

A CAUSAL-COMPARATIVE STUDY OF CHRISTIAN SCHOOL SPECIAL NEEDS  
STUDENT TEST SCORES BASED ON TEACHER DEGREE

by

Daniel Lee Riley

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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## ABSTRACT

Special education is a field that is expanding at a rapid pace. A second field of education that has been in existence for only a few decades is the modern Christian K-12 day school. The merging of the two of these phenomena in education creates a research platform that few have studied in unison. There is little research when pairing these two fields, but the need to study them is great. This study will focus on the academic achievement of students with special needs, based upon standardized math and reading test scores, using the Stanford 10 (SAT 10) standardized assessment utilized by many Christian schools nationwide. The study will analyze standardized stanine scores of these students based on the formal college degree field of their classroom teacher. Using data from reading and math sub-tests of the SAT 10, the data determined whether there was a significant difference in reading and math stanine scores of high school students with an Individual Education Plan (IEP). The study compared scores of students whose teachers have one of the following degrees: a special education degree, a general or other education degree, or a non-education degree. A non-experimental, causal-comparative design was used to collect and analyze data. Test scores from the Spring 2019 SAT 10 were collected, matching those students' scores to the credentials of the reading and math teachers. Data were collected from the administrator of each participating school via a data collection form using student numbers. The students' SAT 10 reading and math stanine test score data from the 2019 school year was analyzed, using an Analysis of Variance (ANOVA) significance test for math scores and an independent samples t-test for the reading scores. Results of the study showed that there is not a significant difference in reading and math test scores based on teacher degree.

*Keywords: Christian Education, Special Education, Teacher Qualification, Standardized Testing*

## **Dedication**

This manuscript is dedicated to my son, Kendall Riley. Kendall is the “spark” that helped me realize that he needed a Christian education as much as any other child. His unique abilities, which are many, should not prevent him from having a Christian education, and my wife and I realized that when he was approaching upper elementary school in the local public school. With no other local Christian schools with a comprehensive program for students with special needs, we began the journey of founding such a program at our Christian school.

Kendall, because of your inspiration, scores of students (and possibly hundreds in the future) will be able to have a Christian education in our area and beyond, even with their unique abilities. Your love for your family, for God, your sensitivity to the feelings of others, and your spiritual and intellectual growth in our school inspires me to implore as many Christian schools in this country as possible to start a program that would meet the needs of every student, no matter what abilities they have. To this point in my ministry, I have managed Christian schools. God permitting, I would like to also now work with other Christian schools on a national level and give them a vision of what they can do for these students with unique needs and abilities. Kendall, I love you, and I will always have your back. You certainly are my “buddy” for life!

## Acknowledgements

First, I would like to thank my Heavenly Father for giving me strength and endurance for the seven years I have been in the program. There were times I struggled, but He always provided a way for me to continue. Secondly, I would like to thank my dissertation chair, Dr. Wesley Scott, and my committee members for their patience with me as I navigated through some difficult times during the dissertation phase. Dr. Scott, thank you for always re-focusing me back to what I needed to get done next, rather than permitting me to try to get ahead for time's sake, as I occasionally did. Your patience was noticed and appreciated. Dr. Park and Dr. Uwarow, thank you for all the comments, input, editing, and encouragement along the way. Your help with this project has been priceless.

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### **List of Abbreviations**

Florida Association of Christian Colleges and Schools (FACCS)

Association of Christian Schools International (ACSI)

American Association of Christian Schools (AACCS)

Christian Schools International (CSI)

Individual Education Plan (IEP)

Stanford 10<sup>th</sup> Edition (SAT 10)

Professional Development Plan (PDP)

Americans with Disabilities Act (ADA)

Individuals with Disabilities Education Act (IDEA)

Least Restrictive Environment (LRE)

Autism Spectrum Disorder (ASD)

Attention Deficit Disorder (ADD)

Attention Deficit with Hyperactivity Disorder (ADHD)

Southern Association of Colleges and Schools (SACS)

More Knowledgeable Other (MKO)

Zone of Proximal Development (ZPD)

Statistical Package for Social Sciences (SPSS)

Analysis of Variance (ANOVA)

Institutional Review Board (IRB)

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

According to some very experienced special education teachers and school leaders, there has always been a need for knowledgeable and able teachers to teach special-education students in the classroom. Some suggest that the need is more critical today (Mader, 2017). However, how much is really known about the knowledge and abilities of most special education teachers in this country? While qualitative studies in this area are numerous, minimal statistical data exists regarding the qualifications of these teachers. Information about special needs programs in Christian schools is very limited as well. The following quantitative study examines Christian high schools with special needs programs as related to the formal college degree field of their teachers, and its effect on student test scores. This introductory chapter will present the background for the study, the statement of the problem, and the purpose of the study. In addition, this chapter will address the significance of the study, state all research questions and null hypotheses, and provide definitions for key terms.

### **Background**

#### **Historical Overview**

Research in educational fields during the last four decades shows that much progress has occurred in special education. As never before, medical doctors, psychologists, and educators have made breakthroughs in the diagnoses and treatment of many issues in children that were once thought untreatable. As a result, legislators have become involved, and laws have been passed that protect disabled children and adults, in and out of the school setting. The Americans with Disabilities Act (ADA) was passed in 1990, and the Individuals with Disabilities Education Act (IDEA) passed in 2004. Title II of the ADA prohibits state and local organizations from

discrimination of individuals with disabilities by providing services and programs to all individuals. All government entities, including schools, are required to adhere to this law. IDEA specifically ensures that students with disabilities are afforded the right to a free and appropriate public education (FAPE) using accommodations to satisfy the particular disability of the student. It calls for individualized education that addresses the student's specific area of deficit, with a goal of student success (Ennis & Katsiyannis, 2018; Gowdey, 2015; Henry & Johnson, 2018). Because public schools are under the individual state departments of education, they complied immediately with the new laws. Accessible buildings and classrooms were built, elevators were installed in multi-story buildings, programs were created with modified curriculum, and disabled students suddenly benefited from the new laws (Jameson & Huefner, 2006).

Since the passage of these new laws, educators, psychologists, and physicians have learned more about the new diagnoses, new terminology, and new treatments. New designations for students with disabilities such as Attention Deficit Disorder (ADD), Attention Deficit with Hyperactivity Disorder (ADHD), and Autism Spectrum Disorder (ASD) were more thoroughly researched, and new curricula and programs were developed to meet the needs of these students (Fuchs, Fuchs, & Capizzi, 2005; Witmer & Ferreri, 2016). Currently, professional development for teachers and college courses in the area of special needs curricula can be found at school districts, educational seminars, and colleges nationwide. Most school districts are trying to keep students with special needs in settings that are as inclusive as possible, which is generally termed Least Restrictive Environment (LRE). However, for students unable to learn the way that general education students learn, there are resource classes; some are accessed part-time, but others are available for students throughout the entire school day. For students whose needs are more complex than what a general elementary, middle, or high school can provide, many

districts now have special schools with programs that are designed specifically for students with more severe needs (Savin, Anderson, Nese, Farley, & Tindall, 2016; Witmer & Ferreri, 2014). Whether a student in the public school has a low-level disability or a significant disability, he or she is given an individualized education plan (IEP). This plan is formulated with input from parents, general education teachers, special education teachers, school administrators, school psychologists or counselors, and therapists if needed. This IEP follows a child wherever he is educated, just as a medical record will follow an individual from doctor to doctor.

Public schools were mandated to provide education for all students, no matter the ability, and for the most part, they have succeeded. Special education laws have forced compliance by school districts, regardless of district leadership agreement or support. One of the mandates for schools is that most, if not all, teachers teach in their field of training. Most teachers hold a minimum of a bachelor's degree in the field of education (du Plessis, Carroll, & Gillies, 2017; Nixon, Luft, & Ross, 2017). Some may have a master's degree in education, even if their undergraduate degree was in another field. The preferred bachelor's or master's degrees that school leaders look for are education degrees within their teaching field. For example, an elementary teaching position requires a teacher with an elementary education degree. A high school biology opening would require an educator with a science education degree (bachelor's or master's). In most states, having these degrees would facilitate state teacher certification. State teaching certification is also part of the credentialing of teachers and is the process by which the state validates the candidate's readiness to teach. The certification process historically has required verification of education credentials. In some cases, a state may require a candidate to take courses required by that state in addition to the standard requirements. When the application requirements have been completed, the state issues either a full professional

certificate or a temporary certificate if some requirements have not yet been met (Shaul, 2004; Kenny, 1975; Strauch & Affleck, 1976). Teacher credentials are an integral part of this study and will be discussed further in the following pages.

**The modern Christian school movement.** Around the same time that public schools were beginning special needs programs, the 1960s, another group of educators was generating widespread enthusiasm for a different form of education. Evangelical Christians had seen the gradual departure of schools and school systems from the truth of God's Word. What was once considered a primary curriculum for any school during the early colonial days was now being banned from all government schools. While some Christians tolerated this new anti-God system of education—simply because there was no other choice—some church leaders started investigating the possibility of starting their own schools so that the truth of God's Word would be the foundation for every course. Churches began to establish private Christian day schools. Tuition and fees would fund these schools instead of tax dollars. Starting these schools did not come without resistance. Pastors, initially in the state of Florida, traveled to Washington D.C., as well as Tallahassee and other state capitals to fight for the right to start Christian schools. They encountered much opposition from those in the public education sector and from politicians whose agenda was to help public education prosper (Sutton, Sutton, & Everett, 1993; Turner, 1993).

The pace at which churches were attempting to start schools legally was faster than the government expected. According to Sutton, et al. (1993), some politicians did not support the legalization of private schools, particularly Christian schools. Proponents and early leaders of the Christian school movement made sure their existence was known in Washington. Some of those leaders who led the fight for Christian schools were Dr. Al Janney, Dr. Arlin Horton, Dr.



Jerry Williamson, and A.A. “Buzz” Baker, among others. Once the legal battles had been fought and won, not only were some Christian schools established, but at one point more private schools were being started per year than public schools nationwide (Orr, 1988; Sutton, 1993). Even though public schools had tremendous growth during the last hundred years, private Christian schools were the ones growing at a significant rate during the time period between 1972 and 1988 (Sutton, et al., 1993). In 1988, research showed that the number of public schools decreased while private schools continued to grow, particularly Christian schools (Sutton, et al., 1993). Christian schools that were started in the 1960s, 70s, and 80s immediately soared to full capacity with hundreds and even thousands of students, depending on the size and student capacity of the sponsoring churches. It was estimated that during the peak expansion years of the 1970s and 1980s, three new Christian schools opened every day in the United States (Laats, 2010; Parsons, 1988). By 1977, the three largest associations for Christian schools were the American Association of Christian Schools (AACCS), the Association of Christian Schools International (ACSI), and Christian Schools International (CSI). Each of these three organizations catered to a specific Christian population, with AACCS primarily catering to independent Baptist or Baptist oriented schools, CSI serving the Reformed Christian schools, and the ACSI catering to a broad spectrum of Christian schools (Laats, 2010). In 1977, these three organizations included 349,679 students (Nordin & Turner, 1980). By 1992, the number of students in schools under these three organizations reached 776,649. Independent Christian schools were also founded during the later years of this period of growth. An independent Christian school is a Christian school that is not under the authority or sponsorship of a local church, but instead is self-governing, typically by a board of trustees and parents. As all of these types of Christian schools began to flourish, they offered many of the same courses and

programs that the public-school offered, but with the truth of the Bible integrated into every subject. Christian families now had a choice for the education of their children. Government schools were no longer the only option. If they wanted their child to have a biology class based on biblical truths, the local Christian school offered it. If they wanted their athletic child to have the opportunity to try out and potentially play on a basketball team that honored Christ, they could enroll the child in a local Christian school. During those early years, for only two to three thousand dollars per year, a child could receive a quality education that was centered on biblical truths. In today's economy, Christian school tuition generally ranges from four to eight thousand dollars per year. The movement was having much success, and the future looked bright for K-12 Christian education (Burton, 2017).

**Special needs and Christian schools.** Once the initial excitement had subsided from the rapid growth of Christian schools and growth had begun to slow due to the economy and other factors, heads of Christian schools began the process of considering what could be done to educate the students who did not respond as well to the standard curricula and teaching methods. Most Christian schools were geared to teach the average to above-average child, and immediate thought was not given to special education classes. From the early 1990s to 2004 when the ADA and IDEA laws were passed, Christian schools were, for the most part, not interested in starting special needs programs. In fact, only a select few larger schools developed a resource room, and these resource rooms were meant to be tutoring rooms for reading, not comprehensive special needs classrooms (Burton, 2017). Fewer than five studies in the last 25 years have been conducted on the topic of special education in Christian schools, further supporting the need for this study. The last comprehensive study was conducted by Sutton, Sutton, and Everett in 1993. These researchers found that a very small percentage of Christian schools offered special needs

programs. The number of schools participating in special education was so small that Sutton et al. described it as “virtually non-existent” (p. 66). This area of research needs to be revisited, as almost 25 years have passed since the data was published.

Eventually, more schools saw the need to begin special needs programs. Some schools had the right motivation while others saw this new clientele as a potential way to increase cash flow to the schools. The state of Florida, among other states, began scholarship programs that would pay for any student with an IEP to attend a private school of the parents’ choice, provided the school met certain basic organizational criteria (Garcia-Roberts, 2011). However, no academic or financial accountability was required of the schools that accepted these scholarships. As long as the school was honest with the parent as to the number of services able to be offered, private schools, including Christian schools, could take the state-funded scholarship. During the first several years of Florida’s McKay special needs scholarship program, it was discovered by discontent parents that many schools claimed to have had a special needs program, but, in reality, they provided only a private tutor. The tutor would then receive the McKay funds that were paid to the participating school, causing many in the state Department of Education to be concerned. At the time of this writing, the program is still very relaxed in its financial and academic requirements for participating schools (Garcia-Roberts, 2011).

One of the concerns, and the main thrust for this study, is the type of college training that teachers of special needs students, particularly in Christian schools, have had. At the time of this review, public schools in most states require a minimum of a bachelor’s degree in education with the option to add special needs K-12 teaching as an endorsement. Requirements typically include two or three courses that the teacher must take and pass to add the endorsement, but it is a rather simple process. This study focuses on the formal college training of special needs high

school teachers in Christian schools. It is the belief of the researcher that one of the most important influences in quality teacher education is the formal college education, specifically the bachelor's or master's program. The research shows many, if not most, Christian schools are employing special education teachers who have not had a complete college education in special education (Nixon, Luft, & Ross, 2017; du Plessis, Carroll, & Gillies, 2017). Special education majors in most regionally-accredited colleges must earn a minimum of twelve additional credits in special education beyond what is required of general education majors. Some colleges add as many as 24 credits in those specialized courses. Master's degree special education majors typically earn another 24-30 credits solely in special education courses. There is a vast difference between the hours of training received in a formal special education college program versus the training received to add an endorsement onto a certificate, which is why the focus of this study is on formal college education.

Parents of children with special needs have a good reason to be demanding about the educators, doctors, counselors, and therapists who spend time teaching and treating their children. Parents should know the professional qualifications of their child's teacher. This can typically be done by asking the school leadership. Knowledge of content, teaching strategies, classroom management style, and personality all should be examined as well. Children with special needs in K-12 public schools are protected by federal and state laws. Since government laws pertain to all public-school districts, it is mandatory for all public-school districts to offer services to all children, regardless of the disability. This mandate also includes the proper training and credentialing of teachers of students with special needs. Secular school districts hire qualified teachers in the field of special education. If those teachers are not initially qualified,

the school districts will provide them with a course of study, normally called a professional development plan (PDP), to bring their credentials to an acceptable level.

