucasian-American or White ($N = 7$, 12.7%), African American or Black ($N = 11$, 20%), and Asian ($N = 7$, 12.7%), compared to their Hispanic counterparts. Only one participant was Native American, while the Biracial participants consisted of ($N = 4$) 7.3%, and the rest of the students identified themselves as Other (Guyanese; $N = 8$, 14.5%). At home, the majority of students spoke English ($N = 29$, 52.7%) or were Bilingual (24, 43.6%). Only two students reported that only Spanish was spoken in the home, which represented 3.6 % of the total amount of participating

students. Although secondary demographics (grade, gender, language, siblings and ethnicity) were analyzed, no significance was reported. In other words, the secondary variables did not affect levels of anxiety or test scores. See Table 2.

Table 2

Demographic Characteristics

Demographics	Frequency = *N*	Percent (%)
Intervention		
Received intervention (no silence)	27	49.1
No intervention (one min silence)	28	50.9
Total	55	100
Gender		
Male	40	72.7
Female	15	27.3
Grade		
6th grade	17	30.9
7th grade	17	30.9
8th grade	21	38.2
Ethnicity		
Caucasian	7	12.7
African American or Black	11	20
Hispanic	17	30.9
Asian	7	12.7
Native American	1	1.8
Bi-racial	4	7.3
Other (Guvanese)	8	14.5
Siblings		
Yes	47	85.5
No	8	14.5
Language		
English	29	52.7
Spanish	2	3.6
Bilingual	24	43.6

Assumptions for ANCOVA include homogeneity of variance, independence of error, normality, and linearity. In addition to the above assumptions, it was assumed that

the covariate for RQ1, pre-anxiety levels, was related to anxiety, but unrelated to intervention type (no silence vs. 1 minute of silence). Moreover, it was assumed that the covariate for RQ2, NYS Math pretest scores, was related to NYS Math posttest scores, but unrelated to intervention type (no silence vs. 1 minute of silence). All hypotheses were tested using typical procedures as recommended by Tabachnick and Fidell (2007).

Research Question 1

What is the difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1 minute of silence)?

To examine RQ1, ANCOVA was conducted to assess if there were differences in anxiety levels by intervention type, after controlling for pre-anxiety levels. Prior to analysis, the assumption of normality was assessed with a Shapiro Wilke's Lambda test. The results of the test were significant, indicating that the assumption was not met. In other words, the distribution of scores did not follow a normal distribution. In many cases, the ANCOVA is considered a robust statistic in which assumptions can be violated with relatively minor effects (Howell, 2010). The assumption of equality of variance was also assessed with the Levene's test.

The results of the test were not significant, indicating the assumption was met. The results of the ANCOVA were significant for intervention type, F (1, 52) = 35.87, $p \leq$ .001, partial eta-squared $\eta_P^2 = 0.41$, suggesting there was a difference in anxiety levels by intervention type when controlling for the covariate (pre-anxiety levels). Post Hoc pairwise comparisons were conducted to assess where the differences were. The mean for received intervention (M = 2.80) was significantly greater than the mean for did not

receive intervention (M = 3.58; MD = -.78, $p < .001$). Results of the ANCOVA are presented in Table 3.

Table 3

ANCOVA Results and Descriptive Statistics for Anxiety by Intervention Type

	Anxiety					
Intervention type	Pre-anxiety	Anxiety	*SD*	*N*		
Received	3.6	2.93	0.67	27		
Not received	3.2	3.4	0.71	28		
Source	*SS*	*df*	*MS*	*F*	*p*-value	Partial Eta Squared
Intervention	7.63	1	7.63	35.87	0.001	0.41
Error	11.059	52	0.213			

Research Question 2

What is the difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1 minute of silence)?

To examine RQ2, ANCOVA was conducted to assess if there were differences in NYS posttest scores by intervention type, after controlling for NYS pretest scores. Prior to analysis, the assumption of normality was assessed with a Shapiro Wilke's Lambda test. The results of the test were significant, indicating that the assumption was not met. In other words, the distribution of scores did not follow a normal distribution. In many cases, the ANCOVA is considered a robust statistic in which assumptions can be violated with relatively minor effects (Howell, 2010). The assumption of equality of variance was

also assessed with the Levene's test. The results of the test were not significant, indicating the assumption was met.

The results of the ANCOVA were significant for intervention type, F (1, 48) = 81.08, $p < .001$, partial eta-squared $\eta_P^2 = 0.63$, suggesting there was a difference in NYS Math posttest scores by intervention types, after controlling for NYS Math pretest scores. Post Hoc pairwise comparisons were conducted to assess where the differences were. The mean for received intervention ($M = .55$) was significantly greater than the mean for did not receive intervention ($M = .33$; $MD = .22$, $p < .001$). Results of the ANCOVA are presented in Table 4.

Table 4

ANCOVA Results and Descriptive Statistics for NYS Math Scores by Intervention

NYS Math Text						
Intervention type						
	Pretext scores	Posttest scores	*SD*	*N*		
Received	0.29	0.53	0.0985	27		
Not received	0.34	0.35	0.153	28		
Source	*SS*	*df*	*MS*	*F*	*p*-value	Partial Eta Squared
Intervention	0.606	1	0.606	81.08	0.001	0.63
Error	0.359	48	0.007			

Summary

The current secondary quantitative study was garnered from a previous study conducted by Hanna Matatyaho at J.H.S. 190 Russell Sage, which is a public school that is part of the NYCDOE system (#498). According to the results of this study, students

with special needs who were given the 1 minute of silence intervention over 4 weeks had lower levels of anxiety and higher test scores. Conversely, students with special needs who were not given the intervention had higher or stable levels of anxiety and lower or similar test scores.

