THE RELATIONSHIP BETWEEN THE AMOUNT OF TRAINING TIME AND PERCEIVED TRAINING EFFECTIVENESS TO TEACHER PERCEPTIONS ABOUT THE POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS FRAMEWORK

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Liberty University

A Dissertation Presented in Partial Fulfillment

of the Requirements for the Degree

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ABSTRACT

With a rise of behavioral concerns in the classroom, education systems have turned to positive behavior interventions and supports (PBIS) to reinforce positive behaviors. The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. The theoretical framework for this study came from the applied behavior analysis theory. The researcher used a quantitative predictive correlational design to examine the relationship between the fidelity of implementation of PBIS programs, teacher perception of effectiveness of the PBIS framework, and time spent implementing PBIS. The study sample was taken from a population of approximately 600 elementary, middle, and high school teachers in a rural school district in East Tennessee during the 2020-2021 school year. The Benchmarks of Quality (BoQ) and the Teacher Perceptions of Positive Behavior Intervention Support Survey (Thornton, 2012) were used to measure implementation fidelity of PBIS programs and teacher perception of PBIS programs, respectively. The assumption of linearity and the assumption of bivariate normal distribution were tested using a scatterplot. A bivariate linear regression was used to examine the relationship between implementation fidelity of PBIS programs and teacher perceptions of program effectiveness, and another was used to examine the relationship between time spent implementing PBIS and teacher perceptions of program effectiveness. The study revealed a significant predictive relationship between implementation fidelity of PBIS programs and teacher perceptions of the programs.

Keywords: multiple regression, positive behavioral interventions and supports (PBIS), teacher perceptions, teacher training, professional development

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List of Abbreviations

adverse childhood experiences (ACEs)

antecedent-behavior-consequence (ABC)

applied behavior analysis (ABA)

Benchmark of Quality (BoQ)

in-school suspension (ISS)

Individuals with Disabilities Education Act (IDEA)

National Technical Assistance Center (NTAC)

office disciplinary referral (ODR)

out-of-school suspension (OSS)

positive behavior interventions and supports (PBIS)

professional development points (PDPs)

School-wide Evaluation Tool (SET)

Statistical Package for the Social Sciences (SPSS) software

Teaching, Empowering, Leading, and Learning (TELL) survey

CHAPTER ONE: INTRODUCTION

Overview

This study was conducted to determine if there is a predictive correlation between the amount of time spent implementing and implementation fidelity of Positive Behavior Intervention Support (PBIS) programs on teacher perceptions of PBIS program effectiveness. Chapter 1 includes background information, the problem and purpose statements, significance of the study, research questions, and applicable definitions to the study.

Background

As a result of the first five years in difficult homes, behavioral, mental, social, and emotional disorders are now present in about 20% of students (George, 2018). These are developed though the adverse childhood experiences (ACEs) students are facing, some of the most prevalent being poverty and abuse (Blodgett & Lanigan, 2018). Before the 1990s, many behavioral disorders did not impact schooling, but this increase in behavioral problems is leaving students as young as six with the need for social intervention (George, 2018). In fact, intervention before age 8 is necessary to eliminate negative behaviors permanently (Walker et al., 2004).

Every grade level and socioeconomic class has been impacted by the increase. Scholastic (2019) surveyed teachers and found 65% of low-income schools and 56% of high-income schools have seen an increase in behavioral concerns requiring disciplinary action. Of the schools who claimed an increase in behaviors severe enough to detract from classroom instruction, 68% were elementary schools, 64% were middle schools, and 53% were high schools. Similarly, Walker et al. (2004) found a loss of instructional time due to disciplinary action in both rural and suburban settings. In rural classrooms, 19% of teachers noted a loss of

two to three instructional hours per week, and another 17% claim to lose four or more. In suburban classrooms, 24% note a loss of two to three, while an additional 21% claim to lose four or more.

George (2018) found disciplinary action to be the largest contributor to instructional time lost. In an effort to decrease the amount of time spent in the classroom on disciplinary action, schools began looking for a solution. By 2016, approximately 21,000 schools across the United States had adopted PBIS programs (Childs et al., 2016), and by 2018, over 26,000 schools were implementing them (George, 2018).

Positive Behavior Intervention Supports (PBIS) have been shown in several studies to decrease negative student behaviors and provide more instructional time in the classroom. More instructional time alone does not increase achievement, but when paired with effective instruction, achievement can be positively impacted (Gage et al., 2013). Childs et al. (2016) also found a decrease in office discipline referrals (ODRs), in-school suspensions (ISS), and out-of-school suspensions (OSS), while the OSEP Technical Assistance Center (2019) noted additional benefits with decreased bullying and drug-related instances, which are not targeted by PBIS. The OSEP Technical Assistance Center found a positive transformation in the climate of schools successfully implementing PBIS systems.

Historical Overview

In 1975, President Ford signed the Individuals with Disabilities Education Act (IDEA), which guaranteed students with disabilities a free, public education with access to the least restrictive environment (IDEA, n.d.). After the enactment of IDEA, the University of Oregon set out to find more effective methods for adjusting behaviors of students with behavioral concerns (Sugai & Simonsen, 2012). With this research in the 1980s, the shift in disciplinary action went

from retroactive to proactive in a move toward preventative measures. From this, the 1990s brought about The Center on Positive Behavioral Interventions and Supports which was established to provide schools with resources for students with behavioral concerns. At that time, the ideas of direction instruction, relationship building, and creating reward systems were popular, but data began to show they had no longevity. The students enjoyed all of those things, but the variables which attributed to sustainability, quality, and cultural responsiveness were the ones which created effective systems (Stonemeier, 2016). By the 2000s, PBIS was spreading to schools across the United States, and the National Technical Assistance Center served as a reference for educators looking for further professional development on PBIS (Sugai & Simonsen, 2012).

Each year, teachers in Tennessee are required to participate in professional development opportunities in order to meet the requirements for licensure. Palmer and Noltemeyer (2019) found most educators surveyed did not feel the professional development opportunities resulted in significant growth to their personal knowledge. Teacher training on PBIS has been similar. In order for PBIS to be successfully implemented in classrooms, teachers must buy in to the programs (Tyre & Feuerborn, 2017). Teachers want to see how programs are applicable to their own classrooms, and they want to see the potential for growth for their students. Childs et al. (2016) found a decline in ODRs, ISS, and OSS to be benefits of PBIS. Additionally, PBIS was found to increase positive behaviors in students through reinforcement (Walker et al., 2017). With this knowledge, training on PBIS can contribute to personal knowledge through appropriate training.

Societal Impact

Given the historical background, PBIS is designed to provide schools with the tools to positively change school climate. Despite the benefits of PBIS, some resistance to implementation has been noted. Social validity ratings for elementary and middle school teachers were higher than that of high school teachers. Therefore, elementary and middle school teachers and staff demonstrate more willingness to implement than their high school counterparts (Vancel et al., 2016). Success of all programs within a school relies on the buy-in of faculty and the support of the leadership team (Tyre & Feuerborn, 2017). Data from previous studies present a misconception of PBIS as coming from a lack of training on how to effectively implement the programs (see, for example, Tyre & Feuerborn, 2017; McDaniel et al., 2017; Betters-Buon et al., 2016). In many cases, school leaders, special educators, and guidance counselors were the only faculty members who received direct training (Betters-Buon et al., 2016). A study conducted by Houchens et al. (2017) showed no positive impact of the climate of PBIS schools where teachers did not receive sufficient training. Misunderstanding of the programs also negatively affected teacher perception of PBIS (McDaniel et al., 2017). However, even in schools with adequate training and support, 16% of educators are still hesitant to adopt a new program (Tyre & Feuerborn, 2017).