Private Christian schools, among other groups of nonpublic schools in America are for the most part, not under the jurisdiction of educational law, provided they meet basic local health, safety, and sanitation requirements of the state and local governments. Many times, particularly in smaller schools, teachers may be teaching outside their field of training. Some may not have degrees at all. In comparison to their public-school counterparts, Christian schools have fewer restrictions placed upon them. Private schools (including Christian schools) that voluntarily submit themselves to an independent accrediting body will have similar educational requirements as public schools. These accrediting bodies will demand certain training levels for private school teachers, just as regional accrediting agencies require for state teachers. The “in-field” teaching degree will be required by most accrediting agencies for teaching certain disciplines, and a professional development plan (PDP) will be given to teachers who fall short, with timetables to complete certain courses or degrees. In contrast, private schools that do not choose to seek or are unable to meet the accreditation requirements are more likely to employ teachers who do not have the proper training or credentials in special education.

### **Theory Discussion**

This study is based in part on Fox’s personal theories of teaching, particularly the travelling theory. In addition to Fox’s travelling theory, the study also used Vygotsky’s scaffolding and zone of proximal development theories. All of these theories are being used because of their relation to each other. All have been used extensively in special education research worldwide. Fox’s travelling theory depicts the teacher as a guide, walking alongside the student and guiding him through places which he or she may never be able to navigate otherwise.

It is a theory that aptly describes special education teachers. While some students without disabilities may be able to guide themselves through academia to a certain point, some students with learning or intellectual disabilities may not. They need a guide to help navigate through the subject matter that will be presented to them throughout their years of formal education, and even beyond those years (Fox, 1983; Jones, 2017). Similarly, Vygotsky's theory of scaffolding and zone of proximal development focuses on the teacher as a navigator, guiding the student through alternate methods of learning. The zone of proximal development is a term to describe the presenting of material or skills that are just a little more difficult than what a student may be able to achieve or learn independently. This creates a certain level of dependence on the teacher by the student. The scaffolding theory, as Fox's travelling theory, is described as changing the level of support to meet the ability of the child. The teacher is the key to presenting the information to the student in a manner that the student can comprehend it (Garrels, Arvidsson, & HLK, 2018; Smagorinsky, 2018; Toomela, 2018; Zvorska, 2017). These theories illustrate the responsibilities of the special education teacher—guiding the student as he or she processes the information being taught and then adjusting teaching methods to suit the learning needs of the student. The formal education of the teacher is an important factor in giving the teacher the proper tools with which to accomplish these theoretical roles presented by Fox and Vygotsky. This is the focus of the current study.

### **Problem Statement**

Numerous studies have been conducted in general education regarding the effectiveness of teachers as related to their formal education. Due to budgetary concerns, lower teacher salaries, and other factors, Christian school leaders are often pressured to place teachers without proper credentials into these special education classrooms (Burton, 2017; du Plessis, Carroll, &

Gillies, 2017; Lane, 2017; Sutton et al., 1993). This has led to some skepticism regarding the academic integrity and rigor of the Christian school program. In addition, many of these schools have accepted students with special needs, and teaching these students requires even more specialized training than general education. However, school leaders could be setting up some of these students for failure either by ignoring the special need or by placing them with teachers who simply are not qualified to teach them. Many Christian schools that claim to have special needs programs employ teachers who have not had a college background in special education (Lane & Jones, 2015). A small number of them may not have a college degree at all. Many researchers who have studied special education within Christian schools have concluded that these schools struggle to implement and maintain quality special education programs, and improvement is needed in this area (Sutton, 1993, Lane & Jones, 2015; Tucker, 1993).

Recommendations have been made by those who have studied special education in Christian schools. Dr. Julie Lane, one of the leading researchers of this topic, stated that more peer-reviewed research, both qualitative and quantitative, is greatly needed. Dr. Lane is also concerned about the many schools which are serving special needs students with untrained teachers (Lane, 2017). A large void remains in research related to special needs teacher education in Christian schools, and this study will examine this unique combination to help fill the research gap. The desire of this author is that this quantitative study will present helpful data and that the results will show whether a teacher's degree affect improvement in test scores. The problem for this study is that there is not enough research to determine how much the type of degree of a Christian special education teacher influences academic performance of students with IEPs on a standardized assessment.

## **Purpose Statement**

The purpose of this study is to find out whether there is a difference in academic standardized test scores of special needs students who studied under a teacher with a special education degree versus those who studied under a teacher with a degree other than special education. This study will present data which will assist Christian school administrators when making personnel decisions. The research offers non-biased, factual information that will help fill a gap in the literature related to Christian school special education services. The independent variable is level of college preparation of the special education teacher. The three levels of education under the independent variable are teachers with special education degrees, teachers with general or “other” education degrees, and teachers with a non-education degree. The qualifying degree level for this study is either a Bachelor of Science or Arts (BS/BA) or a Master of Science (MS) although comparison between bachelor’s and master’s degrees are not part of this study. The dependent variables are Stanford 10 (SAT 10) math and reading stanine scores. The SAT 10 is a standardized test of choice for many Christian schools. The participants are students with special needs in grades 9-12. Students included in the study have an active IEP for learning, cognitive, or intellectual disabilities. An IEP for speech therapy only will not be considered a qualifying plan. The schools that provided participant stanine SAT 10 scores are schools with a full special needs program and those that accepted the invitation to participate in the study. Six schools participated in the study. The school administrator provided all information requested to complete the study: the teachers, their degree types, and the student test scores for the current year. The teachers and the students remained anonymous via numerical identifiers.



### **Significance of the Study**

Most experts in Christian education agree that the problem of teacher qualification in Christian schools is of great concern. These experts also agree that there is an extreme shortage of Christian schools providing services to students with special needs (ACSI, 2019; Burton, 2017; Carlson, 2016; Carter, 2016; Lane, 2017; Lane & Jones, 2015; Rice, 2015). This concern is related to the main problem in this study, which is knowing if there is a difference in academic performance of a student who has a teacher with a special education degree versus a teacher with another type of degree. The significance of this data will be useful to school administrators as they seek educators for their students with special needs. The historical and empirical evidence regarding this topic shows a mixture of results in the public sector of K-12 education. In some studies, special education majors were more successful in academic instruction whereas general education majors performed better in other studies. Some of the data shows that factors such as personality, affection, understanding, and patience were more important than the formal education of the teacher (Biggs, Gilson, & Carter, 2018; Buzick & Jones, 2015; Coenen, Cornelisz, Groot, Maassen van den Brink, & Van Klaveren, 2018; Mader, 2017; Reeves, McIntyre, & Capps, 2018). This study will help complement data from previous studies by examining this information in the context of a Christian school setting. In addition, while some of the above studies factor in other forms of teacher qualification, this study will focus solely on teacher degree types, which will add much-needed data to the academic community.

When a school decides to begin a special needs program, there are many factors that administrators must consider, such as building space, financial needs, and staffing needs. Most qualified teachers can find higher-paying careers in the public education sector or private school sector. Church-related schools generally struggle to increase teacher pay and benefits due to

smaller budgets. The likelihood of hiring a specially-trained teacher willing to teach at a salary below a public-school salary is a challenge. Therefore, many Christian schools are hiring teachers with general education degrees, non-education degree, and sometimes no degree at all.

This study will provide information to various stakeholders of Christian schools. It will give valuable information to Christian school leaders as well as provide public school leaders with data to help make decisions in their own special needs departments. The results of the study will also be important to parents of special needs students as they consider educational options for their children. Communities will benefit from schools that utilize this data as they hire the right teachers to teach special needs classes. Having a variety of special education options from which to choose is very important to communities, especially if a faith-based Christian school is one of the options. Furthermore, the information gained in this study will also be very beneficial to the schools from which the data has been collected. School leaders will be able to use the information as they form their teaching team each school year. If the data shows there is a difference in the scores from one teacher degree type to the next, administrators will be able to make more informed decisions about the placement of teachers in the special education department. Finally, the research will contribute to the many philanthropic organizations that regularly give time and financial assistance to Christian schools. Donors often want to see the credentials of teachers, or in this case, research results that support the hiring practices of Christian school leaders.

### **Research Questions**

**RQ1:** Is there a difference in Stanford 10 math stanine scores of Christian high school students with an IEP based on the degree type of their teacher (special education, general/other education, or non-education)?

**RQ2:** Is there a difference in Stanford 10 reading stanine scores of Christian high school students with an IEP based on the degree type of their teacher (special education, general/other education, or non-education)

### **Definitions**

1. *Special needs students* – Students who are on an individual education plan and are provided services such as speech and hearing therapy, resource programs, and a variety of other services (Cookson & Smith, 2011).
2. *Christian school* – Private school, emphasizing biblical principles and character – the majority are run by churches, while others are independently operated (Sutton, Sutton, & Everett, 1993).
3. *Stanford 10 scores* – Student achievement scores in the areas of reading and mathematics.
4. *Individual Education Plan (IEP)* – Part of the Individuals with Disabilities Education Act (IDEA). Mandates that every child with special needs have a multidisciplinary team comprised of parents, school officials, teachers, and therapists to create a plan specific to that child, including attainable goals. The plan must be reviewed annually. (Committee on Children with Disabilities, 1999)

## **CHAPTER TWO: LITERATURE REVIEW**

### **Overview**

This study examined Christian high schools that have special needs programs. The researcher compared degree types of teachers in these programs—some who have special education college training and some who do not—based on the Stanford 10 reading and math stanine scores of their students. The intent of this causal-comparative study was to determine if teachers who hold a special education degree (bachelor's or master's) help students attain higher scores on a standardized math and reading test than teachers who hold either a general education degree or non-education degree. Numerous studies on the effects of teacher qualifications have been conducted as well as studies on Christian schools and special education in general. However, there remains a gap in the area of Christian schools regarding the qualifications of teachers of students with special needs. This literature review presents a theoretical framework for the study, a synthesis of the related literature on the topic being researched, and a concluding summary.

### **Theoretical Framework**

Not much is known about the effect of a special educator's degree on the academic performance of students with an IEP in Christian schools. The goal of this study was to answer this question to the extent that the data will allow. It is the desire of the author to have data from the study to put into the hands of Christian school administrators as they make hiring decisions for their special education programs. Although there is little known about special educators' degree fields affecting students' performance in the Christian school, there are studies from the public-school sector that provide a framework from which to launch into this study. The theoretical framework of this study stems from two theorists, Dennis Fox and Lev Vygotsky.

The following paragraphs describe each theory and explain the application of these theories to the study.

### **Fox's Personal Theories of Teaching**

To form the framework for the effectiveness of special needs teachers in Christian schools, the *Personal Theories of Teaching* by Dennis Fox (1983) was used. Fox introduced four basic theories of teaching, including one that was used to help develop the study. The four theories are the transfer theory, shaping theory, travelling theory, and growing theory. Fox categorized the transfer and shaping theories as simple theories and the travelling and growing theories as developed theories. The following paragraphs will explain each of Fox's personal theories of teaching, including the one that will be used for this study—traveling theory. This theory will be streamlined into the study of special needs teacher qualifications in the Christian school.

**Transfer theory.** The transfer theory “treats knowledge as a commodity to be transferred from one vessel to another” (Fox, 1983). The transfer theory is a very common theory, whether teachers have called it by name, and has been used as the primary teaching style of many educators. The transfer theory simply describes giving knowledge to the student. An example of the transfer theory would be when a teacher solves an arithmetic equation on a whiteboard to demonstrate to students how to solve the problem. The teacher has the knowledge, and he or she is transferring the knowledge to students by demonstrating the steps to solve the equation on the board for students to see and ultimately perform the function themselves. One of the best examples of the transfer theory is the use of lecture. The lecturer transfers his knowledge to the student by verbally communicating the material he already knows in hopes that the student now knows the material simply because he has heard it. However, as

Fox states, there are problems with the transfer theory. What happens to the information after it is transferred? Many teachers have successfully implemented the transfer theory in their teaching, only to have students lose the information or not fully comprehend it. Fox (1983) likened this to a container that holds the commodity but is also a container with leaks. There are two variants of the transfer theory: one in which the teacher breaks down the information into smaller bites to give to the student, and one in which the teacher transmits a scattered variety of information to the student, similar to a shotgun broadcasting a broad array of ammunition at its target. Certainly, the transfer theory has been effective for many students who are able to learn from teachers who use this method of instruction. However, in applying this theory to special education students who may need a different approach from their teacher, teaching styles based on the transfer theory may not be the most appropriate (Fox, 1983).

**Shaping theory.** According to Fox (1983), there are many variations of the shaping theory. The most common form views students as a raw material to be shaped, molded, and formed. Fox gave the examples of metal, wood, or clay as materials being molded into what the artist wants. Those who have been in education for a long time have likely heard or said the phrase “shaping young lives.” This shows that the shaping theory has also existed for a long time. The shaping theory goes beyond the steps of the transfer theory. Teachers practicing shaping theory, for instance, could still use lecture, but then add questions, discussion, and follow-up by the teacher to make sure the information has been learned. Similarly, having students work problems on the board, as opposed to only watching the teacher demonstrate, is another way that teachers can use the shaping theory of teaching.

**Growing theory.** In this theory, the teacher is seen as a gardener, and the student’s mind is the ground to be gardened. The teacher plants seeds, waters, and fertilizes, but he cannot

control the soil or the quality of the seed that is planted. He can do all he can to make the soil rich in nutrients. He gardens the minds of students by planting seeds, continuing to water when needed, giving sunlight, perhaps some fertilizer when needed, and making sure the soil (or environment) around the student is rich in nutrients (a good learning environment) (Fox, 1983; Jones, 2017). The growing theory is the first of Fox's "developed" theories, while the transfer and shaping theories are labeled by Fox as "simple" theories. The other developed theory, and the theory from which this study will be launched, will be the final theory—travelling theory.

**Travelling theory.** The second of the two developed theories, and the one most applicable for this study, is the travelling theory. Travelling theory uses words such as "guide, lead, and point the way" (Fox, 1983, p. 156). Fox further explained travelling theory this way:

Education is seen as a journey and the subject being studied represents one of many interesting and challenging areas of countryside to be explored. There is nothing flat about this terrain and the effort of climbing the hills is rewarded by the views from the tops. (p. 156)

In this theory, the student is an integral part of his education, and the teacher is the guide. The teacher helps the student through various difficulties, doing whatever is necessary to get him to learn concepts—over hills, through valleys, and navigating through the dark woods (Fox, 1983). This is the theory that most resembles how a teacher of students with special needs must teach. Teachers cannot simply transfer information to a student who has a learning-related IEP. Neither can they simply shape or mold the student to retain and understand material that is taught. They must be with the student through the learning process, guiding the instruction and learning of the student, always ready to adjust as needed.

How, then, is this theory of learning relevant to the topic of special education teacher qualifications? The travelling theory possesses similar characteristics to that of the special education degree a teacher receives. Its purpose is to train teachers to navigate through the varying passages of a student's mind. While a general degree in education or another field may be appropriate for a prospective teacher desiring to use standard methods of teaching (i.e, transfer theory or shaping theory), a teacher who will be working with special needs students may require specialized training. According to Jones (2017), the travelling theory is highly relevant to teachers of special needs students, as is one of the theories of Lev Vygotsky.