In RQ1, where levels of anxiety were examined, students who received the 1-minute of silence intervention had a significantly lower mean ($M = 2.80$) than those students who did not receive the intervention ($M = 3.58$; $MD = -.78$, $p < .001$). Thus, the student's levels' of anxiety was decreased after receiving the intervention.

In RQ2, where test scores were examined, students with disabilities who received the 1-minute of silence intervention had significantly higher test scores ($M = .55$) than those students who did not receive the 1 minute of silence intervention ($M = .33$; $MD = .22$, $p < .001$).

In order to rule out whether extraneous secondary variables affected the results of the study, secondary variables were analyzed. According to the results, secondary variables, such as grade, gender, language, siblings, and ethnicity, were uniform and did not affect the outcome of the results. In other words, for example, the anxiety levels or test scores of sixth graders was not significantly different than anxiety levels or test scores of seventh and eighth graders.

In Chapter 5, I will discuss the findings of the current study in detail. The findings will be evaluated in the context of the HBM and the theory of planned behavior/reasoned action and will be examined further to determine the value of the results as well as how the current knowledge and literature can be translated to future research. In addition,

limitations of the current study will be evaluated to aide in the development of future research. Finally, the potential impact for social change as a result of this study's findings will be clarified and explored further.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this chapter, I present an overview of the study, a summary of findings with interpretation of the findings, a discussion of the implications of the findings and theory models, implications for social change, recommendations for social change, recommendations for future research, and, finally, my reflection about the study. The purpose of this study was to assess whether a technique called 1-minute of silence reduces anxiety and improves test scores among students with disabilities. Two research questions were used: one to determine the difference in anxiety levels in students with special needs and the other to determine the difference in NYS Math posttest scores in children with special needs (no silence, 1 minute of silence). According to the hypotheses, there is a difference in anxiety levels, after controlling for anxiety levels, in students with special needs between those receiving the technique (no silence, 1-minute of silence); there is a difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in students with special needs between those receiving the technique (no silence,1 minute of silence).

This secondary data analysis is the first study in which a researcher examined the 1-minute of silence technique and the relationship between the technique and anxiety levels in students with special needs and found that the 1-minute of silence technique is a highly effective method of reducing anxiety and increasing test scores in students with special needs. I found that students' anxiety levels were significantly reduced and their test scores were significantly improved after having used the 1-minute of silence

technique for 4 weeks. Because little research exists on anxiety and test scores among developmentally disabled children, this study has little peer-reviewed research that it can compare with, and thus the results are overwhelming.

Key results revealed that students with special needs who were given the 1-minute of silence technique over 4 weeks had lower levels of anxiety and higher test scores, while students with special needs who were not given the 1-minute of silence technique had higher or stable levels of anxiety and lower or similar test scores.

Interpretation of the Findings

The U.S. Department of Health and Human Services describes children with special healthcare needs as having complex health conditions that may include developmental, behavioral, or emotional conditions and limitations, that require school, health, and community services in order to improve their functionality, health, and overall quality of life (as cited in Eiser & Morse, 2001).

To date, few theories exist that explain stress and anxiety levels in children with disabilities and how these levels may be alleviated through various modes of exercise. Moreover, no study exists that examines how the levels of stress and anxiety can be altered through various coping mechanisms designed especially for special needs children. In addition, little research exists in the domain of stress and anxiety in developmentally disabled school-aged children.

According to the 2009/10 National Survey of Children with Special Health Care Needs results, approximately 43% of children have functional difficulties that impact day-to-day life experienced feeling anxious or depressed. Of the 43%, 14.8% of children

experienced "a lot of difficulty" with feeling anxious or depressed (Data Resource Center for Child & Adolescent Health, 2014). Since school and test taking are part of day-to-day life, it is important to study this population and find interventions that may help reduce the anxiety or depressed feelings among this population.

As shown in a recent study conducted in the United Kingdom, Stallard et al. (2014) stated that anxiety impairs every day functioning and remains common among school-aged children. Although Stallard et al. focused on anxiety and was conducted only with general education students, the current secondary analysis focuses primarly on anxiety among students with disabilities in the NYCDOE.

In addition to anxiety being a factor in academic stress, testing, another stressor, has always been a part of schooling, and the anxiety that comes with testing is nothing new. It is usually around testing time that students experience the highest levels of anxiety because they know they must perform better than they previously have, and they are being compared to their typical peers (Wigfield & Cambria, 2010).

Although testing and testing requirements have improved over the past decade, starting with the passing of NCLB, there are still many obstacles that must be overcome. With the implementation of this act, schools are mandated to evaluate every student in Grades 3 to 8 yearly and once in Grades 10 to 12 on English Language Arts, Reading, and Math. In addition, NCLB mandated that by 2012, 90% of students with learning disabilities must at least accomplish a proficient grade level (Bedell & Larrainza, 2009).

In order to overcome these testing barriers, researchers and school officials have tried to create and employ techniques that they thought would ameliorate a student's level

and ability to perform; these techniques focused on cognition, behavior, and skill-task (Neuderth et al., 2009).

All strategies that have been created and used over the past decades with students are CBt. Systematic desensitization involves relaxation techniques where one gradually becomes less fearful by learning to relax muscles when shown a visual image of an object that conveys fear (Tasto, 1969). Another technique often used to relieve stress is yoga. According to Long et al. (2001), the benefits of yoga include improving the circulatory system, the digestive system, the hormonal system, and the respiratory system.

Visual imagery is another technique that can be taught to students easily, especially those with an overactive mind (Zipkin, 1985). Similarly, deep breathing is a technique that can be taught easily and has lasting effects (Margolis, 1990).