PBIS is intended to benefit education systems by creating a positive school climate for all students to succeed socially and academically. School climate can be affected by many different factors including the location of the school, student demographics, instructional methods, and school faculty. School climate involves things like mutual respect, safety, parental involvement, and shared vision. The climate of a school can be difficult to change but implementing PBIS can be a successful starting point. In order to achieve the level of effectiveness needed to spark

change, all school staff must buy in to the program. Tyre and Feuerborn (2017) found an unwillingness to buy in to programs to be a hindrance to PBIS, thus causing a lack of change to school climate.

Climate within a school has an impact on attendance, achievement, and graduation rates. Despite school demographics, schools with a positive climate produce higher academic success, thus improving achievement test scores. Apart from the academic improvements, positive school climate has social and emotional benefits for students as well. By developing these, students will learn skills that make them productive members of society (PBIS Rewards, 2020). The climate in a school begins with school leaders and their ability to share vision with the faculty (Kouzes & Posner, 2017). This vision could be sparked through teacher training in which teachers can see the benefit of PBIS programs to their own classrooms. In order for buy-in to occur, teachers need to understand how implementing PBIS will be professionally beneficial (Tyre & Feuerborn, 2017). The OSEP Technical Assistance Center (2019) found PBIS programs to improve school climate and increase teacher self-efficacy which can both have an impact on teacher perceptions of the programs.

Theoretical Background

Applied behavior analysis theory (ABA) is the basis for PBIS. The foundations for ABA and PBIS were laid by John B. Watson when he began looking at behavior as a response to stimulants rather than a reflection of people's thoughts (Skinner, 1988), and he is now known as the father of behavioral psychology (Parkay et al., 2014). Watson's work also inspired B. F. Skinner to look into the Pavlovian theories which were based on the stimulus-response model (Hernandez, 2011). From this, operant conditioning was coined by Skinner (Parkay et al., 2014). Skinner hypothesized behaviors could be modified if positive behaviors were reinforced and

negative behaviors were suppressed (Skinner, 1938). Watson's (1913) work also led to the beginnings of ABA. Ayllon and Michael (1959) used his theology to examine the presentation of problematic behaviors. They found a connection to something occurring prior to the behavior presenting itself that triggered the behavior. They believed by manipulating the trigger, the resulting behavior could be changed. PBIS were created with the ABA theory in mind. The ideology behind PBIS is to identify triggers which evoke a response and manipulate those triggers to form more appropriate behavior in students.

PBIS is a tertiary system intended to provide support for individual student needs (Melekoglu et al., 2017). While PBIS is implemented as a preventative disciplinary tool, research still supports the need for negative consequences. Hubbuch and Stucker (2015) suggest using an 80/20 policy when handling discipline. In this model, 80% of disciplinary measures are preventative, and the other 20% are reactive (Hubbuch & Stucker, 2015). The three tiers of PBIS are created to provide each group with individualized preventative measures. Tier 1 addresses all students and is intended to model expected behavior for peers. Tier 2 identifies students who are at risk of disciplinary action. These students may have a small disciplinary infraction or a demographic concern that places them in this category. The third tier identifies students with a history of disciplinary action, the needs of each student are addressed in their preventative plan (Chitiyo & May, 2018).

Because of the recurring notion of misconceptions of PBIS found throughout the literature and the repeated mention of a lack of training, it is believed teacher perception of PBIS programs can be positively impacted by improved training. Additionally, teacher buy-in can increase because teachers understand the benefits of PBIS to their own classroom and are given tools to help with implementation.

Problem Statement

The literature was clear to address certain aspects of PBIS. Positive behavior intervention supports were developed to prevent negative behaviors and reduce the loss of instructional time in the classroom. A study by Betters-Buon et al. (2016) named guidance counselors as the primary people to receive PBIS training, and in some cases, they were the only faculty member who received training. McDaniel et al. (2017) and Tyre and Feuerborn (2017) found lack of training and teacher buy-in respectively to be barriers to implementation. Since teachers are not receiving the information on PBIS training, teachers are unable to understand the theoretical implications and the classroom benefits PBIS programs can have in their classrooms. PBIS programs have a negative perception by educators due to the misunderstanding and inability to see the benefits (Tyre & Feuerborn, 2017).

Up to this point, researchers have focused on the effectiveness of PBIS in schools and on identifying barriers to implementation (see, for example, Houchens et al., 2017; McDaniel et al., 2017; Vancel et al., 2016; Swain-Bradway et al., 2018). Teacher training was identified as the largest inhibitor of PBIS implementation, which has negatively impacted teacher buy-in (Tillery et al., 2010). Other studies have focused on the effectiveness of professional development programs and the qualities needed for successful teacher training to occur (Palmer & Noltemeyer,2019).

The problem was the literature had not addressed all aspects of PBIS. In particular, negative teacher perceptions surrounding PBIS programs had not been fully explored (Houchens et al., 2017; Tillery et al., 2010; Tyre & Feuerborn, 2017). Therefore, a gap in literature existed about how teacher training impacts teacher perception specific to PBIS programs. The study at hand investigated the negative teacher perceptions surrounding PBIS programs.

Purpose Statement

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. For this study, the predictor variable, effectiveness of PBIS, refers to the self-assessed implementation fidelity of PBIS programs as measured by the Benchmarks of Quality (BoQ) (Childs et al., 2010). The criterion variable, teacher perception, refers to the connotation teachers form about PBIS programs, measured by the Teacher Perceptions of Positive Behavior Intervention Support Survey (Thornton, 2012) on a continuous scale which include positive and negative responses. A total of 72 elementary, middle, and high school teachers from a population of about 600 teachers in rural Tennessee were recruited.

Significance of the Study

Negative student classroom behaviors are increasing at an alarming rate (George, 2018). As a result, about 20% of children are now coming to school with behavioral, social, intellectual, and emotional disorders, and schools are looking for ways to combat these disorders.

Other studies have investigated this problem. PBIS programs have been suggested to improve student behavior, decrease disciplinary referrals, decrease instances of bullying and drugs, increase academic performance, and increase teacher self-worth (Positive behavior interventions and supports, 2019; Childs et al., 2016). Despite the known benefits of PBIS, barriers to implementation still exist which cause a negative perception of the program for teachers and a lack of support (Vancel et al., 2016). While many factors pose a challenge to implementation, Tyre and Feuerborn (2017) name educator misunderstanding as one of the two largest factors.

Additional studies have noted how PBIS could be improved. Betters-Buon et al. (2016) claimed guidance counselors, special education teachers, and administrators are the only people being trained to implement PBIS programs in schools. Teachers are then left to hear the information secondhand. About 64% of teachers felt unequipped to deal with negative behaviors in the classroom and claimed to have a need for increased training on the programs aimed at combatting these behaviors (Scholastic, 2019). Palmer and Noltemeyer (2019) suggest professional development opportunities should be relevant to the needs of educators, and with the behavioral challenges teachers are facing in the classroom, PBIS training would be an applicable topic to increase teacher knowledge of the programs, therefore improving student behavior. By determining the impact of PBIS training, it can be revamped to give teachers a more thorough understanding of PBIS programs and generate positive results within schools implementing PBIS including teacher self-efficacy. This study sought to determine the existence of a relationship between the effectiveness of PBIS and teacher perceptions of PBIS.

The findings from this present dissertation study will provide information on how to improve training opportunities to increase the teacher perception of positive behavior intervention support programs, thus positively impacting the effectiveness of programs. The importance from the study stemmed from the proven benefits of PBIS and the hesitation of teachers to buy in to the programs due to misunderstandings.