### **Conceptual Framework of Vygotsky**

Lev Vygotsky was a Russian-born psychologist who lived from 1896-1934. Due to a terminal illness, he died at the young age of 38. During his life, he accomplished much in the fields of psychology, sociology, and education. According to one author, he is one of the six educational theorists every teacher ought to know, along with Jean Piaget, B. F. Skinner, Jerome Bruner, Benjamin Bloom, and Howard Gardner. He has been called the “Mozart of Psychology.” He was brilliant, but never really fit in with the Soviet and Marxism philosophy of Russia at that time (Akbari & Dadvand, 2011; Smagorinsky, 2018; Toomela, 2018; Zaretskii, 2009; Zvorska, 2017).

**Zone of proximal development.** Just two years before his passing, Vygotsky introduced a concept called the zone of proximal development (ZPD). The ZPD is a pedagogical concept which states that a child, particularly one with developmental needs, must be presented information just slightly above his or her intellectual capacity, but for the slightly higher concept to be grasped, there must be one who can help him grasp that knowledge. Vygotsky called this person the more knowledgeable other (MKO). The more knowledgeable other is the one who



will help the child reach and grasp the next level of concepts that he or she would not be able to grasp independently. Students with disabilities are the very students who generally cannot achieve much learning independently. Many authors who have written biographies and articles on Vygotsky have stated that special education is the field that is most benefited by the ZPD (Smagorinsky, 2018; Toomela, 2018; Zaretskii, 2009; Zvorska, 2017).

**Scaffolding.** Within the framework of the ZPD lies a concept that was never labeled by Vygotsky himself, but rather by his followers after his death. This concept is known as scaffolding. Scaffolding is part of the ZPD and refers to the changing level of support to help meet the student's ability level. The MKO (in this case, the teacher) gives the student the information at a slightly higher level than the student's ability, and then is right beside the student during the learning process, acting as a scaffold, building piece by piece with the student until he or she has grasped the concept that was once too high for his or her ability. Scaffolding is an art, and the teacher must be trained in this concept. One of the initial duties of the teacher in the scaffolding process is simply to stand in a confirmatory role, having the student perform functions that are already attainable for him. Slowly, the teacher backs away and allows the student to succeed in performing the next task - one that is more challenging than the previous. The goal of this process is to get to the top of the scaffolding process where the student may ultimately acquire independence of the MKO. The analogy of a bird finally urging her chicks to fly on their own was used by Zvorska (2017), who has extensively researched Vygotsky's ZPD.

Scaffolding is very similar to Fox's travelling theory, in that the teacher is the key to the child's overcoming of obstacles and getting to the next level or path to understanding. It is an accurate description of the modern-day special education teacher. Regardless of the prior training special education teachers have attained, the demands placed upon them are similar to

what is described in these theories. Special education teachers must assess where each student is academically or intellectually and must then formulate a specific plan for that child. They must help the child navigate through difficult terrain as the travelling theory suggests (Fox, 1983). They must also stand by the child's side as an MKO and help get them to the next level. These teachers keep challenging and encouraging their students while they work toward achieving independence in learning (Akbari & Dadvand, 2011; Smagorinsky, 2018; Toomela, 2018; Zaretskii, 2009; Zvorska, 2017). An unanswered question remains, however. Will a teacher who has had formal college training in special education have better success as a guide and as an MKO, or can a teacher with college training in general education or another field be just as successful with his or her students? This study seeks to partially answer this question as it compares test scores of students being taught by these three types of teachers.

### **Related Literature**

The research of proper teacher education in special education classrooms is important. However, in the Christian school, it is even more of an issue because of the lack of information available regarding special education programs in these schools. While there is literature regarding certified versus non-certified teachers and college training of general education teachers, there is not a significant amount of literature related specifically to college training of special needs teachers, either in public or Christian education. Only a minimal number of authors within the United States have conducted any research on the topic of Christian schools with special needs programs. Those resources were used in this study, plus additional literature from outside the realm of Christian schools, to help gain a background in the study. The following segments discuss the literature dealing with special education in Christian schools and the qualifications of teachers in this field.

In addition to Dr. Joe Sutton (1983), whose study containing empirical evidence on Christian special education is foundational to this study, currently the leading researcher for special education in Christian schools is Dr. Julie Lane. She is one of the professors of education at Fresno Pacific University. Dr. Lane has written three peer-reviewed journal articles specifically related to special education in Christian schools. Dr. Lane has specifically studied and reported her results on the qualifications of special education teachers in Christian schools. Her research extended to all 50 states and has specifically explored eight faith-based school organizations across the country (Lane, 2017).

In Lane's 2015 study on special education teachers in Christian schools, 53% of these schools with special needs programs indicated they did not employ a teacher certified in special education to teach their special needs students. Informal discussions with Christian school administrators at conferences confirm that there are many special needs students, but not enough qualified teachers available or willing to teach them. One reason is that public school districts can pay a special education teacher a higher salary than most Christian schools can. Lack of qualified or certified teachers is an area that Dr. Lane would like to see improved in the near future. Of the reporting schools in the study, only 14% had a qualified part-time staff member to work with special needs children (Lane, 2015). A very small percentage of these Christian schools had two or more qualified special education teachers that were employed full-time. There was an even smaller percentage that indicated they employed either a paraprofessional or a speech-language pathologist. In relation to classroom setting, 53% of schools stated that the special education students were taught in a separate, self-contained classroom whereas 45% reported that special needs students were taught in the general education classroom with aide support (Lane, 2017; Lane & Jones, 2014; Lane & Jones 2015).

## Literature Pertaining to Teacher Degree Fields

While studies in Christian education and special education may be limited, there are existing studies of student performance based on the degree field of the student's teacher in the public school system. Some studies show there is no significant difference in academic performance or improvement of students' academics based on a teacher having a degree in the exact field of study of the subject being tested (Berry, 2012; Curry, Reeves, McIntyre, & Capps, 2018). There are also studies that concluded that, while there was no significant difference in academic performance of students based on teacher degree fields in the areas of reading, language arts, and science, there was a significant academic improvement of mathematics students who were under the tutelage of a mathematics education major. At least two of the studies showed higher student achievement in math and science if the teacher held a math or science education degree (Coenen, Cornelisz, van den Brink, & Van Klaveren, 2017; Shuls & Trivitt, 2015). Finally, the studies that particularly related to special education majors showed mixed results. Some showed no discernable effect on academics based on the teacher's degree field and one study even showed some negative results (Nkrumah, 2018). Nkrumah stated that even though teacher qualifications are generally thought to have a positive effect on achievement, there is overwhelming evidence that perhaps too much reliance is being placed on qualifications, as some studies have shown no discernable relationship between degree fields and student success.

The studies above represent mixed results in public schools. The only exceptions in some of the studies performed were math and science. In special education, again the results were mixed. When one looks at these studies in light of the research question, problem, and purpose statements, one can see that this study is even more relevant because definitive answers

have not been found regarding teacher degree fields and student achievement. Since results have been mixed in studies focused on public schools, there is a need to fill the information gap by applying these studies to the Christian school special education programs. The results of this study added data to the studies mentioned in this chapter, and the result is a more complete collection of data and results for Christian school administrators to use as they determine best practices for their special education programs.

### **Literature Pertaining to the Testing of Special Needs Students**

Some educators may not see the reason for testing some students with special needs. They feel that it may not be worth the effort it takes to proctor a test if the test cannot accurately measure the ability of the student (Fuchs, Fuchs, & Capizzi, 2005; Rice, 2015; Saven, Anderson, Nese, Farley, & Tindal, 2016; Witmer & Ferreri, 2014). However, most studies reveal that testing is very beneficial for any level of student, regardless of ability or disability. Accommodations of varying types may be made for students who would otherwise not be able to take a standardized test. Some students lack reading skills, so they may need test questions read to them orally. This would not be an accurate test for the reading level of the student, but it would take the reading handicap away so that the student can focus on the content of the test, whether it be science, history, or mathematics (Saven, et al., 2015). Other accommodations include extra time, a proctor assisting a child with filling in the answer circles, and independent testing away from the main group of students to lessen anxiety. For the most part, studies show that students with IEPs benefit from taking standardized tests, and much data and information can be collected from them and used to determine how best to teach these students (Douglas, McLinden, Robertson, Fuchs et al., 2005; Travers & Smith, 2016; Saven et al., 2016; Witmer & Ferreri, 2014; Zhang, Wang, Ding, & Liu, 2014).

Buzick and Jones (2015) concluded that using test scores to evaluate teachers of special education students has its benefits. A question asked by many principals of schools with special needs students is if the test scores of special needs students should be included in the teacher's main group scores, assuming this teacher is an inclusion teacher who teaches students of varying abilities. Buzick and Jones gave two reasons why it would be wise to include the scores of the special needs students. First of all, using test scores would help keep teachers of all types of students accountable. Secondly, the inclusion of these students would make teacher effectiveness scores available so that more teachers can educate students with disabilities (Buzick & Jones, 2015). In the public sector, most states have an alternative assessment. These alternative assessments are offered to students who might not be accurately evaluated with a standardized test. The state of Florida gives the Florida Standards Assessment and the Florida Standards Alternative Assessment. Most Christian schools in Florida do not participate in state testing. This is largely because of the difference in educational philosophy between government schools and Christian schools. The test, however, is offered to private schools by the state through local school districts. The college board Scholastic Aptitude Test and the American College Test both administer a non-standard test to those students who qualify as well. These tests give certain accommodations automatically to the student, and some of them even allow certain help from the test proctor or supervisor.

Christian schools, for the most part, utilize achievement tests as their annual standardized test. A common example is the Stanford 10 achievement test, often administered along with the Otis Lennon School Ability Test, which measures natural mental ability. The Stanford 10 is the test used in this study. Other examples include the Iowa Test of Basic Skills and the Terra-Nova 3 test. A Christian school just beginning its special education program may not think that certain

special needs students can be tested. From the researcher's personal experience, schools often administer the same standardized test the exact same way to all students, regardless of abilities or disabilities. In order to be sure that the scores of the class or entire school do not reflect those students with learning disabilities, those students' scores are removed from the group average. Testing publishers realize this is a common practice, and they allow for such a separation of scores. However, certain accommodations are permitted to be implemented into standardized testing, similar to the SAT and ACT mentioned above. Some of these accommodations are extra time (the Stanford 10 is already a non-timed test), a verbal reading of the question by a proctor, and an aide to help them completely darken the answer bubble on the answer document. Committing to accommodations such as these takes hard work and much organization by the school leadership, but it is well worth the time it takes to plan. Many Christian schools have been able to obtain an accurate picture of a special needs student's academic ability once they have overcome some of their other disabilities via accommodations. While some still may doubt that testing special needs students can be an accurate exercise, others have found out that it can be done successfully (Fuchs, Fuchs, & Capizzi, 2005; Rice, 2015; Saven, Anderson, Nese, Farley, & Tindal, 2016; Witmer & Ferreri, 2014).

### **Literature Supporting the Christian's Duty**

Christians, above all, should practice the concept of leaving no one out, whether it relates to the church, everyday societal function, or a proper education. This inclusion would help eliminate racial prejudice, favoring those with special gifted abilities, and looking down on those without these gifts and with lower family income levels. It would also help children that are lacking in academic ability to have access to a full education. It is unfortunate that only around

ten percent of Christian schools offer programs for these special children (Association of Christian Schools International, 2017).

The issue of specially-trained workers for special needs students also exists in churches. Parents are imploring church leaders to begin Sunday school classes and children's church programs for their special needs children (Carter, 2016). "With a foundational understanding of disabilities, the law, and how schools identify, place, and service students with special needs, church leaders and ministry workers can interact with individuals with disabilities and their families using common language" (Wright & Owiny, 2016, p. 95). Questions that church leaders could ask families with special needs children include what accommodations they receive at school, what assistive technology their children use, what things help with reinforcement, and what health needs the children may have (Wright & Owiny).

Many Christian schools today, particularly in urban or suburban areas, are commonly praised for being elite, college-preparatory types of schools. While excellence is expected and appreciated, this focus negates the initial reason why Christian schools were started decades earlier. Some Christian schools are getting lured into adhering to what the state and government expect of them instead of their mission and purpose. One example is the move away from the Christian curriculum to a secular curriculum that may align more with state standards. Many schools are making this switch because of the pressure they face to adhere to state standards (Reichard, 2016). A study of a Christian school in South Carolina revealed that most families desired enrollment in the school because of the academic and sports program more than the Christian emphasis (Yin, 2013). Today's Christian schools are also very involved in competitions, such as athletics, spelling bees, creative writing, and fine arts. Not every student is able to play football, basketball, or baseball. Not every child will become a cellist in the city



symphony after he or she graduates. Some students in the school simply need to be taught life skills. Many schools, as evidenced by the ACSI statistics, are not seeing the need for special education, or if they do see the need, they are doing little to meet it.

The scriptures also remind Christians that they are not to perform a task or a duty halfheartedly. Philippians 1:10 (KJV) states, “that ye may approve things that are excellent.” Other scriptures in the Bible speak of doing one’s best as to the Lord. Christian school leaders can benefit from studying this biblical concept and consider whether or not their school could begin an educational program for students with special needs.

### **The Leader is the Key**

In any Christian school, it is ultimately the leader of the school—the principal or pastor in most Christian schools—who must have a burden for special needs students and communicate that need to stakeholders of the school. Without a leader who recognizes the need, the school will most likely not see the need nor do what is necessary to meet it. “A principal’s passion must be deep and personal in order to provide the zeal required for such an undertaking” (Cookson & Smith, 2011, p. 242). The authors were referring to Christian school leaders and went on to say that once the passion and vision of the principal are secure, it is of utmost importance that he or she shares it zealously with others. This does not guarantee that every teacher will gain the same enthusiasm for the program as the leadership. However, if the principal or school leader can become excited about the special needs program and therefore get the teachers excited, it will make all the difference (Cookson & Smith, 2011). The principal also has the authority, in most cases, to hire faculty for the school. According to some researchers in Christian education, principals are often pressured to fill a position before school begins in the fall. This pressure often causes the principal to speed up the screening and hiring process (Burton, 2017; Deuink &

Carruthers, 2007). The leader has the responsibility to hire qualified faculty to hire the right teachers for the task. If the leader sees the need and communicates this effectively, others will be more apt to see the need as well.

Not only does a Christian school principal have the responsibility of hiring new teachers, but he or she also oversees the development of those teachers after hiring. A principal of a Christian school typically has a smaller pool of candidates from which to hire than a public school. The minimal qualifications are usually that the candidate is a believer in Christ and has earned the minimum of a bachelor's degree, preferably in the field of study for which he or she is being hired. The pressure of having to find teachers by the start of the next academic year could result in settling for a teaching candidate who does not have the proper experience or credentials. The result could either be negative, or it may result in a positive situation if the teacher has a strong character and a desire to learn. Many Christian colleges do offer conferences for Christian school administrators who would like to recruit prospective teachers. However, the number of teaching needs in Christian schools usually far exceeds the number of available teachers from these conferences, leaving the administrator to find other avenues of teacher recruitment. For schools seeking candidates for specialized fields, such as special education, the candidate pool becomes even more restricted. If a Christian school administrator cannot find a special education teacher who is a dedicated Christian from a Christian college, then the administrator must search for a candidate from within the community, verifying the candidate meets all spiritual and philosophical qualifications of the school. In the end, however, whether or not the administration has found a highly qualified candidate, the administration must continue to offer professional development opportunities to train teachers in their field, especially in the field of special education (Deuink & Carruthers, 1996).