Whereas many studies focus on met and unmet healthcare needs, little research exists in the domain of health outcomes of anxiety in developmentally disabled school-aged children. Thus, the current study was developed to evaluate the health outcomes of anxiety in a special needs population. In addition, the current secondary analysis study showed that anxiety played an important role in academic functioning among students with disabilities. In this study, not having received the intervention was significantly associated with anxiety and limitation in academic functioning. According to study results, students with special needs who received the 1-minute of silence intervention had significantly higher test scores. The findings are consistent with the findings from the Finn et al. (2014) study, which stated that schools that showed improved standardized test scores did so by using channels that did not focus on cognitive skills, but rather focused

on lowering anxiety in order for students to perform better. I can therefore conclude that the 1-minute of silence technique played a significant role in reducing anxiety levels while increasing test scores.

Interpretation of Findings in Relation to Anxiety Levels

According to Cassady and Johnson (2002), negative academic performance and lower test scores are associated with higher levels of cognitive test anxiety. A study conducted in the United Kingdom revealed that the overall anxiety appears to be caused by the increasing demands of test taking in schools (McDonald, 2001). The study was conducted with a general population who showed an increase in anxiety, and as the number of children with special needs who enter the mainstream school system increases, so too does the number of school related reports of anxiety (Swearer et al., 2012).

Furthermore, Ergene (2003) stated that in general, anxiety reduction programs resulted in a reduction of test anxiety, especially programs that were brief in nature. His claim was that most programs are developed for college and university students, and he addressed the need for creating effective anxiety reduction programs for students in elementary, middle, and high school. In addition, the American Test Anxieties Association (2014) explained that schoolwork was amongst the highest level of stress for students, followed by other types of stress (such as self-esteem), especially when it is related to test taking. As shown in a recent study conducted in the United Kingdom, Stallard et al. (2014) stated that anxiety impairs every day functioning and remains common among school-aged children. Although Stallard et al. focused on anxiety and

was conducted only with general education students, the current secondary analysis focuses primarly on anxiety among students with disabilities in the NYCDOE.

Two hypotheses were used to determine the effect of the intervention techniqueh. The first null hypotheses stated that there is no difference in anxiety levels, after controlling for pre-anxiety levels, in students with special needs between intervention type (no silence, 1 minute of silence). In the current study, I showed that the difference in anxiety levels, after controlling for pre-anxiety levels, were significant for intervention type intervention type ($p \leq .001$), suggesting that there was a difference in anxiety levels by intervention type when controlling for the covariate (pre-anxiety levels). In other words, the mean difference in anxiety for the students who received the intervention was significantly greater than the mean difference for students who did not receive the intervention ($p < .001$); those who received the intervention had lower levels of anxiety compared to those who did not receive the intervention.

According to study results, students with special needs who were given the 1-minute of silence intervention over 4 weeks had lower levels of anxiety, which resulted with the Null Hypothesis 1 being rejected. The findings are consistent with the findings from the study conducted in the United Kingdom where a 12-month program using a Child Anxiety and Depression Scale and cognitive behavior therapy prevention programs resulted in a recommendation to deliver anxiety prevention programs in schools (Stallard et al., 2014). This secondary data analysis is the first study that examines the 1-minute of silence technique and the relationship between the technique and anxiety levels in students with special needs. Furthermore, the current study shows how effective a simple

technique can be in lowering anxiety and increasing test scores in a special needs population. As such, the finding has extended the knowledge in decreasing anxiety levels among school-aged children with special needs.

Interpretation of Findings in Relation to Math Test Results

The second null hypothesis states that there is no difference in NYS Math posttest scores, after controlling for NYS Math pretest scores, in children with special needs between intervention type (no silence, 1 minute of silence). The findings in NYS Math posttest scores, after controlling for NYS Math pretest scores, were significant for intervention type ($p \leq .001$), suggesting that there was a difference in posttest math scores by intervention types, controlling for pretest scores. In other words, the mean difference for the students who received the intervention was significantly greater than the mean difference for the students who did not receive the intervention ($p < .001$); those who received the intervention had higher posttest scores than those who did not receive the intervention.

According to study results, students with special needs who received the 1-minute of silence intervention had significantly higher test scores, which resulted with Null Hypothesis 2 being rejected. The findings are consistent with the findings from Finn et al. (2014) who asserted that schools that showed improved standardized test scores did so by using channels that did not focus on cognitive skills, but rather focused on lowering anxiety in order for students to perform better. I can therefore conclude that the 1-minute of silence technique played a significant role in reducing anxiety levels while increasing test scores.

Interpretation of Additional Results

Secondary analyses of gender, siblings, ethnicity, and grade level revealed that participants in the study were mostly male (72.7%) regardless of grade level. Most participants had siblings (85.5%) and identified themselves as Hispanic (30.9%). While the participants attended different grade levels, the outcome of the results between grade levels was not significantly different. Demographic variables such as gender, grade, language, siblings, and ethnicity were uniform and did not affect the outcome of the results.

Interpretation of Findings in Relation to the Theoretical Framework

The current study was guided by the theory of reasoned action/theory of planned behavior and the HBM. The theory of planned behavior/reasoned action was developed by Ajzen and Fishbein in 1980. This theory proposes that an individual's behavior is determined by the individual's intention to carry out a certain behavior. It further implies that a person who uses self-control has the ability to carry out the behavior at will: The stronger the goal to engage in a behavior, the more likely its desired outcome.

There are several different ways to achieve the theory reasoned action where the behavioral intention is to influence beliefs toward a particular behavior by motivating one to act in that particular behavior. Role play, psychodrama, or discussions are educational techniques used to motivate cognition toward behavior change. Many applications of the theory of reasoned action have been used and continue to be used in health education and health promotion programs (Sharma & Romas, 2012).

Several health promotion/education plans that use similar techniques as the current study conducted in a New York City Public School are school-based interventions for HIV/AIDS prevention and substance abuse behavior in pregnant adolescents (Sharma & Romas, 2012). The theory of planned behavior in health education and health promotion programs include school-based intervention such as the promotion of physical activity (Sharma & Romas, 2012). Although the theory of planned behavior/reasoned action have been widely used in health education and health promotion and the individual's intention to carry out a certain behavior may have favorable outcomes, it is necessary to take into consideration that anxiety, fear, and past experiences should be factored into behavioral intention and motivation.