Research Questions

RQ1: Is there a significant predictive relationship between the effectiveness of PBIS implementation scores and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

RQ2: Is there a significant predictive relationship between the amount of time implementing PBIS and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

Definitions

1. *Adverse Childhood Experiences (ACEs)* – ACEs refer to extended exposure to events which may impact children long term due to their traumatic nature. They can happen in any demographic and present themselves in different ways like abuse, divorce, illness, and more (Blodgett & Lanigan, 2018).
2. *Applied Behavior Analysis (ABA)* – ABA is a technique which uses positive reinforcement and stimulus control to modify behavior. ABA technology includes instructional strategies, antecedent manipulation, contingency management, and functional analysis and assessment which have all been adopted by PBIS. (Dunlap & Horner, 2006).
3. *Effectiveness* – The ability of PBIS training programs to produce understanding of PBIS programs and provide teachers with useful professional development (Palmer & Noltemeyer, 2019)
4. *Implementation* – Implementation refers to the process of putting a new system into place (George, 2018). In this study, it refers to the training and introduction of PBIS to teachers and students and the following years it was used.
5. *Individuals with Disabilities Education Act (IDEA)* – IDEA is a law which made free appropriate education to all children with disabilities in America and guarantees special education services designed to meet their unique educational needs (Sugai & Horner, 2009).

6. *Perception* – The way teachers view the effectiveness of PBIS programs whether it be positive or negative (McDaniel et al., 2017)
7. *Positive Behavior Intervention Support (PBIS)* – A framework for delivering whole-school cultural and additional tertiary tiered behavioral support needs to improve the educational and social outcomes for all students (Horner & Sugai, 2015)
8. *Preventative* – In this study, preventative refers to the ability to stop or reduce negative behaviors before they happen. This is done in contrast to reactive approaches to school discipline (Hubbuch & Stucker, 2015).
9. *School Climate* – School climate refers to the quality and character of a school which is reflective of the goals, values, practices, relationship, and structures within a school which impact the students. School climate is linked to improved student achievement and well-being. (James et al., 2017).
10. *Teacher Training* – Professional development opportunities aimed at improving knowledge on educational programs (Palmer & Noltemeyer, 2019)

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. This chapter includes the theoretical framework, related literature, and a summary of the chapter. Related literature contains the following subsections: History of Behavioral Problems, Positive Behavior Intervention Supports, Teacher Training, Professional Development, Phases of PBIS Implementation, State and Regional Supports, and Goals of NTAC Blueprint.

Theoretical Framework

The theoretical framework for this study is the ABA theory (Ayllon & Michael, 1959). The beginnings of PBIS came from John B. Watson's behavior theory. Watson's work stemmed from the experiments of Pavlov (Parkay et al., 2014). Modeled after Watson, B. F. Skinner theorized the theory of operant conditioning (Hernandez & Ikkanda, 2011). Later, the ABA theory of Ayllon and Michael (1959) used conditioning to alter behavior. The philosophical foundation for PBIS came from the normalization/inclusion movement and person-centered values (Carr et al., 2002).

Behavior Theory

Known as the father of behavioral psychology (Parkay et al., 2014), John B. Watson was the first to suggest behavior might not always be a true measure of the thoughts and emotions of people (Skinner, 1988). Watson founded his work in the theology of Ivan Pavlov and believed learning could also be conditioned (Parkay et al., 2014). Using the stimulus-response model created by Pavlov, Watson believed he could use classical conditioning to generate wanted

responses to learning (Parkay et al., 2014). Compared to other philosophers of the time, John B. Watson was radically different, and his work sparked a new generation of theorists like B. F. Skinner (Hernandez & Ikkanda, 2011). B.F. Skinner also used the stimulus-response model to develop his work with the theory of operant conditioning (Parkay et al., 2014). The behavior theory is intertwined in many studies on behavior abnormalities with students. MacFarlane and Woolfson (2013) used behavior theory to inform their study on teacher attitudes toward students with social, emotional, and behavioral disorders. Burns et al. (2017) also examined the behavior theory in regard to cultivating positive relationships with instructors.

Operant Conditioning

B. F. Skinner's ideology for developing operant conditioning was founded in an effort to reinforce positive behaviors (Parkay et al., 2014). In his book *The Behavior of Organisms,* Skinner (1938) named reinforcement, punishment, extinction, stimulus control, and motivation as the five basic behavior principles. Like Watson, Skinner used the stimulus-response model of Pavlov when learning how stimuli directly affect behavior. Skinner sought to determine how the response to certain behaviors can affect the resulting behavior in the future (Hernandez & Ikkanda, 2011). The works of Skinner and Watson can both be attributed to Ivan Pavlov's dogs in 1904. Pavlov noticed the presence of salivation every time the dog received food, so he began ringing a bell when he fed the dog. After a while, he removed the food, but the dog still salivated when it heard the bell ring (Parkay et al., 2014). In Skinner's theory of operant conditioning, reinforcers are tied to anticipated behaviors in an effort to encourage them. Similarly, positive behavior intervention supports seek to identify stimuli prior to the presentation of behaviors (Sugai et al., 2012). Dalla and Shors (2009) used operant conditioning to discuss the differences

in male and female learning differences. In addition to education, operant conditioning is often used to guide studies for drug and alcohol treatment (Sommer et al., 2017).

Applied Behavior Analysis

The need for self-reflection to address inappropriate behaviors was identified by Watson (1913) in his book. Self-reflection is also necessary in the science of ABA. Ayllon and Michael (1959) began studying behavior theories and their impact on negative behaviors. The two believed a trigger could be identified for each negative behavior, thus providing an opportunity to manipulate the trigger and change subsequent behavior. Out of this idea, the antecedent-behavior-consequence (ABC) model was born. ABC stands for antecedent, behavior consequence, and it seeks to explain behavioral occurrences. The antecedent is the event that happens prior to the behavior, and the consequence is the resulting actions of the behavior (McMahon et al., 2019). From the ABA theory, the idea for the formation of positive behavior intervention supports was established (Melekoglu et al., 2017). ABA has also been used in other studies involving education. Collier-Meek et al. (2017) conducted a case study to assess the effectiveness of ABA in education and provide practical strategies for using ABA to modify behavior. Denne et al. (2016) also examined the need for ABA to help create a positive and supportive environment at home and in school for children with autism.

Normalization

Along with the theology behind PBIS comes the philosophical implications. Supporters of PBIS also support the belief of normalization, specifically referring to the idea individuals with disabilities should be afforded the same opportunities to work, schooling, housing, and social events as individuals without disabilities. The goal of normalization is to allow people who might typically be overlooked by society to play important societal roles, helping them to

gain the respect of their peers (Carr et al., 2002). While PBIS does refer to the normalization of individuals with disabilities, the beginning forms of inclusion did not.

Since about 1850, the United States has become an increasingly inclusive nation. This inclusion began with the women's suffrage movement and women's rights movement until 1920, the civil rights movement in the 1950s and 1960s, and then the IDEA during the 1970s and 1980s (Carr et al., 2002). Inclusion has been a controversial topic in education. The current trend is to place students with disabilities into the general education classroom setting in order to help them learn from their peers and help their peers better understand their needs (Carr et al., 2002). Apart from the education field, inclusion can also be found in the supported careers, assisted living arrangements, and membership in extracurricular groups which include both individuals with and without disabilities (Carr et al., 2002).

Person Centered Values

The ideology behind PBIS blends the world of science and values together with science guiding the *how* and values guiding the *what* in regard to change. Person-centered planning, self-determination, and the wraparound approach become the building blocks for person-centered values to be implemented within a community while eliminating the once degrading nature of programs for individuals with disabilities (Horner et al., 1990).

In traditional program-centered planning, the programs available to individuals with disabilities are considered, and the ones that best meet the needs of the individual are selected. On the contrary, person-centered planning focuses on the specific needs of the individual and creates services specifically aimed at those. By creating a person-centered plan, the ideas of normalization and inclusion are fulfilled by allowing opportunities to build relationships,

participate in community functions, provide choice, and develop responsibilities (Carr et al., 2002).