Teachers cannot simply rely upon the education received while obtaining their college training. All schools and school districts must have a professional development plan in place for all teachers, regardless of how recently they earned their degree and regardless of their specialized field of teaching. Although this study is aimed primarily at teachers' formal college degrees, it is important to note that the leader of the school should also be responsible to continually offer training for his teachers. One type of training that administrators can utilize, specifically in Christian schools, is the area of Christian school conventions, conferences, and workshops. These meetings usually provide a wide variety of educational topics for teachers and typically provide continuing education units or similar credit for the completion of each segment. However, not every conference or seminar will contain instruction for special educators. If school administrators cannot find special education training within the walls of these conferences, the local school district can be an excellent resource for Christian schools. Typically, the local school district must include professional development opportunities to the surrounding private school administrators and teachers. Much of the content of these professional development sessions deals with special education in general or a variety of topics within the framework of special education. Ultimately, it is the responsibility of the Christian school administrator to provide the proper training to the teacher (Carter, 2016; Craig, 2010; Lane, 2017; Pudlas, 2004).

### **Comparable Private Schools**

Christianity is not the only religion whose private schools are making important decisions in the area of special education. All religions and faith-based organizations that operate private schools are struggling to determine their philosophy or convictions when it comes to this very important area of education. Two denominations that have been studied by their own researchers

are the Catholic and the Lutheran denominations. Private schools operated under these denominations have been under pressure to offer a full spectrum of educational services just as the Christian schools have. The reason that Catholic and Lutheran schools are not lumped in with Christian schools is that they have three separate educational organizations. Although they are all religious, each of them has uniquely different governing or accrediting bodies. Christian schools often have Christian organizations overseeing them on a voluntary basis, Catholic schools have Diocese overseeing them, and Lutheran schools have Lutheran school organizations overseeing them. The following is a synthesis of the research that has been done in the area of special education in the Catholic and Lutheran schools.

In 2006, George Washington University's Denise Bello (2006) performed a study similar to that of Dr. Joe Sutton's (1993) study of Christian school special education programs, except that it was a study of 300 Catholic high schools. Just as Christian schools, Catholic schools are not legally required to meet the needs of every child. While the numbers of elementary schools in the Catholic church with special needs programs are somewhat more encouraging, the percentage is much less in secondary schools (Bello, 2006). Catholic schools, according to the study, are offering more educational services to their students than the Christian schools that participated in Sutton's 1993 study. To reiterate, an updated study is essential to attain accurate percentages of Christian schools in 2019, as it is difficult to compare 1993 AACS percentages to percentages of 2006 Catholic schools. The ACSI website allows the web filter to indicate which of their member schools operate a special needs program.

As opposed to the research done in the area of Christian schools, the percentage of Catholic schools with special needs programs are significantly higher (Bello, 2006). The majority (63%) of Catholic schools reported having some type of special education program.

However, only 14.8% of schools claimed to have a structured special education program while 22.2% indicated they operated a special education department. In Sutton's 1993 study, only 11.5% of Christian schools claimed they had some type of special needs program, but only 5.75% actually had an organized program of special education. It is of interest to note that most of these schools hired full-time teachers to teach students with special needs, and the majority of these special education teachers had the credentials to teach children with special needs. Catholic school respondents presented reasons similar to Christian schools when asked about challenges in beginning an organized special needs program. Challenges, in order of significance, were limited financial resources, limited skills on the part of the leadership or faculty, and limited interest by faculty and administration (Bello, 2016).

Lutheran schools are often in the same position as the Catholic and Christian schools regarding special education. According to Bacon and Erickson (2010), Lutheran schools face the similar challenges to those mentioned in the Christian and Catholic school studies. According to both studies, financial support and qualified teachers were the most common reasons for not beginning a special needs program, followed by the inadequacy of facility space. From these studies, it can be concluded that many private, religious schools face similar struggles when it comes to committing to establishing special needs programs.

### **Public School Partnerships**

Often, Christian school leaders attribute the hesitancy to start special needs programs to financial constraints, shortages of qualified teachers, or a combination of the two. Some of the literature suggests that Christian schools if they are willing, can partner with the local school district and local public schools to assist with services, as well as to help train teachers who lack proper (Burton, 2017; Devine, 2015). However, caution is necessary due to the vast difference

in educational philosophy between public schools and Christian schools, as was mentioned earlier. When properly filtered, instruction and assistance from a cooperating school district can be helpful in many areas to the Christian school. Lane (2017) found that 20% of the Christian schools she researched utilized the public-school district for certain special needs services. Public schools are mandated by law to assist with the needs of any child who resides in their school district, whether or not that child is actively enrolled in a public school. If the principal of the Christian school contacts the school district, he or she will discover there are programs the public school can offer to help private school students. Many times, depending on the school district policies, a public-school bus can pick up private school students, transport them to a public school for testing, therapy, or special classes, and then transport them back to the private school, all at the expense of the school district (Eigenbrood, 2005). Russo, Osborne, Massucci, and Cattaro (2011) reiterated that public schools are under the mandate of the law and urges private school leaders to take advantage of the services offered (p. 254).

One common service that public schools usually offer to private school students is therapy: occupational, physical, and speech. In many cases, the district will send the therapist to the private school, and the schedule of student services is created with the input of the therapist, teachers, and administration (Lane, 2017). This could be an economical way that principals of Christian schools can implement at least a partial special-needs program for many of their students who have a particular need. The public school district also holds all IEPs. Private schools are not legally allowed to create official IEPs, so the public school/private school liaison usually conducts IEP meetings with the private school teacher and the parent, usually at the private school's location. Principals and school boards of Christian schools should realize that it is acceptable to partner with the public school district and should not view it as a competitor.

Utilizing public school services can also help the private Christian school with credibility issues. Additionally, local school districts can help private Christian schools with training. Many districts invite private school teachers to participate in their professional development courses at little or no charge to the private school teacher. The federal government also has a program called Title II, which provides funding to states (and in turn, school districts) to offer training to teachers, including those in private schools. Christian schools have this opportunity available to them and may benefit from it, especially if they were unsuccessful in recruiting qualified faculty members for the special needs classroom (Rice, 2015; Finn, Swezey, & Warren, 2010).

Christian schools have been viewed negatively at times by some who mistakenly believe that the academic programs in these schools are inferior to those in government schools. However, those in Christian education would disagree with this view. Most Christian school teachers and administrators, and often parents realize that a majority of Christian school curriculum is more rigorous than the secular curriculum, especially in the elementary grades (Guthrie, 2011). Since each state publishes educational standards for its schools, Christian schools must pay close attention to these standards to make sure that, at a minimum, they are offering at least equitable academic courses as the state schools. College entrance requirements and scholarship opportunities will, in many cases, require the student's courses to adhere to state standards. The local school district can be a great source of information in interpreting the ever-changing educational laws of the state in which they are located. Some of these benefits start at the federal level but are administered by the state or local educational agencies (US Department of Education, 2018). Observing Christian schools utilizing services provided by the local school district can help parents realize that the community can work together to provide special needs

services to all children. With collaboration between private schools and public districts, more successful plans can be developed for children who need them (Devine, 2015).

### **Inclusion vs. Full Programs**

The type and level of special education services offered can be directly related to standardized testing success in the Christian school. Inclusion, usually mentioned alongside LRE (Least Restrictive Environment), occurs when a student with special needs is included in the general classroom as much as possible. Many times, in an inclusion setting, there may be an extra teacher or teacher aide to assist the special needs students and help them be successful in the general classroom. “Christian school parents who request the enrollment of their special needs children in the regular classroom are often heard to explain that a classroom of chronological peers for their child is the best and least restrictive environment to unfold their God-given potential” (Oosterhuis, 2002, p. 16). Pudlas (2004) agreed by stating, “One of the desired outcomes of inclusion as a general ideology is that every student is able to identify and connect with the school’s social environment, culture and organizational life” (p. 76). The problem is that many special needs children would not likely be able to thrive in a regular classroom of their age-level peers. While some may be candidates for inclusion, others are not. Dr. Julie Lane (2017) lists the most common disabilities served by the Christian schools in the United States who responded to her survey. The most frequently listed disability was Other Health Impaired, which represents 89.1% of the schools in the study. According to the Florida Department of Education, other health impairment means having limited strength, vitality, alertness, or an over-alertness to certain stimuli that results in limited alertness in an educational environment, due to chronic or acute health conditions. Specific learning disability (SLD) represented 78.1% of the schools. IDEA states that a specific learning disability is a disorder



involved in understanding or using both written and spoken language that affects the ability to speak, read, write, and perform other academic tasks. Lane found that 72% of responding schools reported that they had active students with a speech or language disorder. These are very common in schools with special needs students, and these are areas in which the local school district can often help at no charge to the local private school or student. The last of the more common disabilities in Lane's 2017 study was autism. Autism is a general term that could mean any disability along the autism spectrum disorder. Generally speaking, autism is a developmental disorder that impairs the ability to communicate or socially interact with others (Christensen, Braun, Baro, Bilder, Charles, Constantine, & Lee, 2018). Other disabilities that schools in Lane's (2017) study reported were hearing impaired, emotional disturbance, vision impairment, intellectual disability, physical disability, and visual impairment.

Staffing an inclusion classroom is a more manageable task for the Christian school administrator than staffing a self-contained special education classroom. However, students with a cognitive ability that is several grade levels below that of their classmates would not benefit from receiving academic instruction in the general classroom with peers who are several grade levels above them. Despite the social benefit of inclusion, there are times when it is preferable for a student to be placed in a self-contained classroom. Self-contained classrooms exist specifically to serve academic needs. Students in these classes should still be placed with their age-leveled peers during non-academic activities, such as lunch, and certain classes like physical education.

### **Studies Aimed at Public Education Counterparts**

While studies focused on special needs teacher qualifications in Christian schools have been very limited, studies related to general education teachers in public schools have been conducted in large numbers. Some studies have focused on teacher qualifications in general, such as certification and type of certification (Clotfelter, Ladd, & Vigdor, 2010) while other studies have focused on the formal education degree of the teacher (Akbari & Dadvand, 2011). Studies focusing only on teacher credentials show a variety of results. In 2010, a study was conducted in North Carolina to determine if teacher qualifications, particularly licensure and certification, were factors important enough for the state to affect policy. The findings suggest that teacher certification and licensing have a positive correlation to student achievement to such a degree that they have become relevant to policymaking in the North Carolina Department of Education (Clotfelter, Ladd, & Vigdor, 2010). Some states have taken the importance of teacher licensure to another level by offering additional compensation to a teacher who has taken the National Teacher Exam and subsequently has a national teaching certificate that is accepted by most states (Clotfelter, et al., 2010). The study also explained that a teacher's typical salary structure is based on two criteria in most states: experience and graduate degrees. Graduate degrees are discussed later in this chapter.

As strong as some studies seem to indicate the importance of teacher qualification as related to student achievement, there are those who hold a different view and claim teacher certification has little to do with student success in the classroom. These authors maintain that instead of using licensure and certification as indicators of the potential of student achievement in the classroom, factors such as cognitive ability and classroom performance should drive policy. Some states, including the state of Florida for a time, rewarded teachers with additional

compensation if class test scores were high (Walsh, 2001). Regarding teacher licensure, certification, and qualifications in general, there is the possibility that a highly qualified teacher can still perform poorly in the classroom. There is also the possibility that a teacher lacking in qualifications can perform at a high level in the classroom. These are realities that cannot always be measured by data.

The current study deals with teacher qualifications in the area of college degree fields. It is the one credential that no teacher can lawfully teach without, in most cases. The exception to this statement is in the case of a private school that has no measure of accountability such as accreditation. Private schools are not required to employ degreed teachers although state and Christian school agencies encourage them to do so. However, if a private school goes through a voluntary process of accreditation, it is likely all teachers would be required to have degrees. However, in public schools, there is no option for teachers to teach without a minimum of a bachelor's degree. A bachelor's degree in a typical college accredited by SACS requires 120 credit hours of study, including 60 hours in the student's major, and 30 credits if the student is pursuing a minor. The master's degree typically, in areas such as education, earns the teacher at least 30 additional credits (SACSCOC, 2018). These 30 credit hours are more intensive courses, designed to focus on the primary area of study of the student, and more applicable to the career for which the student is preparing. When considering the graduate degree in light of this study, one might conclude that the student taking courses under a teacher with a graduate education degree in the field of education would perform better than a student learning under a teacher with a bachelor's degree in the field of education. One would also likely conclude that a teacher with a bachelor's degree in education would be a more effective teacher than a teacher who does not have a bachelor's degree in the area of education. Lastly, it could be concluded that any degreed

teacher will be a more effective teacher than a non-degreed teacher, regardless of the type of degree.

There is overwhelming evidence in research that teachers with master's degrees outperform teachers with bachelor's degrees in similar fields to a significant degree (Akbari & Dadvand, 2011; Clotfelter & Vigdor, 2010; Holzhauer, 2013; Swezey & Warren, 2010; Shuls & Trivitt, 2015; Walsh, 2001). If there is overwhelming evidence that teachers with master's degrees are more effective teachers than teachers with a bachelor's degree or less, the question is whether these results are applicable to special education. The other question for the current study is whether these results are applicable to special education teachers in a Christian school.

### **Should General Education Teachers Receive Special Education Training?**

In an independent study of 50 major colleges and universities' websites, it was concluded that over 90% of the general education programs at these institutions only contain one course related to special education (Rosenzweig, 2009). It is generally a special education introductory course. The objective of these introductory courses is to make the general education teacher aware that there may be students in his or her class who have special needs and only present very basic material. The other 10% of the institutions either had a second special needs class for general education majors, or had no special education classes at all. In an article in *The Atlantic*, Mader (2017) referred to a 2009 study that asserted this unacceptable and changes need to be made in general education majors' curriculum to include more training in special education (Rosenzweig, 2009). Thanks to the push for inclusion in recent years, many teachers will have some type of special needs student in their general education class at some point and will need the training they received in their college education (Rosenzweig, 2009). Rosenzweig discovered that general education teachers in a teacher education program reported taking an

average of 1.5 courses that focused on special needs, compared to 10-12 courses for special education majors. An article by *The Atlantic* reported that this was still the case in 2017 (Mader, 2017).

What, then, is the answer for those general education teachers who will have students with disabilities in their classrooms? According to most educators, the answer will most likely be college classes in the area of special education. Due to the reality that most adult educators live very busy lives, the answer may even lie in online classes as opposed to residence courses. However, according to research conducted in 2011, general education teachers learned more about how to teach special needs students by observing other teachers than they did by taking additional courses in special education (Stephenson, Carter, & Arthur-Kelly, 2011). The teachers were either taken to a special needs classroom or shown a video of a master special education teacher in action. These teachers were compared with other teachers who simply completed a professional development plan. The professional development plan outlined a number of courses the teacher must take in order to become certified in special education. After the study was conducted, the result showed that the teachers who were put on a program of teacher observation understood and functioned more confidently than the teachers who simply completed special needs courses.

### **Arguments for Practical Experience vs. Formal Education**

Although teacher certification seems like a valid way to ensure that the teacher knows how to teach effectively, alternative paths to certification have been made in many, if not most, states. In many states, there are now alternative paths to certification. These paths make certification quicker and easier to obtain. However, there are shortcomings with most alternate certification requirements. Teachers are considered “out-of-field” if they do not hold a major or

minor (either bachelor's or master's) in the subject they are teaching. The remedy, in many cases, for such a shortage of out-of-field teachers is alternative certifications, which does not include the content and rigor of a college training program. Research shows that students whose teachers hold a degree in the subject they are teaching perform higher academically than students whose teacher was certified through alternate paths (Cohen-Vogel & Smith, 2007). Special education majors, according to this research, should be more successful in the classroom than their counterparts who do not hold a special education degree.