The current study was also guided by the HBM, which was created much earlier than the theory of planned behavior/reasoned action. It was developed in the 1950s by Hochbaum et al. while working at the U.S. Public Health Services (University of Twente, 2014). According to Sharma and Romas (2012), it is considered the first theory developed exclusively for health-related behaviors, and even though it is called a model, it has all the criteria of a theory. The purpose of this model is to have a person take a health-related action to improve a healthier lifestyle. According to the HBM, health behavior depends on perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Sharma & Romas, 2012). See Figure 3.

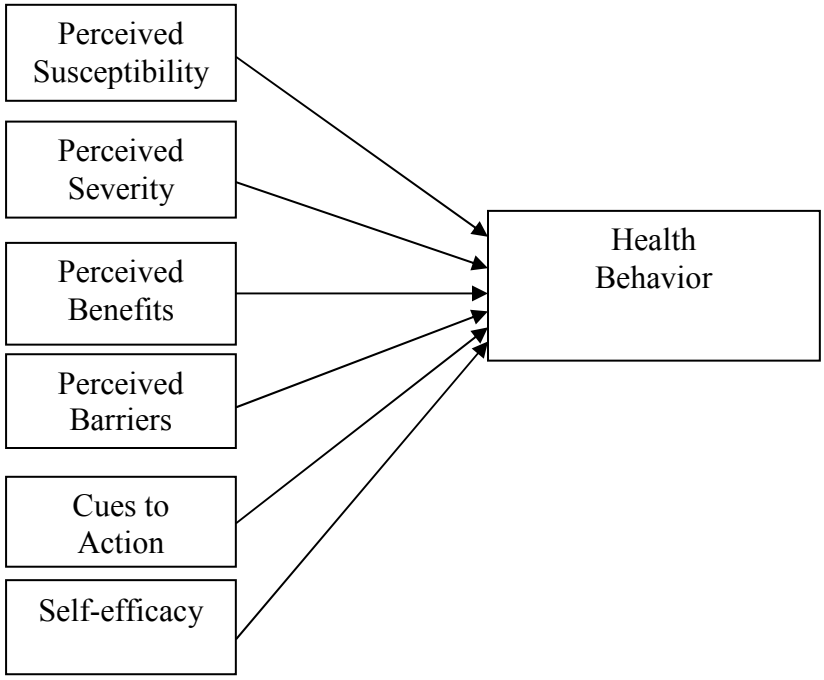

Figure 3. Health belief model.

The HBM is a popular model in health education and health promotion since it provides guidance on how to plan an intervention by breaking down complex issues into smaller parts by using persuasion and encouragement to be able to achieve the behavior change goal. Because we know that behavior change is generally linked to some amount of stress, by reducing stress it -the behavior change- becomes an effective way of building self-efficacy (Sharma & Romas, 2012). As we can see in the primary and secondary study, the theory of planned behavior and the HBM both fall well within the domain of achieving the desired behavior change goal, which is to determine whether anxiety and math scores are inversely proportional and whether a new technique can be used to reduce anxiety, improve math scores, and promote healthy behavior.

While Sawyer et al. (2010) and Stallard et al. (2014) stated that evaluations of prevention programs that were specifically created for school children failed to provide positive outcomes, Miller et al. (2011) claimed that even though the results of anxiety prevention programs seem to be more encouraging, the studies have failed to find positive outcomes. Although there were no positive outcomes from the aforementioned studies, the current study, in contrast, showed that although students who perceived increased anxiety levels showed lower test scores, students who reached self-efficacy through learning the 1-minute of silence technique reached the acquired new behavior and lowered their anxiety levels while increasing their test scores.

In sum, according to the theory of planned behavior/reasoned action the same outcome has been noted in this current study. The theory of reasoned action explains that when the intention towards a behavior is present, the outcome of the behavior becomes more favorable. Moreover, when the initial outcome of the study was to achieve higher math test scores, a behavior change was in question. With the help of an intervention (1-minute of silence), and the perceived behavior control, the test scores increased, which showed that the attitude towards the behavior always influences the intention. See Figure 4.