As a natural result of the push for normalization comes self-determination. Many individuals with disabilities are not given decision-making abilities often, so inserting the dimension of self-determination allows for decision making, self-advocacy, and setting of personal goals. By shifting the standard to allow individuals with disabilities to advocate for themselves, they can take ownership of their own living, careers, and social lives (Carr et al., 2002).

PBIS philosophy also supports the wraparound process (Clark & Hieneman, 1999). Through the use of person-centered planning, plans are developed for individuals with disabilities which focus on needs rather than services which involve the family and support group surrounding the individual. The self-determination philosophy is held at the forefront while meeting with specialists, family members, and advocates who all share the common goal of empowering the individual with the skill set he or she needs to succeed. The main focus is to meet the fundamental needs of the individual with the goal of improving the quality of life which will hypothetically reduce the behavioral concerns (Carr et al, 2002).

Classroom Implications

Behavior modification is a good starting point for implementing behavior theology in an educational setting. In modifying student behavior in the classroom, teachers use behavior modification to change anticipated behavioral problems. Positive behaviors are rewarded while negative behaviors are not always addressed. Through positive reinforcement, the idea is the positive behaviors will increase while the negative will dissipate (Parkay et al., 2014). Parkay et al. (2014) developed a four-step approach to modifying behaviors. In step 1, educators

communicate measurable and observable goals for behavior. Step 2 involves identifying behaviors and then determining suitable stimuli to pair with positive and negative behaviors in the third step. Last, immediately after the anticipated behavior occurs, the predetermined stimulus is presented. This is known as a stimulus-response approach, and it is used in PBIS systems and in the general classroom to address and reduce behavior problems.

Related Literature

With an increase of behavioral concerns taking away from instructional time (Scholastic, 2019), schools have turned to PBIS in an effort to improve student behavior and increase instructional time (George, 2018). The benefits of PBIS have been cited by some studies, but other studies focus on the barriers to implementing PBIS programs. One benefit noted by The OSEP Technical Assistance Center (2019) is an increase in teacher self-efficacy, but this benefit may be inhibited by training deficits. Literature also discusses the need for professional development and details ways to make professional development opportunities more beneficial to educators. While much literature exists on PBIS and professional development, little information exists on professional development in relation to PBIS. The purpose of this literature review was to provide the theoretical framework for the study and related literature which includes a background of PBIS, challenges to implementation, and the need for professional development.

History of Behavioral Problems

According to The National Survey of Children's Health, among children ages 0-17, 48% of children had experienced an ACE and of those, 13% had experienced at least three. Some examples of ACEs are low socioeconomic class, divorce, and abuse. These ACEs are impacting school children, and students who are identified as having an ACE are more likely to have poor

attendance, present negative behaviors, and low academic performance (Blodgett & Lanigan, 2018).

Since the 1990s, the United States has seen a rise in behavioral concerns among school age children (Melekoglu et al., 2017). Prior to coming to school, children spend the first five years of their lives in homes that are becoming increasingly more difficult. As a result of this shift, about 20% of students are now entering school with a behavioral, mental, social, or emotional disorder of some type (George 2018). Walker et al. (2004) suggest intervening with students who exhibit signs of these disorders by age 8 in order to permanently impact the behavioral outcomes for the student. Formerly, behavioral disorders were not seen in school until late elementary or middle school, however, students as young as age 6 are now being diagnosed with anxiety (George, 2018).

The impact of behavioral concerns extends to urban and rural settings. In a survey by Walker et al. (2004) 17% of teachers in rural settings claim to lose at least four hours of instructional time in a week while another 19% claim to lose between two and three. In urban settings, 21% claim to lose at least four, while 24% claim to lose between two and three hours weekly. In a survey of teachers, George (2018) found disciplinary issues to be the largest contributing factor to loss of instructional time. Not only does the loss of instructional time impact students who exhibit problematic behaviors, but all students in the room are adversely impacted by time lost. In a study conducted by Thompson (2018), the effectiveness of achievement testing was called into question based on the inability to eliminate disruptions and problematic behaviors in the classroom. Schools have identified a need for improving student behavior and increasing instructional time, which has led them to Positive Behavior Intervention

Supports (PBIS). In 2016, 21,000 schools across America had begun implementing PBIS (Childs et al., 2016), and by 2018, over 26,000 schools were implementing (George, 2018).

In addition to disciplinary problems spanning all regions, they also span all socioeconomic classes and grade level bands. Economic hardship is identified as an ACE, thus the greatest impact of behavioral concerns was seen in low-income schools with 65% citing a rise in concerns. Nevertheless, 56% of high-income schools also reported an increase in concerns (Scholastic, 2019). In elementary schools, 68% of teachers cited an increase in behavioral issues while 64% of middle school teachers and 53% of high school teachers also saw increases (Scholastic, 2019).

Positive Behavior Intervention Supports

History

In 1975, President Gerald Ford and the United States Congress enacted the Individuals with Disabilities Act (Smith, 2015) which guaranteed all students with disabilities the right to a free, public education with proper supports for each student. IDEA gave students with disabilities access to their own least restrictive environment which for 62% of students is the traditional classroom setting. In 1997, IDEA was revisited by congress and reauthorized (Smith, 2015).

By 1980, researchers at the University of Oregon noticed a need for intervention strategies for students who were identified as having behavioral disorders. During this time, strategies for intervention shifted from retroactive to proactive with a focus on preventative strategies (Sugai & Simonsen, 2012). From this reauthorization, The Center on Positive Behavioral Interventions and Supports began to provide schools with extra support for students with behavioral concerns. Beginning in 2000, The National Technical Assistance Center

(NTAC) on PBIS became the biggest organizer of training events and continued education for school-wide positive behavior supports. The NTAC also provides educators with an outline for implementing PBIS, professional journals and newsletters, conferences for PBIS, and a database to reference with evidence-based practices for successful PBIS usage (Sugai & Simonsen, 2012).

PBIS Design

When implemented effectively, Positive Behavior Intervention Supports (PBIS) can provide successful outcomes for students. Unlike the traditional behavior systems in schools, PBIS are proactive rather than retroactive and focus on prevention strategies. This stark difference makes them both appealing and intimidating, so the Center on Positive Behavioral Interventions and Supports has developed literature to assist in the implementation for schools new to the programs (Sugai & Simonsen, 2012). While PBIS can be effective, it does not work overnight. The goal of program implementation should be sustainability and longevity. For PBIS to effectively reduce behavioral concerns, the use of systems, data, and educational practices must be cohesive (OSEP Technical Assistance Center, 2019).

The unique design of PBIS focuses on the whole school, but also breaks down the school into tiers for more impactful intervention (Horner & Sugai, 2015). The organization of PBIS is a three-tiered approach with different focuses for primary, secondary, and tertiary prevention (Melekoglu et al., 2017). All of the children in a school are contained in tier 1. In this tier, the focus is on improving school climate and creating an environment that supports peer and teacher relationship building (Green et al., 2019). Fostering positive relationships in the classroom can eliminate other behavioral problems. Sterrett (2011) believed students who feel valued by their teacher are more willing to engage in learning in an effort to please the teacher. While it includes all students, 80% of students are considered to be tier 1 (Vuran & Ogulmus, 2016). In tier 2,

students who are considered to be at risk for behavioral concerns are identified. This could be students who have previously been a behavioral problem or who are from demographics that would put them at greater risk for these concerns (Chitiyo & May, 2018). About 15% of students fall into the second tier of prevention (Vuran & Ogulmus, 2016). Tier 3 is made up of students who need individualized behavioral support (Chitiyo & May, 2018). Only 5% of students fall into this tier (Vuran & Ogulmus, 2016).