As informal discussions with special educators have occurred during this study, there has been a recurring theme that must be discussed. Many educators have mentioned that experience with special needs students is just as effective as formal academic training in special education, and sometimes even more so. While formal training gives the student teacher the textbook answer to teaching a variety of disabilities, experience and successful classroom management gives a teacher the authority and confidence he or she needs when teaching students with varying abilities. Many educators would agree that there are teachers without formal academic qualifications who are master teachers but do not possess the credentials to teach in their field. The problem with that statement is that no school, public or private, would be interested in hiring a teacher without proper credentials—especially in today's educational system that is constantly changing educational law, emphasizes credentials, and competitively strives for status such as accreditation (Brownell, Sindelar, Kiely, & Danielson, 2010).

Since hiring unqualified teachers is not an option, attention must be turned to formal training by colleges and universities as well as professional development training by schools and school districts. Brownell, et al. (2010) discussed the need for colleges and universities to re-evaluate the academic requirements for education majors:

Public schools, acting alone, will be unsuccessful in responding to these pressures if general and special education teachers are not prepared for their designated roles.

Colleges of education must embrace conceptions of preparing teachers that will ready them for their roles in RTI. Key changes in state teaching standards and licensure policies provide levers for changing the nature of preparation for both general and special education teachers. (pp. 372-373)

With the expansion of special needs diagnoses over the last two decades, the percentage of special needs students in school districts has increased—with some districts as high as 25% of the student population with an IEP. With this increasing number comes the need to begin more rigorous special education training, not only for special education majors but for general education majors also. With the push for inclusion by most states, more students with IEPs will be included in general education classrooms. General education teachers must have the training to teach these students who are placed in their classroom, without relying on the resource teachers or other special education personnel for assistance (Brownell et al. 2010).

### **Fox and Vygotsky Relationship to Formal Education**

As a general education degree may correlate with Fox's more simple theories of teaching, such as the transfer theory and shaping theory, the special education degree correlates with the travelling theory, as well as Vygotsky's scaffolding and ZPD theories. As discussed earlier, the transfer and shaping theories are theories of teaching that have been utilized by teachers for decades. The transfer of information from the teacher to the student is one of the most common theories that has shaped teaching over the last two centuries in America. However, when it comes to special education, those simple theories may not be effective for students with learning disabilities.

Fox's travelling theory is directly related to special education teachers in this research. The travelling theory represents a teacher who guides the student along a journey, and the journey may take both the teacher and the student to places they do not expect. The special education teacher is a guide that must take a student with a learning disability through various obstacles in his educational journey so that the guide and student can arrive together at the desired destination successfully. The guide and the student are always open to new discoveries, realizing that the terrain is continually changing and that adjustments must be made to help them navigate it.

A teacher's formal education could dictate whether the teacher is ultimately a transfer or shaping teacher, or whether the teacher is a traveler, one who helps special needs students navigate through all the curricula they encounter throughout their education. A teacher who earns a general education degree typically receives instruction, albeit research-based, on general curriculum, general classroom management, general behavior management, and general guidance for students. A teacher who receives a special education degree receives training in many areas of teaching. He or she receives training on special curriculum, classroom management, behavior management, and guidance. These facts do not in any way exclude general education majors from having the ability to work well with special education students; however, special education majors have many more credit hours of learning how to teach these students with unique abilities. Liberty University is a private, regionally accredited liberal arts Christian university in Lynchburg, Virginia. It is the largest Christian university in the United States, and it has an outstanding reputation for its school of education, among other divisions. According to the 2019-2020 elementary education and special education degree completion



plans at Liberty University, the following table lists the special education courses taken in both programs (Liberty University, 2019):

Table 2.1

*Liberty University Degree Requirements*

Elementary Education Major	Special Education Major
Exceptional Child Differentiated Teaching and Learning	Exceptional Child Special Education Law Behavior Management Inclusion and Diversity Transition Planning Differentiated Teaching and Learning Special Education Law Practicum Behavior Management Practicum Inclusion and Diversity Practicum Transition Planning Practicum

Special education majors at Liberty University earn ten credits in student teaching in the special education classroom, for a total of 30 credits in special education. Elementary education majors also student teach but typically in standard classrooms. Compared to the six credits in special education earned by the elementary education major, one could deduce that the special education major may be more effective in the classroom than a general education teacher. A look at the courses above gives insight into the benefit the teacher could gain in the classroom. The Exceptional Child course gives the prospective teacher an introduction to the types of children he may have in his classes throughout his upcoming career. Special Education Law is very important to know in today's highly litigious climate. Special education teachers need to know what national and state laws say about teaching students with disabilities. Laws are always changing, and teachers will have to stay updated on these changes, but a solid introductory course such as this is essential. Behavior Management is something that all special education teachers deal with on a daily basis. Some disabilities can result in a student responding to stimuli

in a different way than other students. Sometimes there is confusion or misunderstandings resulting in meltdowns. At other times teachers must focus on teaching appropriate behaviors while squelching inappropriate behaviors. Inclusion and Diversity is a class that teaches a prospective teacher how to make all students a part of the student body, regardless of their academic, social, or physical differences. Transition Planning is very important for students transitioning from elementary to middle school, middle school to high school, or high school to vocational school or a place of employment. Differentiated Teaching and Learning is a class that teaches prospective educators about different learning styles and encourages them to be willing to teach differently to those students who learn differently.

In addition to these core special education courses, the student receives practical instruction and experience in his student teaching practicum (Liberty University, 2018). No courses listed above will be more important than real-life experience. The classroom is the laboratory in which all the information they have learned over four years can be put to practical use. The student teacher will put into practice Fox's personal travelling teacher theory and Vygotsky's ZPD theory. The teacher gradually becomes a guide for that student, helping him twist, turn, achieve higher steps of the scaffolding, and navigate through all of the different terrains that lie ahead of him in his educational journey (Fox, 1983; Zvorska, 2017).

Can the preceding information guarantee that a teacher with a degree in special education will produce higher test scores than a teacher with a general education degree? Of course not. Does it prove that an education-degreed teacher will have students who outperform students taking instruction from a teacher who has no education degree? No. However, the information gives a solid foundation for this study and informs the reader of the differences between the training of special education and general education teachers. But what about Christian schools?

“Without higher education support, Christian schools are most likely not able to train qualified Christian special education teachers to serve children with disabilities in Christian schools” (Lane, 2017, p. 227). According to Lane’s (2017) research of institutions of higher education, there are only a handful of faith-based colleges and universities offering special education degree programs for those desiring to teach in Christian schools. One of the reasons that this number is so low is that most higher education institutions are not clear on where Christian schools stand on the matter of special education. Since Christian schools are exempt from special education law such as IDEA, colleges are hesitant to offer programs designed to be used in the K-12 Christian school. Therefore, even in faith-based institutions of higher learning, most special education is based upon public school law.

### **The Need for More Research**

The literature that was reviewed regarding special education in Christian schools can be summarized in the following way: more research is needed. Generally speaking, there is limited research on special needs programs in Christian schools. More specifically, there is limited research regarding college training of special needs teachers who teach in Christian schools. The existing research is very limited and has many gaps to fill and limitations to be addressed in the studies that were conducted. Tucker (1993) published a response to Sutton et al.’s study on this topic: “I applaud Sutton, Sutton, and Everett for bringing this subject to the surface. However, I hope that they and others investigate the topic further with the goal of providing a more effective world for all people, including those with disabilities” (p. 290). Some limitations that concerned Tucker was the type of school studies (fundamentalist Christian schools) and the absence of other parochial schools such as Catholic, Lutheran, etc. He believed that if other parochial schools were included in the research, a higher percentage of religious special education

programs would be found as well as more qualified teachers. Other researchers echoed Turner's sentiments that future, continued research was needed in this area. In 2010, a historical analysis was conducted. The author noted that "Conservative Christian school organizations seem to have a lack of networking regarding special education programs. Further exploration may help broaden the information available to Christian school organizations to extend the influence of special education services to a wider population of Christian students" (Craig, 2010, p. 70). Another researcher stated, "...further clarification and insight is needed in order to fully comprehend current practices" (Lane & Jones, 2015, p. 220). With 23 years of experience in Christian schools, this author fully supports the idea that research should be conducted to extend beyond the fundamentalist Christian schools that were studied in the early 1990s.

### **Summary**

Christian schools, since the movement's inception several decades ago, have generally failed to meet the needs of students who do not fit into a standard learning environment. Teachers who are hired to teach children with special needs in Christian schools are often not qualified to teach in special education classrooms. The limited research has shown there is much need for improvement in the area of special education in Christian schools. Additionally, there must be updated, more comprehensive studies done in this area, as existing studies are outdated. Arguments have been made both for and against the need to have specific training in special education. There is very little research regarding the test scores of special needs children, especially as it relates to teacher degrees. This study fills some gaps in the literature. The methods and research in chapters three and four presents more information to the Christian school special education community regarding the effectiveness of teachers based upon their qualifications using standardized test scores of their students. Chapter 3 will include a brief

overview, the design of the study, research questions and hypotheses, participants and setting, instrumentation, procedures, and data analyses.

## **CHAPTER THREE: METHODS**

### **Overview**

Teachers may take a variety of paths that lead them into a classroom of students with special needs. Some have college training specifically in the field. Some have trained to be educators in college, but not particularly for students of special needs. Others may have a college education in another field and are making a career change while some may have no experience or training before placement into the Christian school special needs classroom. With the help of the following research, Christian school leaders can be better informed for their hiring practices.

This chapter will describe the methods of the research study regarding the training of special education teachers as it relates to the improvement of high school students' reading and math test scores. The design of the study will first be examined, using empirical sources as a basis for the choice of design. Then the research questions will be introduced, followed by the null hypotheses. Next, participants and setting of the study will be explained. The type of instrument used to collect the data will be introduced, and the instrumentation section will be followed by a step-by-step procedural section that will present, in detail, steps taken to conduct the study. Finally, the method of data analysis will be discussed, before ending with a summary of the methods.

### **Design**

A non-experimental, ex-post-facto, causal-comparative design was used in this study to relate the three degree fields of teacher education (special education degree, general or other education degree, or non-education degree) to the reading and math stanine scores of the Stanford 10 test. The two dependent variables, reading and math scores, were compared in light

of the three levels of the independent variable after the effect has been tested. Ex-post-facto is a type of research that occurs after the test has taken place, without any interference by the researcher (Salkind, 2010). Since this study looks for relationships between test scores and teacher education levels after the test has already occurred, the causal-comparative design has been identified as the most appropriate for this study (Salkind, 2010). Designs may vary in causal-comparative research. The comparison in this study lies between the three groups of the independent variable and the degree type of the teacher (special education, general or other education, or non-education). The study compared spring 2019 reading and math stanine scores of students with IEPs whose teacher had a special education degree to those whose teacher had a general or other education degree and to students whose teacher has a non-education degree.

### **Research Questions**

The two research questions for the study were as follows:

**RQ1:** Is there a difference in Stanford 10 math stanine scores of Christian high school students with an IEP, based on the degree type of their teacher (special education, general/other education, or non-education)?

**RQ2:** Is there a difference in Stanford 10 reading stanine scores of Christian high school students with an IEP, based on the degree type of their teacher (special education, general/other education, or non-education)?

### **Hypotheses**

The null hypotheses for this study are as follows:

**H<sub>0</sub>1:** There is no statistically significant difference in Stanford 10 math stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education).

**H<sub>0</sub>2:** There is no statistically significant difference in Stanford 10 reading stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education).

### **Participants and Setting**

The sample consists of high school students in the special education department of the schools that chose to participate in the study. A student with special needs will be defined as a student with a current IEP. Study participants are high school students only (grades 9-12). All participants were identified only by a number. The administrators provided all information for the study, eliminating any need for information from the teachers or students directly. Data were gathered from six schools. The number of eligible students from these six schools was 59 (See Table 3.2). According to Gall, Gall, and Borg (2007), in an ANOVA with three groups in the independent variable, 51 students is the required minimum for a large effect size with statistical power of .7 at the .05 alpha level.

The setting for the study was six Christian schools located in the state of Florida. Each school is a member of the Florida Association of Christian Colleges and Schools (FACCS). All information was given to the researcher by the administrator of each participating school. Schools invited to participate in the study were Christian schools that have a high school special education program and whose special education students take the Stanford 10 achievement test annually (See Table 3.1). In order to be included in the study, participating teachers must have taught either math or reading to students with an IEP in grades 9-12.

### **Instrumentation**

Virtually any type of measuring instrument can be used in causal-comparative research. Standardized tests, questionnaires, interviews, and naturalistic observations are all useful for



collecting data about presumed cause-and-effect relationships. In this study, a standardized achievement test was used. The standardized test used to measure the dependent variables, students' reading and math scores, was the Stanford 10 assessment by Pearson. Levels TASK 1 – TASK 3 of the SAT 10 were used, as these are the levels for the 9<sup>th</sup>-12<sup>th</sup> grades. Stanine scores were the primary score used; however, raw scores were also included in the final results to help strengthen the data. The Stanford 10 has demanding psychometric standards, item response theory modes, and norm and criterion-referenced scores. It also utilizes empirically-based performance levels that align with the National Assessment of Educational Progress (NAEP). The Stanford 10 TASK 1 – TASK 3 levels contain 84 multiple-choice items in the area of reading and 50 multiple-choice items in the area of mathematics. Although a timeframe of sixty minutes is suggested for the reading subtest and fifty minutes is suggested for the math subtest, these students had additional time based upon their IEP accommodations. The SAT 10 may be taken with a variety of accommodations for special needs students, some of which include time and scheduling, test setting and administration, presentation format, and response format. The SAT 10 can measure up to four different achievement factors: content cluster, process cluster, cognitive level, and instructional standard. SAT 10 content is aligned to state and national standards and normed on a 2018 representative sample of students. The reading section of the SAT 10 received an alpha reliability rating of .87 while the math section received ratings between .80 and .87. With only a couple minor exceptions, the subtest scores are reliable enough for group decision making and reporting. The test has been used for over 80 years and has been used for meeting the No Child Left Behind Act, as well as national and state standards in academics. The evidence for validity provided for the SAT 10 assessments rests on the item development process. The SAT authors reviewed recent textbooks, analyzed instructional

standards, and consulted with professional organizations. After the authors created initial test items, they were then submitted to a group of content experts to establish accuracy and alignment to standards (Case, 2003). “One of the strengths claimed for battery-type achievement tests is provision of reliable and valid samples of student achievement in specific content areas” (Stevens & Zvoch, 2007, p. 976). Achievement tests such as the Stanford 10 are used nationally to evaluate student performance, curriculum, teacher effectiveness, among other factors. Some major Christian school associations utilize this annual assessment for their member schools, whose students take the assessment in the spring semester.

Table 3.1

*Participant Schools*

	Location	Total Enrollment	Qualifying Sample
Atlantic Christian Academy	FL	607	20
Spring Hill Christian Academy	FL	371	7
Ruskin Christian School	FL	280	11
Calvary Christian Academy	FL	260	1
Inverness Christian Academy	FL	220	19
Landmark Christian School	FL	207	1

The other instrument that was used is the administrator questionnaire. This is a simple form sent by e-mail that the administrator of each participating school completed. The purpose of this instrument was to collect all data from the administrators: the stanine and raw reading scores, stanine and raw math scores, and the degree of each teacher who taught each participant

math or reading. The administrator was required to sign below each page of data and e-mail it back to the researcher in .pdf format.