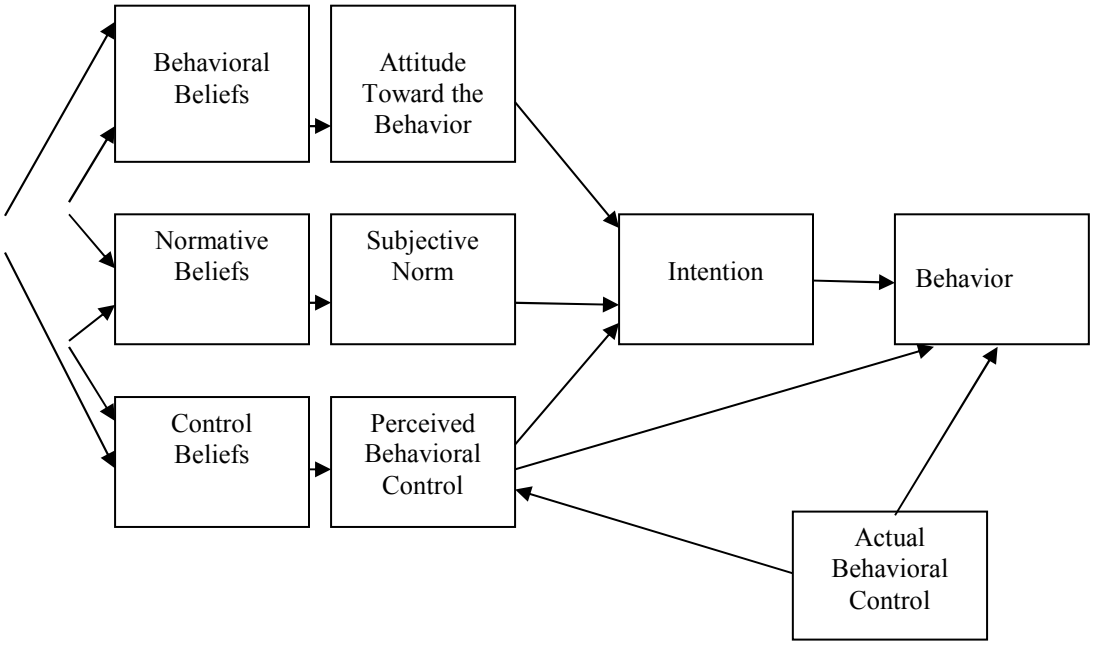

Figure 4. Theoretical model - the theory of planned behavior/reasoned action.

Limitations of the Study

Although the current secondary analysis was based on primary data, there are some limitations within the methodology that should be reviewed. It is pertinent to generalize the findings to a greater demographic population with varying methodologies and instrumentation. Although the current study used data garnered only from individuals in the New York City area - an urban area - and not from surrounding suburban areas or other states that may contain rural environments, it is important to be able to generalize the findings to other urban areas, suburban areas, and rural areas to see whether results are consistent throughout all regions. Moreover, the current study was conducted within one public school in the New York City metro area, and not in surrounding public schools or private schools within and around the New York City area.

The study garnered information from students with special needs in self-contained classrooms and not from the general education population or other less restrictive environments, making the results potentially skewed. Students were only from self-contained classrooms in the sixth, seventh, and eighth grades and all were between the ages of 11 and 15. Because all students were from one school and one special needs classroom (self-contained), they were not randomly selected, resulting in selection bias from this specific population (those who met the inclusion/exclusion criteria). Thus, the selection of students from only self-contained classrooms lead to a small sample size (N = 55) with a high number of male students (N = 40). It is important to mention that students identified with special needs and functional limitation in the study may have substantial variation in the degree of functional ability limitation but the variation was not mentioned in the study.

Although race was not a confounding factor in this study, the study might be limited in the ethnicities of the sample as the majority of participants were Hispanic (N = 17) and Black (N = 11), which represented over 50% of the participants. Although race may not be a defining variable, it is a worthy variable to consider when looking at differences in anxiety, test scores, and the special needs population.

Recommendations

Several conclusions can be drawn from the knowledge we have gained from this secondary analysis study. Because data that focuses on anxiety in students with special needs is limited, there is a profound need for futher research within that population and area of expertise. The current secondary study has shown not only the importance of

utilizing specialized techniques with students with special needs, but also the necessity to use these techniques and how essential the techniques are to the emotional and academic state of a child with special needs.

Students with special needs, more so than general education students, require some mechanism to lower their anxiety levels to be more relaxed when engaging in stressfull situations, such as testing, and should be able to increase their test scores once their anxiety is alleviated. If these students are required to adjust to a mainstream environment, then they must be given the ideal mechanisms to function appropriately amongst their typical general education peers. Thus, future studies should focus on how the techniques can be made better, and how the technique performs among varying demographics and populations.

In order to generalize the findings to a larger population, the study must be conducted with a larger cohort in various demographic settings. Future studies could conduct the current methodology with a larger sample size throughout the NYC metro area, or could even go beyond that and conduct the study with students throughout the east cost and beyond. Since the sample size of the study was very small, it is suggested that a cohort design be used in order to increase the sample size. The study sample would be selected from other school districts, both in the public and private sector. In addition, the study should be given to a wider audience with a more diverse ethnic basis in order to increase the generalizability of the study findings.

Furthermore, it is essential to conduct the study with not only special needs students in self-contained classrooms, but with students in other special needs

classrooms, as well as with students who are typical in the general education setting. By providing the study with a larger base of students, the results can determine who benefits the most from such techniques and where these techniques can become a mainstay. Because this study only consisted of students in middle school from ages 11 to 15, it is essential to conduct the study with younger and older students. After all, research has shown that early intervention is highly important when trying to promote academic achievement.

Several techniques have been used in the past with children, but few techniques provide the effectiveness and efficiency of the current technique -1-minute of silence. For example, although Yoga has many benefits, include improving the circulatory system, the digestive system, the hormonal system, and the respiratory system (Long, Huntley, & Ernst, 2001), it is not a very effective method when sitting in a classroom. In addition, according to Peleg (2009), lower levels of self esteem and higher levels of test anxiety were found among children with special needs. By providing the new technique with elementary school aged children, it may be possible to see an upward trend in testing results in the upper grades. All students, not only students with special needs, could benefit from a relaxation technique that would alleviate anxiety and increase test scores. By conducting these studies in the younger years, it is possible to see an upward trajectory in academic success.

Lastly, follow-up studies must be conducted in order to determine that the secondary variables (gender, ethnicity, siblings, primary language) do not play a role in whether the technique is successfull with a larger cohort. For example, the current study

has primarily male, hispanic students. It is recommended that a larger population with an equal amount of males and females, as well as an equal amount of hispanics, African-Americans, blacks, caucasian, etc. be used to determine whether significance was solely based on the technique used and not on confounding variables.

Thus, it is recommended that the study be conducted with an equal distribution of males and females which may give a more precise indication of significance, and even though language was not a barrier for this population since most students were fluent in the English language it is recommended that further studies should include English Language Learners. It is also recommended that the current study be conducted on a larger scale in the national school system so that we, as a nation, can aid in students' with special needs mental and social well-being. A healthy mind and body ultimately leads to academic success. After all, academic success should not only be reserved for typical students, but should be achieved by all.