As previously mentioned, tier 1 encompasses all students in the school and is closely tied to the preventative measurements taken for behavior management in schools implementing PBIS. The school begins by identifying goals and presenting them in a concise, measurable way for students (Sugai et al., 2012). Tier one also seeks to incorporate parents into the plan for implementation by providing them with the goals of the school in an effort to give students similar expectations in their homes. With parental support, the sustainability of PBIS is greater (McIntosh et al., 2014). Kuehn (2014) found parents want to help their children be successful in school, but many are stuck with only the guidance they received from their own parents while growing up. By establishing behavioral goals at home too, some of the stress in homes can also be reduced (Kuehn, 2014).

Tier 2 provides small group instruction to students with behavioral concerns on expected behavior and classroom goals (Green et al., 2019). Secondary preventative measures are focused on addressing the most common behavioral needs of students. All of the preventative measures in tier 1 are still in place, but additional supports like more prompts and increased positive feedback are added in tier 2. Data for progress monitoring are also collected in tier 2 and is modified based on the outcomes of the data (Horner & Sugai, 2015).

Tier 3 students receive more individualized support on how their own behaviors and stimuli can be modified to make them more appropriate for the general education classroom (Green et al., 2019). The use of tier 3 supports came about in 1975 with the enactment of IDEA and extra protections for students with a need for individualized supports. A formal process for monitoring student progress and for determining the effectiveness of the student-support plan are also necessary in this tier. All of these supports are in addition to the tier 1 supports (Horner & Sugai, 2015).

School leaders use PBIS programs to create strategies for implementation which harmonize the usage of school systems, data, and practices for behavioral improvements. The systems piece is about the community and culture surrounding a school. The school leadership team is responsible for creating improvement plans each year which cause them to reflect on these. Communication between parents and teachers about student progress also fit into the systems portion (Betters-Buon et al., 2016). Decisions made within a school should be rooted in data. When developing new programs, data should guide the implementation of important elements to the school (Sprague & Horner, 2006). Behavioral practices are derived from the expectations of the general classroom (Betters-Buon et al., 2016), and they focus on being culturally responsive for all students in the classroom (Koppelman, 2017). Despite the name, Positive Behavior Intervention Supports also allow for negative consequences with 20% of disciplinary action being negative. Hubbuch and Stucker (2015) suggest preventative measures for discipline are effective about 80% of the time while the other 20% may be needed for negative consequences.

Active Ingredients of PBIS

Implementation of PBIS programs in the "real world" often looks radically different than the designers intended. Due to limited resources, programs are often altered to meet the needs of the institution implementing the program. With the modifications made, the effectiveness of the programs can be negatively impacted if the key components are not included in the implementation (Molloy et al., 2013). The implementation quality of PBIS programs matter because the program effectiveness can be reduced by up to half of its normal effect size (Domitrovich & Greenberg, 2000).

PBIS programs are made up of seven components, and in order for schools to be considered fully implementing PBIS, they must be fully implementing each component. The seven components are expectations defined, expectations taught, reward system, violation system, monitoring and decision making, management, and district-level support (Molloy et al., 2013). In a national sample of schools for implementing PBIS as a means of delinquency prevention obtained by Gottfredson and Gottfredson (2002), low implementation quality was found to be a common factor for all schools. In fact, none of the schools surveyed were said to be fully implementing the program. In order for programs to achieve more success, more attention to implementation and the "active ingredients" of PBIS need to be considered in real-world scenarios despite the challenges (Molloy et al., 2013).

When implementation quality is assessed, the scores are typically combined into one overall score rather than being broken down into multiple sub-scores. By doing this, the specific strengths and weaknesses of programs are concealed by the other sub-scores (Molloy et al., 2013). In order to get a more accurate depiction of program quality, the components of the programs should be assessed independently (Durlak & DuPre, 2008). Having this data will allow

for growth and reinforcement in the necessary areas and will allow resources to be allocated appropriately (Molloy et al., 2013).

In the study conducted by Molloy et al. (2013), the researchers suggested reward system, violation system, and teaching expectations were the three "active ingredients" of real-world PBIS. The other main components take place in the planning and administrative portion of PBIS programs, but these three are directly related to student behavior. While more research is needed, the findings in this particular study suggest schools would benefit by placing a top priority on these three components since they are most likely to lessen ODRs, acts of defiance, and drug-related instances.

Benefits of PBIS

The original purpose of public education was to give all American students a free and appropriate education despite their demographics. Students with behavioral concerns are also included through IDEA (Betters-Buon et al., 2016). PBIS was designed to support the behavioral needs of students from all facets of life regardless of culture, gender, or socioeconomics by creating an equitable learning environment for all students (Childs et al., 2016). The OSEP Technical Assistance Center (2019) found PBIS to be effective at improving student behavior, which caused a decrease in disciplinary proceedings and a greater sense of self-efficacy among teachers. Childs et al. (2016) also cited a decline in all office referrals including those that led to ISS and OSS. A decline in bullying occurrences and drug citations were also unintentionally impacted by PBIS (OSEP Technical Assistance Center, 2019). An improvement in mental health was also documented, and the need for restraining students also declined due to PBIS usage. Apart from reducing problematic behaviors, PBIS has also been found to encourage students to behave in appropriate ways by reinforcing these positive behaviors (Walker et al., 2017).

Additionally, the climate of schools using PBIS reported a positive change which has led teachers to be more confident with classroom management and has created a positive sense of self-efficacy (OSEP Technical Assistance Center, 2019).

With a reduced amount of time spent dealing with disciplinary problems, the amount of instructional classroom time can be increased (Gage et al., 2013). In a perfect world, an increase of time spent on instruction would lead to increased academic performance (Childs et al., 2016). However, an increase in instructional time would not necessarily improve the quality of instruction. While this may be true for effective teachers, teachers who lack effective teaching methods will still deliver subpar instruction (Gage et al., 2013). Because of this, achievement test measures cannot be used to accurately measure the effectiveness of PBIS programs but may be a truer representation of teacher effectiveness (Thompson, 2018). Improvements on student achievement are more likely to stem from improved instructional practices (Gage et al., 2013).

Barriers to Implementation

Despite the research showing the benefits of PBIS and supporting the use in schools, many teachers are still skeptical of the program. Vancel et al. (2016) found elementary teachers to be most supportive of adopting PBIS programs with middle and high school educators being less supportive, respectively. While the rate of PBIS implementation is growing across the United States, it is growing at a higher rate in elementary schools than in high schools. Of all the schools implementing PBIS, only about 13% are high schools. Research suggests implementation fidelity is more difficult to achieve in high schools than in their elementary and middle school counterparts. This was attributed to a difficulty implementing a rewards system, defining school-wide expectations, and reevaluating the school violation system (Swain-Bradway et al., 2018).

They also determined demographics of educators such as gender, experience, and educational attainment did not have a significant impact on the willingness of a teacher to adopt PBIS (Vancel et al., 2016). The success of any program in a school is determined in part by the willingness of faculty members to buy in to the program, and teacher buy-in was identified by Tyre and Feuerborn (2017) as one of the largest factors hindering implementation. In order for teachers to buy in to PBIS or any new program, teachers must understand how the program will be beneficial to their classrooms, and they desire clear guidance from administration on how to be successful.

To obtain buy-in from all faculty members, the challenges to PBIS implementation need to first be addressed. According to Tyre and Feuerborn (2017) teacher misunderstanding and low administrative support are the two biggest barriers for successful implementation. McDaniel et al. (2017) also attributed poverty and the culture surrounding it as barriers to implementation. The research surrounding PBIS misconceptions suggests there may be a link to improper training prior to intervention. When surveying teachers about behavior prevention through the use of PBIS, many of them had little information to share because training was not followed up on within the school. In the same school, the benefits seen from PBIS implementation were minimal if apparent at all (Tillery et al., 2010). No positive impact is seen on school climate when proper training for PBIS has not taken place (Houchens et al., 2017). Additionally, lack of training on PBIS causes a negative impact on teacher perception (McDaniel et al., 2017).