### **Procedures**

After the proposal was successfully defended and accepted by the university, the next step was to submit an Institutional Review Board (IRB) application to the School of Education for the protection of participants in the study. Along with this application, permission letters from each school participating in the study were sent to the IRB. In this study, the IRB determined there was no direct human identification possible since all participants were numbered with no names included. Administrators from each school signed statements attesting that no identifiers would be given to the researcher.

After IRB approval, the schools were asked for the spring 2019 Stanford 10 test scores of all 9<sup>th</sup> through 12<sup>th</sup>-grade students with IEPs, along with the degree type of each teacher who taught these students reading or math during the 2018-2019 school year. The collected math subtest data were entered into the Statistical Package for Social Sciences (SPSS) and run through an Analysis of Variance (ANOVA) test, including all assumption tests, descriptive statistics, and post hoc tests as necessary. Due to one of the three groups only having one test score reported, the reading subtest data for the remaining two groups were run through an independent samples *t* test instead of a one-way ANOVA. The results will be reported in the next chapter.

### **Data Analysis**

The participants' scores on the Stanford 10 assessment for reading and math - two separate dependent variables - were compared with the three levels of the independent variable, which is the teacher's level of degree. The number of test scores/participants was 59 for reading and 58 for math, producing a confidence level of 95% (Dunst & Hamby, 2012).

The first step of data analysis was to enter all test scores into the SPSS software. Exploratory data analysis was conducted, and descriptive statistics computed for each of the three comparison groups (Gall et al., 2007).

Before the ANOVA and *t* tests were run, there were several levels of screening and assumptions to meet. The data was sorted and examined for inconsistencies and extreme lows or highs in the scoring. Next, tests were run to identify any extreme outliers. Assumption testing performed included the assumption of normality using histograms, box and whisker plots, and skewness and kurtosis. An assumption of homogeneity of variance was tested, using Levene's test. All tests were run with an alpha level of .05. An ANOVA test was run for each of the dependent variables, or test scores, with the independent variable as the factor with its three levels. For the reading subtest, an independent samples *t* test replaced the ANOVA due to the elimination of one of the teacher groups that only had one reported score. The reported results include descriptive statistics, along with the normality and assumption screenings for each of the independent variables (type of teacher education). Effect size, or the difference in the size of the variable scores, was determined by using Cohen's *d* with a small effect size of 0.2, a medium effect size of 0.5, and a large effect size of 0.8.

## CHAPTER FOUR: FINDINGS

### Overview

This chapter presents all findings for the two research questions and the null hypotheses. Descriptive statistics are given for the participants' age, gender, and race, as well as for the mean and standard deviation of the reading and math stanine scores. The data shows whether the degree type of a teacher makes a difference in Stanford 10 (SAT 10) reading and math scores in high school students who have an Individual Education Plan (IEP). The three degree types of teachers in the study include a special education degree, a general or other education degree, and a non-education degree. Although not part of the research questions or null hypotheses, data for raw reading and math scores are included in some of the findings to strengthen the data drawn from the stanine scores. Results are reported for each hypothesis. Data are reported from preliminary screenings and assumption tests followed by a one-way Analysis of Variance (ANOVA) test for each of the dependent variables for math stanine scores, and an independent samples *t* test for each reading stanine score. Post hoc tests were not needed in this study. Based on the reported data, a determination of rejecting the null or failing to reject the null has been reported for each hypothesis.

### Research Questions

The two research questions for the study are as follows:

**RQ1:** Is there a difference in Stanford 10 math stanine scores of Christian high school students with Individual Education Plans, based on the degree type of their teacher (special education, general/other education, or non-education)?

**RQ2:** Is there a difference in Stanford 10 reading stanine scores of Christian high school students with Individual Education Plans, based on the degree type of their teacher (special education, general/other education, or non-education)?

### Null Hypotheses

The following are the null hypotheses for this study:

**H<sub>01</sub>:** There is no statistically significant difference in Stanford 10 math stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education).

**H<sub>02</sub>:** There is no statistically significant difference in Stanford 10 reading stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education).

### Descriptive Statistics

Six schools participated in the study, with a total number of participants of 59 students in reading ( $n = 59$ ) and 58 students in math ( $n = 58$ ). One participant took the reading subtest of the SAT 10 but did not take the math subtest for reasons unknown to the researcher. The participants' gender, age, and race are detailed below in Tables 4.1, 4.2, and 4.3.

Table 4.1

#### *Participant Gender*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	42	71.2	71.2	71.2
	Female	17	28.8	28.8	100.0
	Total	59	100.0	100.0	

Descriptive statistics were generated through SPSS for both math and reading scores. The math stanine score descriptive statistics show the means and standard deviation. These include scores of students who had a math teacher with a special education degree ( $n = 19$ ,  $M = 3.37$ ,  $SD = 2.266$ ), a general or other education degree ( $n = 25$ ,  $M = 3.16$ ,  $SD = 1.724$ ), and a non-education degree ( $n = 14$ ,  $M = 2.71$ ,  $SD = 1.069$ ), all at the 95% confidence interval (see Table 4.4).

Table 4.2

*Participant Age*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	14	6	10.2	10.2	10.2
	15	15	25.4	25.4	35.6
	16	14	23.7	23.7	59.3
	17	12	20.3	20.3	79.7
	18	8	13.6	13.6	93.2
	19	3	5.1	5.1	98.3
	20	1	1.7	1.7	100.0
	Total	59	100.0	100.0	

Table 4.3

*Participant Race*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	33	55.9	55.9	55.9
	African American	9	15.3	15.3	71.2
	Hispanic	11	18.6	18.6	89.8
	Asian/Pacific Islander	1	1.7	1.7	91.5
	Mixed Race	5	8.5	8.5	100.0
	Total	59	100.0	100.0	

Math raw scores from the SAT 10 were also collected to help strengthen the data, although the raw scores are not part of the research question. Students with special education teachers ( $n = 19$ ,  $M = 19.79$ ,  $SD = 10.983$ ) scored slightly higher than students whose teacher was a general/other education major ( $n = 25$ ,  $M = 18.96$ ,  $SD = 7.829$ ), or a non-education major ( $n = 14$ ,  $M = 16.79$ ,  $SD = 4.136$ ) (see Table 4.5). Mean differences in both the stanine and raw scores show a slightly higher score in students who had teachers with a special education major.

Table 4.4

*Descriptive – Math Stanine Score*

					95% Confidence Interval for Mean		
					Lower Bound	Upper Bound	
		N	Mean	Std. Deviation	Std. Error		
Special Education		19	3.37	2.266	.520	2.28	4.46
Other Education		25	3.16	1.724	.345	2.45	3.87
Non-Education		14	2.71	1.069	.286	2.10	3.33
Total		58	3.12	1.788	.235	2.65	3.59
Model	Fixed Effects			1.802	.237	2.65	3.59
	Random Effects				.237 <sup>a</sup>	2.10 <sup>a</sup>	4.14 <sup>a</sup>

Table 4.5

*Descriptive – Math Raw Score*

					95% Confidence Interval for Mean		
					Lower Bound	Upper Bound	
		N	Mean	Std. Deviation	Std. Error		
Special Education		19	19.79	10.983	2.520	14.50	25.08
Other Education		25	18.96	7.829	1.566	15.73	22.19
Non-Education		14	16.79	4.136	1.105	14.40	19.17

The reading stanine score descriptive statistics show the mean and standard deviations for



students who had a reading teacher with a special education degree ( $n = 11$ ,  $M = 4.73$ ,  $SD = 1.555$ ), a general or other education degree ( $n = 47$ ,  $M = 3.94$ ,  $SD = 1.686$ ), and a non-education degree ( $n = 1$ ,  $M = 4.00$ ,  $SD = NA$ ), all at the 95% confidence interval. Since there was only one reading teacher without an education degree, there was no standard deviation (see Table 4.6).

Data were also examined using the raw reading scores from the SAT 10 to reinforce the stanine data (see Table 4.7), and the statistics for the raw scores were as follows: teacher with a special education degree ( $n = 11$ ,  $M = 57.73$ ,  $SD = 10.937$ ), a general or other education degree ( $n = 47$ ,  $M = 51.15$ ,  $SD = 13.997$ ), and a non-education degree ( $n = 1$ ,  $M = 56.00$ ,  $SD = NA$ ). In both sets of descriptive statistics, the means showed a slightly higher score for teachers with a special education degree over the other two degree types.

Table 4.6

*Descriptive – Reading Stanine Score*

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Special Education Degree	11	4.73	1.555	.469	3.68	5.77
Other Education Degree	47	3.94	1.686	.246	3.44	4.43
Non-Education Degree	1	4.00	.	.	.	.

Table 4.7

*Descriptive – Reading Raw Score*

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Special Education Degree	11	57.73	10.937	3.298	50.38	65.07
Other Education Degree	47	51.15	13.997	2.042	47.04	55.26
Non-Education Degree	1	56.00	.	.	.	.

## Results

### Null Hypothesis One

The first null hypothesis states there is no statistically significant difference in Stanford 10 math stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education). The number of test scores/students participating was 58 for this hypothesis, producing a large confidence level of 95% (Dunst & Hamby, 2012). According to Gall, Gall, and Borg (2007), in an ANOVA with three groups in the independent variable, 51 students is the required minimum for a large effect size with statistical power of .7 at the .05 alpha level.

Data were screened for abnormalities, extreme outliers, and any missing data. Data were reported as 100% valid with no missing data. A Q-Q plot (see Figure 4.1) and box and whisker plot (see Figure 4.2) were created to identify any abnormal data patterns, and the results showed that some of the data were slightly skewed. Further normality tests were run to determine if the data significantly deviates from a normal distribution. Skewness and kurtosis z-values were calculated to strengthen the normality results. Both skewness (.690) and kurtosis (-.526) were well within normal range of normality of +1 and -1 (see Table 4.8). When the Kolmogorov-Smirnov test was run, however, results showed a significant difference in the data with a result of  $p < .05$  (see Table 4.9). Histograms also show a slightly positive skew, thus the rationale for the skewness and kurtosis measurements. Standard deviation of the math stanine scores was within +3 and -3 (1.788), which is within normal range. Due to these ranges and the acceptable range of the skewness and kurtosis z-values, the robust one-way ANOVA test is able to be run.

Table 4.8

*Skewness and Kurtosis – Math Scores*

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
Teacher Degree	58	1	3	1.91	.756	.146	.314	-1.210	.618
Math Stanine	58	1	7	3.12	1.788	.690	.314	-.526	.618
Valid N	58								

Table 4.9

*Kolmogorov-Smirnov – Math Scores*

	Teacher Degree Type	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Math Stanine Score	Special Education	.253	19	.002	.838	19	.004
	Other Education	.189	25	.021	.915	25	.040
	Non-Education	.177	14	.200*	.882	14	.062

A one-way ANOVA test was chosen because there is one dependent variable (math stanine test scores) and three levels of the independent variable (teacher with a special education degree, general or other education degree, and a non-education degree). Homogeneity of variance was run using Levene's test (see Table 4.10); however, the test showed a violation of homogeneity ( $p < .05$ ). Therefore, in addition to the ANOVA, a robust test of homogeneity of variance was run, the Brown-Forsythe test of equality of means.

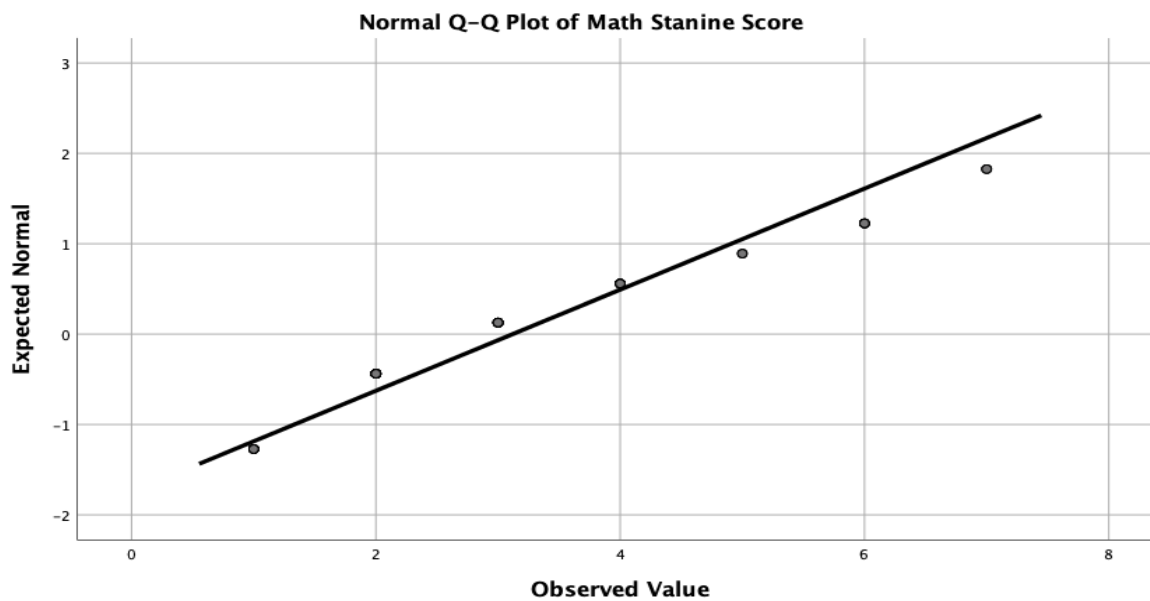


Figure 4.1

*Math Stanine Scores – Q-Q Plot*

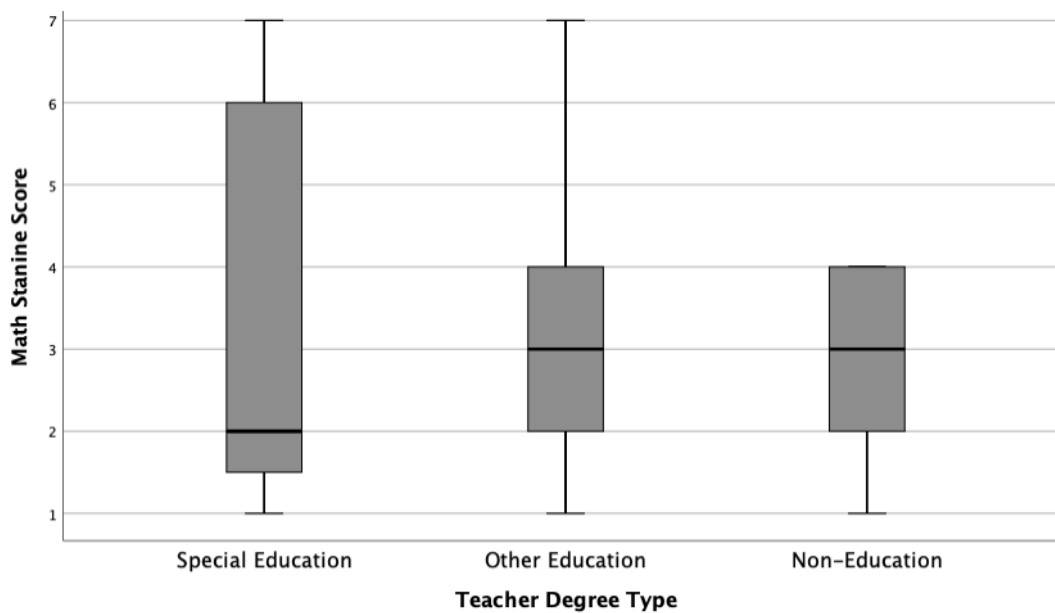


Figure 4.2

*Math Stanine Scores – Box and Whisker Plot*

Table 4.10

*Levene's Test of Homogeneity of Variance*

		Levene	df1	df2	Sig.
		Statistic			
Math Stanine Score	Based on Mean	6.699	2	55	.002
	Based on Median	2.653	2	55	.079
	Based on Median and with adjusted df	2.653	2	36.410	.084
	Based on trimmed mean	6.229	2	55	.004

A one-way ANOVA was run to determine the significance of the math subtest stanine scores to the type of teacher degree (see Table 4.11). The result of the ANOVA was a significance of .585 for the  $p$  value ( $df = 2, f = .541, p > .05$ ). From this result, the conclusion can be made that the math stanine scores of high school students with an IEP who took the 2019 SAT 10 test are not statistically significant, based upon the degree type of their teachers. Therefore, the tests conducted result in the failure to reject the null hypothesis.