Implications

This study is an integrated multidisciplinary research, including psychosomatic medicine, behavioral medicine, health psychology, and sociology. The findings of this research have implications in the public health sector, as well as the academic domain, by contributing to the social and public health knowledge base on how to promote and increase positive healthy behavior in public health settings, such as hospitals, health agencies, and academic institutions.

Results of the current study revealed that the 1-minute of silence technique is a powerful technique that reduces stress in students with special needs, while increasing

their test scores. The current study is integral to the literature on social change and academic development among the developmentally disabled population. The findings give insight into the mind and social well-being of students with special needs and how a simple technique could alter the physiological and psychological state of well-being amongst that population. Furthermore, the significant findings reveal how important future research is in the domain of anxiety and academic standing in school-aged children, and how the research can be generalized to a broader group of individuals, whether it be younger children who require early intervention, or older students who require a simple aide to improve their academic standing and social well-being.

According to the theory of planned behavior/reasoned action the current study shows that when the intention towards a behavior is present, the outcome of the behavior becomes more favorable. For example, with the help of the 1-minute of silence technique, and the perceived behavior control, the test scores increased, which showed that the attitude towards the behavior always influences the intention. Thus, it is recommended that the current study be conducted on a larger scale in the national school system so that we, as a nation, can aid in students' with special needs mental and social well-being, ensuring positive social change. A healthy mind and body ultimately leads to academic success. After all, academic success should not only be reserved for typical students, but should be achieved by all. This study recommends that all educators embrace the use of specialized teaching techniques for students with special needs, which can help to ensure their emotional and academic success.

Conclusion

The purpose of this secondary analysis was to examine whether a technique known as 1-minute of silence would decrease anxiety and improve math test scores among a special needs population. The findings revealed that the 1-minute of silence technique was, in fact, significant in lowering anxiety levels while increasing test scores among students with disabilities. This is the first study to reveal that a simple technique can be used to reduce stress/anxiety amongst a special needs population, while also improving their academic standing. Ultimately, this method of success could alter the way we view mental health and social well-being for special needs students and could change the national academic system so that all children, not only typical children, can achieve academic success. This study contributes to positive social change by demonstrating to educators that specialized teaching techniques are very useful for students with disabilities, and can help them to be as successful as their counterparts who are not disabled.

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Appendix A: Consent Form

J.H.S. 190 - RUSSELL SAGE

Dear Parent/Guardian,

We are asking for your child to participate in an academic development research study. This research is for students who have an Individualized Education Plan (I.E.P.), are mainstreamed into an inclusion setting or in an integrated co-teaching classroom or in a self-contained classroom.

What you should know about research studies:

- This consent form gives you information about the study. It tells you about the purposes, risks, and benefits of this research study.
- You may agree to have your child participate now and then change your mind at a later date. Your decision will not affect your child's regular care.
- Please read this consent form carefully. Ask any questions you may have before making a decision. The main study director will answer your questions.
- Participation is up to you as the parent/guardian and participation is voluntary.
- All data will be kept confidential. Data will be kept for a period of three years before it is destroyed.

1) **Why is this research being done?**

We know very little about the various techniques that may help students with disabilities improve their academic grades. In particular, we do not know of any one method that helps each child improve their grades. We would like to try a calming technique - known as the 1-minute of silence technique - with each student who has an I.E.P. to see if his or her grades improve after 5 weeks of practicing the technique.

2) **Who is doing the study?**

Hanna Matatyaho, M.P.S., B.C.S.E. is in charge of the study, which will take place at J.H.S. 190 Russell Sage. Approximately 60 students will be in the study.

3) **Your child cannot be in the study if:**

- He or she does not have an Individualized Education Plan (I.E.P.).
- He or she is younger than 11 or older than 15.
- He or she does not go to J.H.S. 190 Russell Sage.

4) What will happen if you decide to let your child participate in the research study?

If you allow your child to participate in the study, he or she will be involved in it for 5 weeks. The researcher will give each student the Westside Anxiety Scale and then they will be given a NYS Math pretest. The researcher will attend each classroom for several minutes each morning and have the students partake in the calming technique, which consists of having them close their eyes and be silent for one minute. They will be taught to clear their minds and relax. After one minute has passed, they will be asked to resume their normal daily academic studies. At the end of 4 weeks, each student will once again be given the Westside Anxiety Scale and then a *NYS Math* posttest. Anxiety levels will be assessed and test scores will be compared to determine if the 1-minute of silence technique reduced anxiety and improved test scores.

5) What are the possible risks and benefits of being in this study?

There are no known risks of being in this study. Information gathered from your child will help us understand what techniques can be used to improve the grades of children with disabilities who need assistance in schools. The research will also guide future academic research for all students in the public school system.

6) If you have any questions or problems, whom can you call?

If you have any questions about this study you can call Hanna Matatyaho, M.P.S., B.C.S.E.

7) What information do we keep private?

In this study we keep all identifying information private and confidential. Information that has your child's name on it or any other information pertaining to your child is kept with the researcher in a locked, secure filing cabinet. Your child's identity will never be revealed in any publication or presentation. All data will be published collectively and not individually. In other words, all data will be analyzed as group data and not

individual data. After three years of completion of the study, all identifying information will be shredded. Your information may only be disclosed, in rare circumstances, if so required by the Federal Privacy Law.
Your child's information is protected according to the Health Information Portability and Accountability Act (HIPAA). In addition, Federal law protects your rights to privacy concerning Individually Identifiable Health Information (IIHI). IIHI as defined by the federal privacy law is any information from your medical or personal records, such as your I.E.P., that was obtained for the purposes of this study, can be linked to your child, and contains any mental information from your child's past, present, or future. For this study we will create, use or report the following IIHI:
A demographic questionnaire will be given to your child, which includes date of birth, gender, grade level, ethnicity, number of siblings, and the language(s) spoken at home. Information obtained from this study includes your child's level of anxiety to test performance as well as their academic scores.
The researcher will use your child's protected IIHI for this research study.
Your child can withdraw from the study at any point in time. You must write to withdraw to Hanna Matatyaho, M.P.S., B.C.S.E.