Scholastic (2019) surveyed teachers about the stark increase in problematic behaviors, and 64% of educators disclosed a want for more training and strategies to help students. In many schools implementing PBIS, the administrative team, special education teachers, and guidance counselors are being trained and expected to redeliver the information with their faculty upon

returning from the training (Betters-Buon et al., 2016). As with anything, the relaying of information can cause some confusion and miscommunication, which can develop into misconceptions of the programs.

Shared leadership is important within schools in order for faculty members to have a sense of ownership in the decisions made (Parkay et al., 2014). While the decision making should be shared, the principal and leadership team are still responsible for establishing a shared vision for the success of a school (Kouzes & Posner, 2017). Explicitly defined objectives for teachers help them feel empowered in their classrooms and give them a greater self-worth (Houchens et al., 2017). According to the Teaching, Empowering, Leading, and Learning (TELL) survey, teachers from schools implementing PBIS have a significantly higher perception of their own education impact than teachers where PBIS is not implemented (Houchens et al., 2017). Prior to implementing a new program, the leadership team within a school should establish clear goals and techniques for implementing the program to eliminate misconceptions and provide teachers with support similar to the way engineers create a model before beginning a new project (Kouzes and Posner, 2017).

Educators are interested in perfecting their craft, but they want to understand how new teaching practices will be beneficial to their own classroom before committing. By improving training procedures and encouraging the support of administrators, teachers will better understand the ability of PBIS to reduce disciplinary reports and provide more instructional time in the classroom. Still, 16% of educators will still be hesitant to adopt any new program like PBIS (Tyre & Feuerborn, 2017).

In a roundtable study conducted by Sanders et al. (2019), the group of participants identified various things that could be potential barriers to teacher buy-in. First, a mind shift was

needed for staff members to be able to see the process as a facility-wide effort. Second, faculty is forced to move from a reactive approach to a proactive approach, which can be difficult when they are more familiar with reflecting on what should not be done rather than praising positive behavior. Many staff members are also uncomfortable with teaching behavioral skills because they have never learned how to teach the expectations explicitly. For this reason, more training is needed on PBIS in order to understand how PBIS is based on the applied behavior analysis theory and can help reduce problematic behaviors by promoting positive ones. Beyond the shift in thinking, the majority of concerns revolved around staffing shortages, job security and turnover rates which led to staff not wanting to invest in a new program they knew would not be necessary for them to learn when their position may change or budgets may be cut (Sanders et al., 2019).

Determining Fidelity

Since PBIS is focused on using data to guide future recommendations for student outcomes, it is important for school teams to have a valid and reliable tool to use when assessing implementation fidelity. For this reason, most PBIS schools use the Schoolwide Evaluation Tool (SET) as their measure of fidelity with 80% as the measure of high fidelity. Even so, little research has been done to relate implementation fidelity to outcomes for students. The SET has subcategories that are scored as a total percentage of possible earned points. The overall score on the SET is calculated by finding an average of percentage scores from the subcategories when given equal weights to all categories. The SET is one of the only PBIS measures which is not completed by the school PBIS team but is completed by an outside observer (Pas et al. 2019).

The BoQ was created more recently to help lead school PBIS teams in conversations about fidelity. It focuses on 10 core measures and is created as an independent scoring tool that is

then brought back together for group discussion with the PBIS team. With the BoQ, a score of 70% overall is considered high fidelity implementation. While it could benefit to have more than one fidelity measure, the differences in the tools could potentially cause some confusion with the different cutoff points for high fidelity (Pas et al., 2019).

Teacher Training

Teacher training can be divided into two main types: preservice and in-service training. Pre-service training refers to preparation for a career in education that takes place prior to the start of the teaching. These programs are intended to prepare individuals with the skills needed to be successful in the classroom (Phil, 2017). In-service training is any type of training which occurs during service as a teacher from graduation to retirement. These trainings are designed to encourage teachers to continue to develop their professional knowledge as they serve in the field of education (Osamwonyi, 2016).

Preservice Training

Preservice training for educators is typically done through teacher education programs which focus on equipping aspiring teachers with the skills needed to succeed in their careers. These programs develop the content knowledge, outlook, and conduct needed to be an effective educator for the benefit of the students, the school, and the community as a whole. Pre-service training is intended to be done before the teacher candidate reaches the point of having his or her own classroom. These training sessions or courses are taught by teacher educators or trainers who are experts in a domain of education, and they work in many different capacities including university professors, schools, and training organizations (Phil, 2017).

In order for a teacher education program to be effective, Phil (2017) suggests it should provide knowledge, meaningful experience, personalized learning, a sense of community,

opportunities for critical reflection, and growth. Teachers should have extensive knowledge about the content areas in which they are trained to teach. Along with content knowledge comes pedagogical knowledge, including student development and assessment strategies. Meaningful experience should be developed for teacher candidates through opportunities for reflective practices in real-life educational environments. These experiences allow aspiring teachers to engage with mentors for constructive feedback on areas for growth and reinforcement. Teacher preparation programs should also encourage teachers to tailor their instruction to the interests and strengths of their students and provide opportunities for practice in individualizing lessons based on these interests (Phil, 2017).

Another goal of teacher education programs is to build community, which can be done through the establishment of relationships among students, among faculty, and between students and faculty. This educational community can serve as a good resource throughout one's educational career since teachers often learn some of their best resources from one another. Teachers should also be able to critically reflect on diverse issues in education with a respectful response to beliefs different to their own. With the desire to teach comes the commitment to lifelong learning, so preservice programs should instill the desire for continuous learning and professional growth (Phil, 2017).

Preservice teacher education programs have a significant impact on the success of new teachers, and programs that prepare teachers effectively prevent teachers from leaving the education field and ensure students receive the instruction they need. Effective programs help prepare new teachers for challenges, avoid burnout, understand benchmark assessments, and provide supported practice. No amount of training will prepare aspiring teachers for every issue

but addressing as many as possible will increase their confidence to conquer difficulties as they arise, thus preventing the feeling of failure (Phil, 2017).

In-Service Training

While preservice training is designed to prepare teachers before they enter the classroom, Fisher (2003) discusses the skills which were considered developmentally appropriate a decade ago may not be appropriate for today's students. For this reason, it is necessary to provide educators in the field with in-service education opportunities designed to improve the practices of teachers from the beginning of their career to the retirement phase. In order to keep up with the continually changing demands of technology and methodology in the classroom, in-service education should be provided to allow teachers opportunities for growth (Osamwonyi, 2016).

Any activity or course designed to increase the professional knowledge or add to the skill set of an educator can be classified as in-service education as long as it is presented to a teacher who already holds a job within the field of education. Since education is always changing, these continuing education opportunities can replace the need to reenroll in teacher education programs as new content mandates come about (Osamwonyi, 2016). They can also fill in gaps of teachers in the field with weaknesses who need professional growth (Fisher, 2003).

Osamwonyi (2016) gave meaningful rationale for in-service education of teachers that included the lack of preparation in preservice programs, responsiveness to change, and reformation of teacher practices. Regardless of the effectiveness of teacher education programs, no program can prepare a teacher for the classroom like classroom experience of his or her own (Wong et al., 2009). Only after being in the classroom can teachers understand some of their own inadequacies and areas for improvement. With an everchanging society, it is important for teachers to respond to the changes in ways that show their cultural responsiveness to students

and families. It is also important for teachers to take changes back to their own classroom and implement them in ways which alter the curriculum in a positive way (Osamwonyi, 2016).

In-service opportunities present themselves in many different ways and can be categorized into the following groups: institutes, conferences, workshops, staff meetings, committee, professional reading, individual conferences, and visits and demonstrations. Though the settings are different, all of the programs have the same goal: providing teachers with an opportunity to gain professional knowledge that will help them improve their classroom instruction (Osamwonyi, 2016). Regular exposure to in-service will keep teachers from becoming stagnant in their teaching, which can also prevent burnout (Phil, 2017).