Table 4.11

*One-Way ANOVA for Math Stanine Scores*

## Math Stanine Score

	Sum of	df	Mean	F	Sig.
	Squares		Square		
Between Groups	3.517	2	1.758	.541	.585
Within Groups	178.638	55	3.248		
Total	182.155	57			

Due to the violation of homogeneity discovered by the Levene's test, the robust Brown-Forsythe test was run through SPSS after the ANOVA in order to strengthen the results. The significance of the Brown-Forsythe test (see Table 4.13) was not significant ( $df = 2, p > .05$ ).

Both tests failed to reject the null hypothesis that there is no significant difference in math stanine scores among the three groups of teacher degrees.

Table 4.12

*Cohen's d Effect Size – Math Scores*

Dependent Variable: Math Stanine Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3.517 <sup>a</sup>	2	1.758	.541	.585	.019
Intercept	520.709	1	520.709	160.318	.000	.745
Teacher_Degree_Type	3.517	2	1.758	.541	.585	.019
Error	178.638	55	3.248			
Total	747.000	58				
Corrected Total	182.155	57				

The effect size was determined using Cohen's  $d$  (see Table 4.12) with a final very small effect size of  $df = 2, f = .541, \eta_p^2 < .05$ . The math raw scores of the SAT 10 were also run through the same tests as the stanine scores, and results were the same. Normality tests presented the same differing results as the stanine tests did. The Kolmogorov-Smirnov test ( $p < .05$ ) showed absence of normality of data while the skewness and kurtosis were both in range of normality. Levene's test confirmed a violation of homogeneity of variance, resulting in the decision to follow the ANOVA test with the robust Brown-Forsythe Equality of Means test, which was also not significant ( $df = 2, p > .05$ ). Using Cohen's  $d$ , the raw scores were determined to have a similar very small effect size as the stanine scores ( $df = 2, f = .538, \eta_p^2 < .05$ ). From these statistical analyses, it can be determined that there is no significant difference in math test scores of IEP high school students who took the SAT 10 test based on the degree of their teacher. Further validation is presented in the form of a very small effect size.

Table 4.13

*Robust Test of Equality of Means*

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	.830	2	34.708	.445
Brown-Forsythe	.585	2	43.055	.561

**Null Hypothesis Two**

The second null hypothesis states there is no statistically significant difference in Stanford 10 reading stanine scores of Christian high school students with Individual Education Plans, based on the college degree type of their teacher (special education, general/other education, or non-education). After data collection, it was discovered that one of the teacher degree groups, the non-education degree, only had one test score reported. Therefore, with two groups instead of three, the statistical test was changed from a one-way ANOVA to an independent samples *t* test. The number of test scores/students participating was 58 for this hypothesis, producing a large confidence level of 95% (Dunst & Hamby, 2012). According to Gall, Gall, and Borg (2007), 51 students is the required minimum for a large effect size with statistical power of .7 at the .05 alpha level.

Data were screened for abnormalities, extreme outliers, and any missing data. Data were reported as 100% valid with no missing data. A Q-Q plot (see Figure 4.3) and box and whisker plot (see Figure 4.4) were created to identify any abnormal data patterns, and the results showed data was normally distributed. Further normality tests were run to determine if the data significantly deviates from a normal distribution. Skewness and kurtosis z-values were calculated to strengthen the normality results. Both skewness (.182) and kurtosis (-.705) were well within acceptable range of normality of +1 and -1 (see Table 4.14). When the Kolmogorov-Smirnov test was run, however, results showed a significant difference in the data with a result of

$p < .05$  (see Table 4.15). Histograms showed a well-defined bell shape, with the exception of one score. The standard deviation of the reading stanine scores was within +3 and -3 (1.555, 1.686), which is within normal range. Due to these ranges and the acceptable range of the skewness and kurtosis z-values, the independent samples  $t$  test can be run.

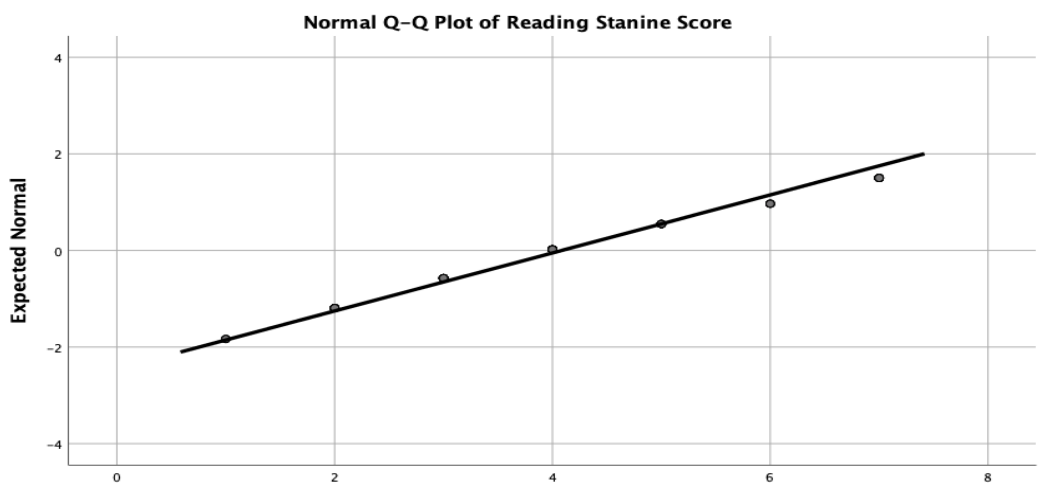


Figure 4.3

*Reading Stanine Scores – Q-Q Plot*

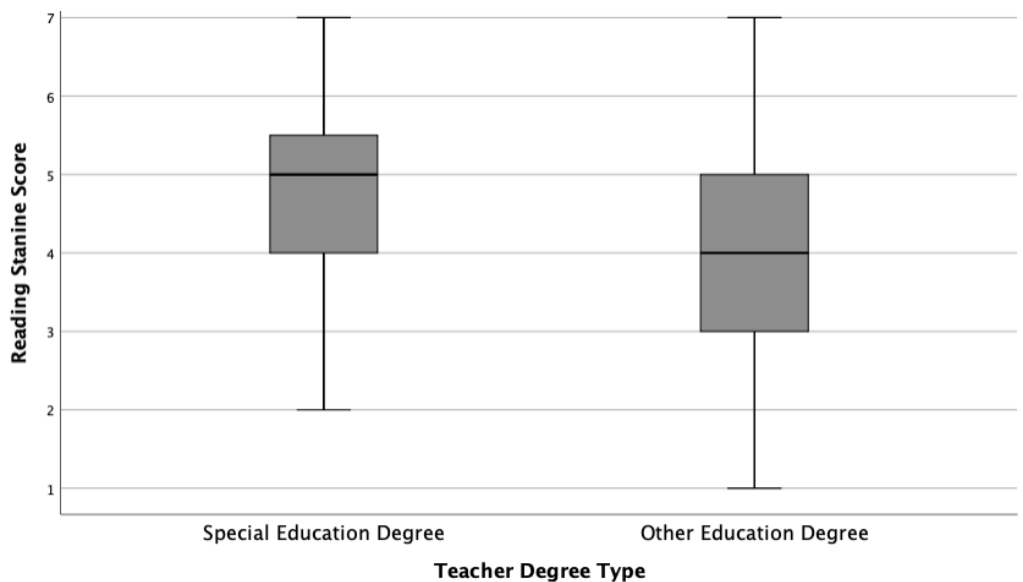


Figure 4.4

*Reading Stanine Scores – Box and Whisker Plot*



Table 4.14

*Skewness and Kurtosis – Reading Scores*

		Reading Stanine Score	Teacher Degree Type
N	Valid	58	58
	Missing	0	0
Skewness		.182	-1.626
Std. Error of Skewness		.314	.314
Kurtosis		-.705	.664
Std. Error of Kurtosis		.618	.618

Table 4.15

*Kolmogorov-Smirnov – Reading Scores*

Reading Stanine Score	Teacher Degree Type	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Reading Stanine Score	Special Education Degree	.158	11	.200*	.949	11	.635
	Other Education Degree	.157	47	.005	.940	47	.018

An independent samples *t* test was chosen because there is one dependent variable (reading stanine test scores) and two levels of the independent variable (teacher with a special education degree or general/other education degree). Homogeneity of variance was run using Levene's test (see Table 4.16). The test showed homogeneity of variances ( $p > .05$ ), therefore allowing the independent samples *t* test to be run.

The *t* test (Table 4.16) was conducted and the result showed a significance of .161 for the *p* value ( $df = 56, f = .184, p > .05$ ). From this, the conclusion can be made that the reading stanine scores of high school students with an IEP who took the 2019 SAT 10 test are not

statistically significant, based upon the degree type of their teachers. Therefore, the tests conducted result in the failure to reject the null hypothesis.

Table 4.16

*Levene's Test and Independent Samples T test – Reading Scores*

		Levene's Test for Equality of Variances		T test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reading Stanine Score	Equal variances assumed	.184	.670	1.420	56	.161	.791	.557	-.325	1.907
	Equal variances not assumed			1.494	15.998	.155	.791	.529	-.331	1.914

Using Cohen's  $d$  (see Table 4.17), the reading scores were determined to have a very small effect size ( $df = 1, f = 2.016, \eta_p^2 < .05$ ). From these statistical analyses, it can be determined that there is no significant difference in reading test scores of IEP high school students who took the SAT 10 test based on the degree of their teacher. Further validation is presented in the form of a very small effect size.

Table 4.17

*Cohen's d Effect Size – Reading Scores*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5.579 <sup>a</sup>	1	5.579	2.016	.161	.035
Intercept	669.027	1	669.027	241.728	.000	.812
Teacher Degree Type	5.579	1	5.579	2.016	.161	.035
Error	154.990	56	2.768			
Total	1129.000	58				
Corrected Total	160.569	57				

## CHAPTER FIVE: CONCLUSIONS

### Overview

This chapter will provide a discussion of the results of the current study as related to the previous literature as well as the purpose of the study. The implications of the study and the limitations will be presented. The chapter will conclude with recommendations for future research.

### Discussion

The purpose of this study was to determine whether there is a difference in academic standardized test scores of special needs students who studied under a teacher with a special education degree, versus students who studied under a teacher with a degree other than special education. The three teacher degree types in the independent variable on which student math and reading scores were based were special education major, general or other education major, and non-education major. The study assumed that all teachers held a minimum of a bachelor's degree.

### Research Questions

Since the research questions were identical except for the dependent variable (math stanine score and reading stanine score) with similar results in both research questions, the questions are addressed together in each section of this chapter. The research questions were as follows:

**RQ1:** Is there a difference in Stanford 10 math stanine scores of Christian high school students with an IEP, based on the degree type of their teacher (special education, general/other education, or non-education)?

**RQ2:** Is there a difference in Stanford 10 reading stanine scores of Christian high school students with an IEP, based on the degree type of their teacher (special education, general/other education, or non-education)?

The results of the study showed that in both research questions, there was not a statistically significant difference in test scores among the three teacher degree groups: special education, general/other education, and non-education. For research question two, the three groups were lowered to only two, due to one of the groups having only one reported score. The statistical test was changed from an ANOVA to an independent samples *t* test. In both testing subjects, the mean scores were slightly higher for students who had a teacher with a special education degree in both subjects, but the mean differences were not statistically significant, and the effect size was determined to be very small. Thus, the present study failed to reject the hypotheses regarding both the math and the reading scores. How can these results be interpreted?

The results show that, although there is a very small increase in test scores of students who had a teacher with a special education degree over the other two types of degrees, the score difference between the three groups was not significant. This could possibly mean that there is no academic advantage for a school leader to hire a teacher with a special education degree. However, in the math subtest, the difference between the lowest-scoring variable (non-education degree) and the highest-scoring variable (special education degree) was the greatest. The math results show the average student stanine for the special education teacher was 3.37, compared to 3.16 for students of teachers with a general education degree, and 2.71 for students of teachers with a non-education degree. Reading stanine scores were 4.73 for students of special education majors, 3.94 for students of teachers with a general education degree, and 4.00 for student with a

teacher holding a non-education degree, although the non-education degree group was eliminated in order to run the statistical test. Raw test scores in both subjects also confirmed what the stanine test scores revealed. It is interesting to note that in the reading subtest, although only based upon a single score reported, the student of the non-education degreed teacher scored higher than the students under the teacher with the general education degree. These results, although a very small difference between variables, could mean that if a teacher with a special education degree is not available, a teacher with a general education degree or non-education degree may do well teaching reading to students with special needs. It can also mean that a teacher with a non-education degree may not be as effective in math, since this was the lowest of all the stanine means.

There are multiple applications for school administrators seeking to hire teachers for special education programs. These results give the school leaders some information they may need for proper hiring decisions for their special education departments. It will also show them what academic subject areas may require the training that a special education degree affords, and which academic subjects a teacher with another degree may teach well. The fact that the differences in this study were not significant could also have an impact on the organizations that accredit special education programs in schools. Unlike general education that typically requires an in-field teacher to hold a degree in the subject matter they are teaching, special education teacher requirements for accredited schools could be much broader, and more flexibility could be offered to schools that have special education teachers who lack a special education degree.

### **Results in Light of Two Theorists**

First, correlation of the results to the study's two major theorists will be discussed. Fox and Vygotsky were used as the two major theorists in this study because of their various

philosophies and theories of teaching, many of which were likened to philosophies of special education. Fox's four theories of teaching and learning were transfer theory, shaping theory, growing theory, and travelling theory. It was noted in Chapter 2 that while the first two theories resembled more basic teaching methods such as simply transferring information, the last two theories, growing and travelling, resemble the various approaches of special education teachers (Fox, 1983). Vygotsky introduced the concept of zone of proximal development (ZPD). This concept asserts that students with special needs should be taught by a specially-trained teacher (Akbari & Dadvand, 2011; Toomela, 2018; Zvorska, 2017). Vygotsky's term for this special kind of teacher is a more knowledgeable other (MKO). Both theorists distinguish variations of teacher types and consider teachers who are effective with special needs students to be set apart from general education teachers with standardized training and teaching methods.