8) Can being in the study end early?

Participating in the study is voluntary. Your child does not have to be in the study if he or she does not want to be. You or your child may agree to be in the study now and change your mind later. If your child would like to quit the study at any point in time, he or she may do so, by telling the researcher.
The researcher can take your child out of the study at any time without your permission. Possible reasons your child would be taken out:

- He or she has an inability to concentrate on the calming technique 1-minute of silence Failure on the part of your child to take any or part of the Westside Anxiety Scale or the NYS Math test.

9) Additional Information

If we receive any new information regarding the study at any point, we will notify you. When all information is gathered, you may receive a copy of the publication when it is in press. You may not receive any information on any other child in the study, but may know about your own child's file at any time.
<u>We cannot guarantee that your child will do significantly better on his or her test scores.</u>
A copy of this consent form will be provided to you for your records.

10) Participant and Guardian consent

The procedures of this study are purely experimental and do not reflect each and every childs performance. By signing below you, the parent/guardian, agree to have your child participate in the research study.

_____	_____
Print Name of Student	Date
_____	_____
Print Name of Parent/Guardian	Signature of Parent/Guardian

Appendix B: Student Assent Form

Participant's Initials_____

You are being invited to participate in a research study. We are doing this to learn more about how students with special needs react to a new technique called 1-minute of silence. We want to see whether the 1-minute of silence technique helps students to relax, so that they can perform better on tests. If you agree to be in this study, we will give you the Westside Anxiety Scale before giving a NYS test. Then, we will teach the 1-minute of silence technique to you for 4 weeks. After doing the 1-minute of silence technique for 4 weeks, you will again be given the Westside Anxiety Scale and a NYS test. After the whole study is over, we will see if your test scores improved because of the 1-minute of silence technique.

We will keep everything you tell us private. Your name, address, class, and any information that can be linked back to you will be kept private (confidential) at all times. All of your information will always be kept locked in a secure filing cabinet for three years where no one can touch it. After three years all of your information will be destroyed.

If you agree to be in the study and you have any questions throughout the study you can ask Hanna Matatyaho (Ms. Hanna), who is conducting this study.

You do not have to be in the study, and you can stop if you do not want to do it, at any time. This means that the study is completely voluntary. If you choose to stop for any reason, please let Hanna Matatyaho know.

Child's Assent: **I have been told about the study and know why it is being done and what I will be asked to do. I also know that I do not have to do it if I do not want to. If I have questions, or want to stop participating, I can tell - Ms. Hanna Matatyaho.**

My parents/guardians know that I am being asked to be in this study.

We will give you a copy of this form so you can take it with you whether you agree or not.

_____ _____

Name Date

_____

Signature

Appendix C: Demographic Questionnaire

Study:_____

Participant Number:_____

Student's Name: _____ Gender: _____

Students Date of Birth: _____ Grade level: _____

Ethnic Background of Student:
[ ] Caucasian-American or White
[ ] African-American or Black
[ ] Hispanic
[ ] Asian
[ ] Native-American
[ ] Hawaiian or Pacific Islander
[ ] Biracial (Please Specify) _____

Do you have any siblings: _____ If so, how many? _____

Language(s) spoken at home:

_____

Appendix D: Westside Test Anxiety Scale

Rate how true each of the following is of you, from extremely or always true, to not at all or never true.

Use the following 5 point scale. Circle your answers:

5	4	3	2	1
Extremely	highly	moderately	slightly	not at all
Always	usually	sometimes	seldom	never
True	true	true	true	true

__ 1) the closer I am to a major exam, the harder it is for me to concentrate on the material.

5 4 3 2 1

__ 2) When I study for my exams, I worry that I will not remember the material on the exam.

5 4 3 2 1

__ 3) during important exams, I think that I am doing awful or that I may fail.

5 4 3 2 1

__ 4) I lose focus on important exams, and I cannot remember material that I knew before the exam.

5 4 3 2 1

__ 5) I finally remember the answer to exam questions after the exam is already over.

5 4 3 2 1

__ 6) I worry so much before a major exam that I am too worn out to do my best on the exam.

5 4 3 2 1

__ 7) I feel out of sorts or not really myself when I take important exams.

5 4 3 2 1

__ 8) I find that my mind sometimes wanders when I am taking important exams.

5 4 3 2 1

__ 9) After an exam, I worry about whether I did well enough.

5 4 3 2 1

__ 10) I struggle with written assignments, or avoid doing them, because I feel that whatever I do will not be good enough. I want it to be perfect.

5 4 3 2 1

_____ Sum of the 10 questions

< _____ > Divide the sum by 10. This is your Test Anxiety score.

Appendix E: The New York State Math Pre- and Post-Test

The New York State Math pre and post test for grade 6, 7, and 8 may be downloaded at these URL:

NYS Math test grade 6 pretest (2008) and posttest (2009):

http://www.nysedregents.org/Grade6/Mathematics/home.html

NYS Math test grade 7 pretest (2008) and posttest (2009):

http://www.nysedregents.org/Grade7/Mathematics/home.html

NYS Math test grade 8 pretest (2008) and posttest (2009):

http://www.nysedregents.org/Grade8/Mathematics/home.html

Appendix F: NYCDOE IRB Approval Letter

Department of Education
Dennis M. Walcott, Chancellor

Research and Policy Support Group

52 Chambers Street
Room 309
New York, NY 10007

1 212 374-7659 tel
1 212 374-5908 fax

September 17, 2013

Mrs. Hanna Matatyaho
12-11 Estates Lane
Bayside, NY 11360

Dear Mrs. Matatyaho:

I am happy to inform you that the New York City Department of Education Institutional Review Board (NYCDOE IRB) has approved your research proposal, "Silence Improves Anxiety Levels and Test Scores Among Children with disabilities." The NYCDOE IRB has assigned your study the file number of 498. Please make certain that all correspondence regarding this project references this number. The IRB has determined that the study poses minimal risk to participants. The approval is for a period of one year.