Professional Development

Since the largest barrier to implementation in PBIS schools with high fidelity and low fidelity was noted as faculty misconceptions of the programs, research has sought to identify the cause for the misunderstanding (Tyre & Feuerborn, 2017). In one study, the researchers claimed this misunderstanding was from a lack of training for faculty members (Betters-Buon et al., 2016). In many cases, only administrators, special education teachers, and school counselors were receiving direct-training on the implementation of the programs but were tasked with redelivery at the school level. While it does cut down on cost and allow for delivery to be done in smaller groups, the direct training component is gone and the effectiveness of programs is suffering (Betters-Buon et al., 2016).

With effective PBIS training, it is hypothesized teachers could better understand the theology of PBIS and see the benefits in their own classrooms. Through proper training, teachers can also learn to increase instructional time and decrease behavior referrals (Childs et al., 2016).

In the state of Tennessee, teachers must earn 30 professional development points (PDPs) to advance and 60 PDPs to renew a license (Tennessee Department of Education, n.d.).

In a study conducted by Palmer and Noltemeyer (2019), they found the majority of teachers have seen no link between professional development or required trainings to positive changes within their schools regardless of the cost to host the training. Through their study, administrative support, active learning, duration, timing, and coherence are the five most important traits to consider when looking for a positive change within a school. While some training opportunities can be held at the national, state, or district level, the training for new programs should be molded to the specific school in which implementation is taking place. This allows for educators to see the relevance of the work to their own classrooms and provide them with practical ideas for implementation (Palmer & Noltemeyer, 2019).

The presentation of a new program with a vision for improvement should be shared among school faculty. Kouzes and Posner (2017) discussed the role of the administrator in promoting faculty members to buy in to the vision he or she has for the school. The opinion of administrators sets the tone for the attitude of the entire faculty when implementing a new program. Palmer and Noltemeyer (2019) found a correlation between the perception of programs of teachers and administrators meaning when administrators believe a program will be successful, teachers also believe it will be successful. However, the same is true when reversed. With a negative attitude toward a program, teachers will also respond with negativity (Palmer & Noltemeyer, 2019).

Teachers are more apt to learn from active professional development opportunities where activities like discussion, work analyzation, and role play are used than they are from the traditional lecture setting. Mohan et al. (2017) found teachers often learn better from one another

than from a presenter, so opportunities for collaboration are also important. When learning is more meaningful, teachers are more likely to adopt some of the practices learned through training into their own classrooms. Palmer and Noltemeyer (2019) also found programs that were spread out over a span of time were more effective than programs held in a short period of time like a workshop. In order for a new program to be implemented effectively, at least 50 hours of training should occur before expecting teachers to have mastery. The ongoing nature of training also allows teachers to reflect and discuss challenges and successes with other teachers in an effort to improve their own programs (Palmer & Noltemeyer, 2019).

The idea of coherence with what is already being taught in the classroom already is also an important characteristic for teachers. They want to understand how new programs can seamlessly fill gaps without reinventing their entire curriculum. Because of this, coherence should be a factor to consider when developing training programs for teachers. If the training does not align with the academic or behavioral standards followed within the school, it is not applicable for teachers. All effective professional development opportunities should positively impact learning (Mohan et al., 2017). This idea of coherence extends to the vertical alignment between grade levels and expectations for the whole school. The vision of the school comes to fruition when all faculty members have the same standard for excellence (Palmer & Noltemeyer, 2019).

Effectiveness of professional development is also impacted by the time of year the training occurs. For teachers, the best time to deliver training for new programs is in the week of in-service prior to school opening (Palmer & Noltemeyer, 2019). Teachers have had a break at this point and are looking forward to improving their instruction and practices for a new school year, and many are seeking out something new. Training done at the beginning of the year also

allows for a quicker transition from training to the classroom, so much of the information delivered is retained (Palmer & Noltemeyer, 2019).

Taking these five factors recognized by Palmer and Noltemeyer (2019) for successful training into account, training opportunities for PBIS could be changed to better prepare teachers. With these changes, the findings of McDaniel et al. (2017) on low preparation for teachers implementing new programs would be void because teachers would have adequate preparation before implementing PBIS. Teachers want to feel supported with behavioral concerns in the classroom, and 64% of teachers feel the need for more training on the topic. Many teachers feel unprepared to implement new programs such as PBIS due to lack of direct training. While administrators and teachers who deal specifically with students who have behavioral disorders have training, many general education teachers are going unnoticed (Betters-Buon et al., 2016).

Kyndt et al. (2016) found new teachers respond well to learning about new techniques for behavior intervention, but experienced teachers were more likely to want to learn more about teaching practices. They also noted less-experienced teachers have a positive outlook on change in the classroom while teachers with more experience are hesitant. While many things in education are only learned through immersion, some formal training is still necessary for successful implementation of new practices (Kyndt et al., 2016).

Phases of PBIS Implementation

The National Technical Assistance Center on PBIS was founded by the Special Education Programs Department of the U.S. Department of Education in 1997. The goal of the center is to use practices rooted in evidence to prevent negative behaviors, improve school climate, and reduce the risk for students who may typically fall into categories for displaying

problematic behaviors. The factors identified by the NTAC as necessary for implementation are data-driven decisions, cooperative coordination for implementation, fidelity of implementation, continual evidence-based decisions, progress monitoring, and regular universal screening. The training materials provided on the PBIS website, www.pbis.org, are provided by the NTAC and recommend following the blueprint discussed in this section (Lewis et al., 2016).

Establish an Effective Professional Development System

At the forefront of school-level professional development lies a district level leadership team focused creating professional development activities that generate measurable outcomes for students and for implementation fidelity. In making the goals measurable, teachers are less likely to give up from fear of becoming overwhelmed. As a district team, it is also their responsibility to assess the current implementation progress of PBIS across the district and anticipate resources and personnel already on hand that could be utilized for PBIS coaching positions (Lewis et al., 2016). The typical training model for education is to sit through a training delivered by an "expert" in the field and then be provided with follow-up support on the subject matter (Guskey, 2000). PBIS training does not follow this particular model but includes educators within a school district who are already successfully implementing PBIS and uses their expertise to deliver quality training to others (Lewis et al., 2016).

Positive Behavior Intervention Supports should be provided through three different levels: a district coordinator, trainers, and coaches who can be internal or external. District coordinators are responsible for facilitating cohort groups across the district and supportting them with trainers and events aligned with PBIS expectations. Trainers should be fluent with the design and intent behind PBIS in addition to possessing presentation skills. Training should be

clearly organized and include measurable goals for schools to focus on to make implementation manageable.

Coaching positions are filled by personnel already employed by the school system like psychologists, special education teachers, or counselors. While both types of coaching are done by people employed by the school system, external coaches do not work in the specific school implementing the PBIS program whereas internal coaches do. External coaches often have expertise in using PBIS programs, but they do not have a daily role in the building. They may be a familiar face to students and faculty, and they provide support by attending school and district team meetings, assisting with developing expectations, and analyzing SET data to determine next steps. Internal coaches are members of the school staff who do not have classroom teaching responsibilities and can work in conjunction with the district PBIS team to be a voice for the school. It is the job of the internal coach to allocate funding appropriately for PBIS resources like personnel, professional development events, and data systems (Lewis et al., 2016). The leadership team is also responsible for determining the time of PBIS training. According to Palmer and Noltemeyer (2019), the best time for training to occur is in the week prior to school starting and then ongoing throughout the school year. These days will be built into the calendar by the district team (Lewis et al., 2016).