A question that was mentioned in Chapter 2 was whether a teacher with formal training in special education in college has better success as a guide (Fox, 1983) or MKO (Vygotsky) than a teacher who has another type of degree. According to the results of this present study, it may seem that specialized training is not as important as other factors when measuring academic achievement on standardized test scores of high school students with an Individual Education Plan (IEP). There are other qualities in teachers that could affect student success, such as an outward expression of love and compassion, varying personality types, among other factors. There also may be teachers who have a formal education background in a field that is similar to special education, such as psychology or sociology. These teachers may understand how to academically reach a child with special needs and to be able to get the most out of his or her mind. When looking at this present study, there are data both for and against the necessity of one type of degree being required in order for a teacher to be effective with special needs students.

Perhaps the answer lies in the multiple traits of teachers, and not only the type of college degree they have earned.

### **Contradiction Among Researchers**

In the literature review, it was reported that 53% of Christian schools did not employ a teacher with any special education training whatsoever, including both college degrees and classes toward certification (Lane, 2017). It was also stated by this same author that there are not enough trained special education teachers in our Christian schools (Lane & Jones, 2015).

Adversely, other authors contradicted these statements by stating that there is no significant difference in the academic performance of students under teachers who have a degree in the exact field of study they are teaching, and those who do not (Berry, 2012; Curry, Reeves, McIntyre, & Capps, 2018). The only exceptions to this in the literature were math and science teachers whose students scored higher with a trained math or science teacher than with a general education major (Coenen, Cornelisz, Van den Brink, & Van Klaveren, 2017; Shuls & Trivitt, 2015). The present study finds there is no significant difference in math and reading stanine mean scores based on whether the teacher earned a special education degree, general or other education degree, or a non-education degree. This again may inform the Christian education community that employing a teacher with a special education degree to teach special needs students should not be the only consideration made in the screening process.

Other studies in the literature contradict the results of this present study. There are two authors that say there is evidence in their research to support the idea that special needs students perform better academically when they have a degreed teacher in special education in the classroom (Cohen-Vogel & Smith, 2007). The same authors also present an opinion, based on their research, that degreed teachers in special education help produce higher academic test



scores in their students than teachers who became certified through other means, but did not earn a special education degree. This further indicates that results in various studies are mixed. In this present study, the results showed no significant difference in either math or reading stanine scores based on teacher degree types.

Liberty University's list of courses was used in the literature review as an example of the number of special education courses a special education major is required to take versus the special education courses that an elementary or other education major is required to take. Special education majors take 30 credit hours in special education courses, while other education majors get only an introduction to special education by taking six credit hours (Liberty University, 2019). While the intention of such a plethora of courses should spell success for a teacher in the special education classroom, not all studies agree. Nkrumah (2018) stated there is overwhelming evidence that administrators rely too much on qualifications, as some studies show no discernable relationship between degree fields and student success. The preceding statement by Nkrumah helps support the outcome of this study. This outcome was that there was no significant difference in either math or reading standardized test scores of students with an IEP based on the degree of their teacher.

The literature review contained a statement regarding the ultimate factor for hiring in the public school sector. One article mentioned that although there are general education teachers who could be successful in the special education classroom—sometimes even more successful than their counterparts with special education degrees—no public school would hire them without proper credentials (Brownell, Sindelar, Kiely, & Danielson, 2010). Factors such as classroom experience, personal experience with their own special needs children, and natural ability and inclination toward these children often make excellent teachers for these children.

However, in today's litigious climate, public schools stick to formal credentials over other factors (Brownell, et al, 2010). In the Christian school, leaders must make careful hiring choices in their special needs departments. While exempt from many laws of the government educational agencies, Christian schools must put the best teacher in the classroom. This study will add to the research so that leaders of Christian schools can make the best decision for their programs.

### **Implications**

This present study will help fill a gap in the literature, not only in Christian schools but in public school districts nationwide. No other studies in Christian education were found that related math and reading test scores for students with an IEP to a teacher degree type. This study will add to the literature that exists in special education, filling the gap for people and organizations who can benefit from this information.

Results from this study will be of significance to a variety of stakeholders, both who are a part of the field of education, and also those who are not. The group of individuals with the most to gain from these results are Christian school leaders. In Chapter 2, it was mentioned that some Christian school leaders have a variety of concerns when considering beginning a special education program. One of these concerns is that there is a limited number of qualified teachers available for hire. Many leaders may be seeking teachers solely based upon their degree type. The obvious degree type they would most likely be seeking would be a special education degree. It has been shown in Chapter 2 that previous literature has mixed results and varying opinions by authors. From the data collected in this study, it is clear that there is not a significant difference in either the reading or math scores, based upon the degree type of the teacher. This is important

for a school leader to know when seeking a teacher for a group of students with special needs. Perhaps there is more to consider than the teacher degree type.

Although public school leaders must typically hire a teacher with the same degree as their field of teaching, the knowledge gained from this study is useful to them, as well. It is useful for a public school administrator to understand that there are a variety of factors that make an effective teacher. Even if his or her teaching staff has the appropriate college degree, there may be professional development needs in other areas not addressed sufficiently in their college education. They may also feel comfortable hiring teachers without a special education degree to assist or aid in the special education classroom if they have other qualifications that help them, such as the proper personality trait, love of students and excellent classroom management skills.

Teachers may also be positively affected by this study. Many teachers have natural gifts and abilities with special needs students but feel that they cannot become a special education teacher due to the lack of a special education degree. This study will give teachers without special education degrees the confidence to apply for special education teaching positions at Christian schools. Parents will also benefit from the results of this study, as confidence in Christian school special needs programs will grow, and the basis of enrollment decisions based upon teacher degrees will hopefully diminish. Schools that were involved in this study will also gain useful information about their own teachers and effectiveness in their special needs departments. These schools already have departments and are sold on special education but seeing these results will further boost confidence in their staff or show them if any changes need to occur. Finally, communities will be affected by this study. The data in this study will give the community a sense of satisfaction in the local Christian schools as opposed to a critical attitude toward them.

### **Limitations**

According to Gall, Gall, and Borg (2007), in an ANOVA with three groups in the independent variable, 51 students is the required minimum for a large effect size with statistical power of .7 at the .05 alpha level. In this present study, 58 (reading) and 58 (math) participants were from six Christian schools in Florida. Although the minimum required size was met, the study had the potential for higher validity level if more schools and participants would have been included. The number of test scores under the non-education degreed teacher most likely would have been large enough to avoid eliminating the score from the statistical test. This researcher discovered that securing permission from schools to perform a graduate-level study had more challenges than first assumed. To correct this limitation in further studies, recruitment of participating schools should start much earlier in the dissertation process, even before the proposal has been officially defended. Another limitation involving the participants was the uneven number of participants, with two schools having around 20 participants, one with 11, one with 7, and two with only 1 each. Ideally, a more equal number of students among schools would have occurred, so that the data would not have to rely so heavily on four of the schools that had the most participants. Finally, all schools that participated were members of an association based in the same state. A broader diversity of geographic areas would have been helpful to increase validity as well.

Due to the limited number of schools, the number of teachers was also minimal. In most schools, there were only two to three qualifying teachers for the study. In two schools, only one teacher was included. All the above limitations would have been resolved if more participating schools had been recruited. A large factor in the above limitations is the low percentage of Christian schools with special education programs. The percentage of Christian schools in both

the AACCS and other Christian school organizations that have a special education program, according to the literature in Chapter 2, is between 8-11%. While recruiting schools for this present study, it was estimated that these numbers still held true. With more Christian schools starting special education programs, research can be more accurate and offer more information to stakeholders.

The final limitation was that only one test score was included from one time period. The teacher degree as a factor for this score is limited. The score on one test could have been earned for factors other than the teacher. Perhaps some were naturally more academically inclined than others. Perhaps some simply had a better testing experience due to environment, feeling physically well as opposed to ill, or other factors. Although not appropriate for a dissertation, the same study could be performed with at least two test scores to see the amount of improvement from year to year under a certain teacher. It is this author's opinion that this type of test would be a more accurate assessment of how large a factor the teacher is in relation to the test score the student earned.

### **Recommendations for Further Research**

This study focused on the math and reading test scores of students with an IEP based on the degree field of their teacher. However, further research is recommended in the following areas:

1. Qualitative studies should be performed in special education classrooms of Christian schools to determine the level that teacher degrees affect behavior, discipline, social behaviors, and other non-standardized assessments.

2. A study is needed to include an additional test score, preferably a year later, to determine how much, if any, academic gain is being made under a teacher with a certain college degree type.
3. This study should be replicated and include a wider school base, including schools from other states, as well as other religious or parochial schools to see how Christian schools compare to other private schools.
4. Research in Christian school special needs departments need to conduct separate studies for students who are inclusion students and students who are in full self-contained classes.
5. Up to date surveys of Christian school leaders should be conducted to assess reasons to start or not to start programs, including levels of service offered.

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## APPENDICES

## Appendix A: Institutional Review Board Approval Letter

**LIBERTY UNIVERSITY.**  
INSTITUTIONAL REVIEW BOARD

January 24, 2020

Daniel L. Riley

IRB Application 4152: A Causal-Comparative Study of Christian School Special Needs Student Test Scores Based on Teacher Degree

Dear Daniel L. Riley,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at [irb@liberty.edu](mailto:irb@liberty.edu).

Sincerely,



**G. Michele Baker, MA, CIP**  
*Administrative Chair of Institutional Research*  
**Research Ethics Office**

**LIBERTY**  
UNIVERSITY.

*Liberty University | Training Champions for Christ since 1971*

## Appendix B: Administrator Questionnaire

### Stanford 10 Test Score and Teacher Degree Reporting Form

School Name:

Reporting Administrator:

**Instructions:** Please accurately and carefully provide the requested information below and return to [driley39@liberty.edu](mailto:driley39@liberty.edu) as soon as the data has been entered. As a reminder, actual school names will not be named on the study whatsoever – only pseudonyms.

Please list each student (already labeled as student 1, student 2, etc) reading scores (raw and stanine) and math scores (raw and stanine) from the Spring 2019 Stanford 10 data provided to your school. In addition to the scores, please indicate the degree type of the teacher the student had at the time of the testing (both in reading/English) and in math:

## Student 1

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 2

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 3

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 4

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 5

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 6

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 7

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

## Student 8

Reading Stanine Score:	Reading Raw Score:
Math Stanine Score:	Math Raw Score:
Reading/English Teacher Degree(s):	Math Teacher Degree(s):

Administrator Signature p. 1 \_\_\_\_\_

## Appendix C: School Permission Letters



**ATLANTIC**  
CHRISTIAN ACADEMY

**Integrating Faith, Love and Learning**

**Mr. Jim Rozendal, Headmaster**

4900 Summit Boulevard

West Palm Beach, FL 33415

561.686.8081 | FAX 561.640.7613

[jrozendal@atlanticca.com](mailto:jrozendal@atlanticca.com)

January 28, 2020

Daniel Riley  
Doctoral Candidate  
Liberty University  
6122 E. Dell Ln.  
Inverness, FL 34452

Dear Dan:

After careful review of your research proposal entitled “A Causal-Comparative Study of Christian School Special Needs Student Test Scores Based on Teacher Degree,” we have decided to grant you permission to receive and utilize the 2019 SAT 10 reading and math scores for any 9<sup>th</sup>-12<sup>th</sup> grade student with an IEP, along with the degree type of his or her reading (English) and math teacher for your research study.

Check the following boxes, as applicable:

- The requested data WILL BE STRIPPED of all identifying information before it is provided to the researcher.
- The requested data WILL NOT BE STRIPPED of identifying information before it is provided to the researcher.
- We are requesting a copy of the results upon study completion and/or publication.

Sincerely,



Headmaster  
Atlantic Christian Academy



## CALVARY CHRISTIAN ACADEMY & PRESCHOOL

The fear of the LORD is the beginning of knowledge.

Proverbs 1:7 | [www.ccafwb.org](http://www.ccafwb.org)

November 20, 2019

Daniel Riley  
 Doctoral Candidate  
 Liberty University  
 6122 E. Dell Ln.  
 Inverness, FL 34452

Dear Dan:

After careful review of your research proposal entitled "A Causal-Comparative Study of Christian School Special Needs Student Test Scores Based on Teacher Degree," we have decided to grant you permission to receive and utilize the 2019 SAT 10 reading and math scores for any 9<sup>th</sup>-12<sup>th</sup> grade student with an IEP, along with the degree type of his or her reading (English) and math teacher for your research study.

Check the following boxes, as applicable:

The requested data WILL BE STRIPPED of all identifying information before it is provided to the researcher.

The requested data WILL NOT BE STRIPPED of identifying information before it is provided to the researcher.

I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,



Administrator  
 Calvary Christian Academy



# Inverness Christian Academy

***A Ministry of Fort Cooper Baptist Church***

Marne Palmani, Pastor/Superintendent

Dan Riley, Head of School

[driley@invernesschristian.org](mailto:driley@invernesschristian.org)

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November 20, 2019

Daniel Riley  
 Doctoral Candidate  
 Liberty University  
 6122 E. Dell Ln.  
 Inverness, FL 34452

Dear Dan:

After careful review of your research proposal entitled "A Causal-Comparative Study of Christian School Special Needs Student Test Scores Based on Teacher Degree," we have decided to grant you permission to receive and utilize the 2019 SAT 10 reading and math scores for any 9<sup>th</sup>-12<sup>th</sup> grade student with an IEP, along with the degree type of his or her reading (English) and math teacher for your research study.

Check the following boxes, as applicable:

The requested data WILL BE STRIPPED of all identifying information before it is provided to the researcher.

The requested data WILL NOT BE STRIPPED of identifying information before it is provided to the researcher.

I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

A black rectangular box redacting the signature of the Pastor/Superintendent.

Pastor/Superintendent  
 Inverness Christian Academy

# LANDMARK

CHRISTIAN SCHOOL

Elementary ~ 2020 East Hinson Avenue, Haines City, FL 33844 ~ Ph: 863-422-2037  
*Vice Principal: Mr. Ron L. Williams*  
High School ~ 2100 East Hinson Avenue, Haines City, FL 33844 ~ Ph: 863-419-1401  
*Principal: Mr. Scott G. Birt*

November 20, 2019

Daniel Riley  
Doctoral Candidate  
Liberty University 6122  
E. Dell Ln.  
Inverness, FL 34452

Dear Dan:

After careful review of your research proposal entitled "A Causal-Comparative Study of Christian School Special Needs Student Test Scores Based on Teacher Degree," we have decided to grant you permission to receive and utilize the 2019 SAT 10 reading and math scores for any 9th-12th grade student with an IEP, along with the degree type of his or her reading (English) and math teacher for your research study.

The requested data WILL BE STRIPPED of all identifying information before it is provided to the researcher.

I am requesting a copy of the results upon study completion and/or publication.



LCS Principal



Rewarding Experience. Christian Perspective. Serving Others.

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- The requested data WILL NOT BE STRIPPED of identifying information before it is provided to the researcher.
- I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[Redacted Signature]

Administrator  
Ruskin Christian School



# Spring Hill Christian Academy

*"Affordable Christian Education Close to Home"*

Ray Rouse  
Pastor

Michael Willis  
Principal

November 20, 2019

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Sincerely,



Principal  
Spring Hill Christian Academy



Phone (352) 683-8485

**Over Twenty Years As A  
Ministry of Spring Hill Baptist Church**

3140 Mariner Blvd. • Spring Hill, FL 34609  
www.springhillca.com



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