Approval Date: **September 17, 2013**
Expiration Date: **September 16, 2014**

Responsibilities of Principal Investigators: Please find below a list of responsibilities of Principal Investigators who have DOE IRB approval to conduct research in New York City public schools.

- Approval by this office does not guarantee access to any particular school, individual or data. You are responsible for making appropriate contacts and getting the required permissions and consents before initiating the study.
- When requesting permission to conduct research, submit a letter to the school principal summarizing your research design and methodology along with this IRB Approval letter. Each principal agreeing to participate must sign the enclosed Approval to Conduct Research in Schools/Districts form. *A completed and signed form for every school included in your research must be emailed to* IRB@schools.nyc.gov . Principals may also ask you to show them the receipt issued by the NYC Department of Education at the time of your fingerprinting.
- You are responsible for ensuring that all researchers on your team conducting research in NYC public schools are fingerprinted by the NYC Department of Education. Please note: This rule applies to all research in schools conducted with students and/or staff. See the attached fingerprinting materials. For additional information click here. Fingerprinting staff will ask you for your identification and social security number and for your DOE IRB approval letter. You must be fingerprinted during the school year in which the letter is issued. Researchers who join the study team after the inception of the research must also be fingerprinted. Please provide a list of their names and social security numbers to the NYC Department of Education Research and Policy Support Group for tracking their eligibility and security clearance. The cost of fingerprinting is $115. *A copy of the fingerprinting receipt must be emailed to* IRB@schools.nyc.gov .

- You are responsible for ensuring that the research is conducted in accordance with your research proposal as approved by the DOE IRB and for the actions of all co-investigators and research staff involved with the research.
- You are responsible for informing all participants (e.g., administrators, teachers, parents, and students) that their participation is strictly voluntary and that there are no consequences for non-participation or withdrawal at any time during the study.
- Researchers must: use the consent forms approved by the DOE IRB; provide all research subjects with copies of their signed forms; maintain signed forms in a secure place for a period of at least three years after study completion; and destroy the forms in accordance with the data disposal plan approved by the IRB.

Mandatory Reporting to the IRB: The principal investigator must report to the Research and Policy Support Group, within five business days, any serious problem, adverse effect, or outcome that occurs with frequency or degree of severity greater than that anticipated. In addition, the principal investigator must report any event or series of events that prompt the temporary or permanent suspension of a research project involving human subjects or any deviations from the approved protocol.

Amendments/Modifications: All amendments/modification of protocols involving human subjects must have prior IRB approval, except those involving the prevention of immediate harm to a subject, which must be reported within 24 hours to the NYC Department of Education IRB.

Continuation of your research: It is your responsibility to insure that an application for continuing review approval is submitted six weeks before the expiration date noted above. If you do not receive approval before the expiration date, all study activities must stop until you receive a new approval letter.

Research findings: We require a copy of the report of findings from the research. Interim reports may also be requested for multi-year studies. Your report should not include identification of the superintendency, district, any school, student, or staff member. Please send an electronic copy of the final report to: irb@schools.nyc.gov.

If you have any questions, please contact Dr. Mary Mattis at 212.374.3913.

Good luck with your research.

Sincerely,

Mary C. Mattis, PhD
Chair, Institutional Review Board

cc: Barbara Dworkowitz

Appendix G: NYCDOE IRB Approval to Conduct Research Letter

Department of Education
Dennis M. Walcott, Chancellor

Institutional Review Board
52 Chambers Street, Room 309
New York, NY 10007
Phone: (212) 374-7659
Fax: (212) 374-5908

APPROVAL TO CONDUCT RESEARCH IN SCHOOLS

To the Principal:

The research study described in the Proposal Submission Form has been approved by the Institutional Review Board (IRB) of the New York City Department of Education. (See the signed Approval Letter) This researcher is now seeking principals willing to cooperate in the study. Please sign below if you agree to have your school participate in this study.

In order to begin the study, the researcher must return this form to IRB@schools.nyc.gov – signed by the principal of each school that will be participating in the study to the IRB, Research and Policy Support Group (RPSG) before data collection begins.

NOTE:

Researchers who need to be in schools must have fingerprints on file at the Department of Education prior to field work. Where data collection includes information from DOE administrative records, a data request must be submitted to RPSGresearch@schools.nyc.gov. Researchers may not request school or individual student records from school personnel.

Researcher/Principal Investigator_____

Title of Study_____

Research Will Involve:

Cooperating School	School ATS Code (DBN district-boro-school number)	Grade (s)	Number of Classes	Number of Staff/Pupils	Start Date of Data Collection
Russell Sage JHS 190Q	26Q190	6, 7, 8	6		

[signature] — *Principal's Signature*

10/4/13 — *Date*

J190Q — *School*

PLEASE DUPLICATE AS NECESSARY

Rev. 2/

Appendix H: Ms Grant Acknowledgement Letter

Hanna Matatyaho, MA, MPS, MCHES, B.C.S.E.
12-11 Estates Lane, Bayside, NY 11360
Tel: (917) 826-7829 / Email: HMatatyaho@schools.nyc.gov

Title of the study: *Silence Improves Anxiety Levels and Test Scores Among Children with disabilities.*
NYCDOE IRB file number of 498

Dear Ms. Marilyn Grant,

Thank you for allowing me to conduct my research in your school. Having been granted Institutional Review Board (IRB) approval from the NYC Department of Education to conduct the study, I am asking you for your acknowledgement and agreement to oversee the conduction of the study in its entirety.

Sincerely,

Hanna Matatyaho

Marilyn Grant – Principal

11/2/14
Date