In an effort to achieve two goals at once, the district improvement plan should be used as a guide when determining the goals of PBIS (Lewis et al., 2016). For example, if one of the district goals is to improve the number of ODRs by 2%, one of the PBIS goals could specifically target ODRs which Childs et al. (2016) found to be a benefit of PBIS. By creating consistency in the improvement plan and PBIS action plan, all of the goals can be aligned to produce the same measurable results. To assess the effectiveness of the plan, the school team should evaluate for

mastery and student outcomes yearly. Based on the data, adjustments to the program in upcoming years can be made to improve the program's effectiveness (Lewis et al., 2016).

Decide on Core Content

The focus of professional development in districts beginning to implement Positive Behavior Intervention Supports should be on developing core knowledge of PBIS systems. The exploration phase should discuss the features of PBIS, the rationale for implementing PBIS within the district, and the commitment of the district and school to implementing with fidelity with a goal of obtaining an 80% commitment rate of all staff within the school. After the goals from the exploration phase are met, the implementation phase can begin. Measurable outcomes are used to measure readiness to move on to the next phase (Lewis et al., 2016).

In the blueprints provided by the NTAC, the training content, supporting materials, and team outcomes are included for the exploration/readiness phase and the implementation/installation-through-sustainability phase. Each tier has its own blueprint, and a team is formed for each of the tiers depending on the personnel involved with the students in each tier. Connections between the tiers are made, and ties to state and local curriculum are used when available. Other school staff who can support PBIS implementation, such as cafeteria workers, office personnel, and janitorial staff, should also be considered in training (Lewis et al., 2016).

Develop Key Skill Sets

In order to reach the full capabilities of training within a district, it is essential to understand the knowledge base of PBIS trainers and coaches to see where more training is still needed. These trainers and coaches are responsible for delivering PBIS content to school PBIS teams and faculty in order to provide expert advice, guidance, and opinions on how to best to

implement practices in their schools to achieve their anticipated outcomes. The NTAC blueprints contain the content knowledge of the trainers and coaches, the tools and materials used as a guide, and the team outcomes anticipated as a result of the coach and trainer skills (Lewis et al., 2016).

Monitor and Evaluate

The last step to think about when creating a plan for PBIS implementation is monitoring and evaluating the impact of the system within the school. Based on the blueprints developed through the professional development plan, the team will have identified some resources that will be useful for determining next steps. Modifications to the current PBIS plan are made based on measurable student outcomes, and evaluations are conducted periodically throughout the duration of PBIS usage (Lewis et al., 2016).

State and Regional Supports

Since Positive Behavior Intervention Supports are not a one-size-fits-all program, training procedures are intended to be specific to the district or school they support. Similarly, state and regional professional development can utilize a similar method when developing their system for training teams to support local teams. The focus of state and regional leadership teams should be to provide continuous support to local districts while leaving the job of training individual schools to district- and school-level leadership (Lewis et al., 2016). Palmer and Noltemeyer (2019) discuss ongoing support as one of the most important factors for successful professional development. By delegating support to district- and school-level teams, state leadership teams can create a greater impact across the state by freeing up their own time and empowering other leaders. No one knows a school better than its own leadership team, so

training should help them target areas of weakness specific to the needs of the school (Lewis et al., 2016).

Ideally, districts could self-sustain professional development efforts by utilizing personnel and other resources already available to them without having to rely on others. However, this idea is often not realistic for many districts. Just as PBIS does not have a blanket fix for everyone, districts solve these problems in various ways, such as seeking help from professionals outside the education realm, turning to neighboring districts, or seeking higher-level resources from the state for professional development.

Goals of the NTAC Blueprint

The goal of the documents released by the NTAC for helping schools create meaningful professional development for PBIS is to develop a program that will reach high implementation fidelity, thus improving student behavior and providing more time for academic instruction (Lewis et al., 2016). In order to meet this goal, the blueprint was created as a set of guidelines rather than a script to follow. The focus of training should revolve around measurable outcomes for students, and the different phases of implementation should not be entered into until at least 80% mastery is reached in the previous phase. Also highlighted in the blueprint is the need for continual self-assessment to guide future planning, professional development, and instruction. In doing these things and aligning them to district and school improvement plans, cohesiveness between multiple programs can be achieved (Lewis et al., 2016).

Summary

With behavioral incidents on the rise since the 1990s (Melekoglu et al., 2017), over 26,000 schools have turned to Positive Behavior Intervention Supports (PBIS) for disciplinary support (George, 2018). Though many benefits of PBIS are rooted in evidence, many teachers

are still hesitant to adopt PBIS programs. Tyre and Feuerborn (2017) determined this hesitation to stem from misunderstandings and a lack of administrative support with PBIS implementation. Since PBIS training is conducted in a manner that is specific to a district or school, it allows flexibility to target specific needs, but it also places accountability on the school to provide ongoing, measurable training for all involved parties to make PBIS effective. While there is a large body of literature on both PBIS and professional development, little research exists on the correlation between the implementation fidelity of PBIS programs and teacher perceptions of the programs. Through this study, this gap in research was addressed.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs and time spent implementing the program. This chapter includes the design, research questions, hypotheses, participants and setting, instrumentation, procedures, and data analysis.

Design

This study used a quantitative predictive correlational design to examine the relationship between the implementation fidelity of PBIS and teacher perception of the programs. Since this study used numerical data collected from surveys, a quantitative method was appropriate. Prediction studies are conducted with the intent of identifying variables which foresee successes of another (Gall et al., 2007). In this particular study, a regression analysis was conducted because one variable was hypothesized to be predicted by the other (Tabachnick & Fidell, 2020). In this study, the effectiveness of PBIS programs was analyzed to examine its effects on teacher perception of the programs, so a predictive study between the variables was appropriate. A predictive design was also applicable because little evidence about the relationship exists in prior research and this particular method helped contribute to fill a gap in the literature.

In this study, the predictor variable was effectiveness of PBIS, and the criterion variable was teacher perception of PBIS. Effectiveness of PBIS is defined by the degree of fidelity to which the implementation of PBIS programs is being followed with a focus on training procedures for faculty and staff (Childs et al., 2010). Teacher training is required by the Tennessee Department of Education (n.d.), and Palmer and Noltemeyer (2019) found several

variables that are related to the effectiveness of professional development and training programs in general, not specifically as they relate to PBIS.

The criterion variable was teacher perception, which refers to the negative or positive connotation possessed by teachers about the effectiveness of PBIS programs. Vancel et al. (2016) identified a negative perception surrounding PBIS implementation due to misunderstanding. After determining whether a relationship exists between the two variables, the researcher will determine the directionality and magnitude of the relationship (Cohen et al., 2013). When examining the relationship, or correlation, between two variables, three types of relationships can exist. If both variables increase or if both decrease, then a positive relationship is said to exist between the two. If one variable increases and the other decreases, then a negative relationship exists between the variables. If the increase or decrease of one variable does not impact the other variable, then no relationship exists between the two (Cohen et al., 2013). Values range between +1.00 and -1.00 with values close to .00 representing no correlation between the two variables, hence no relationship. Values close to +1.00 represent a positive relationship, and values close to -1.00 represent a negative relationship. Pearson's *r* is the most commonly used measure for association and is independent of measurement and sample size (Tabachnick & Fidell, 2020).

Prior studies on PBIS have taken various design types, but some of them also used multiple regression approaches to understand the relationships between variables. Molloy et al. (2013) analyzed the predictive relationship between characteristics of school PBIS implementation and the quality of expectations taught, reward systems, and violation systems and found the most effective programs were implemented with high quality across all active PBIS ingredients. Additionally, Coffey and Horner (2012) looked at the predictive relationship

between administrative support, communication, and data-based decision making with sustainability of PBIS systems and found systems to be more sustainable when they had both administrative support and data informed decisions. When looking at education programs, Henry et al. (2013) looked at the relationship between the grades made and the number of courses taken in each subject and compared that to recent graduate's teacher's value-added scores during their first year of teaching in order to determine a predictive relationship. A positive association between the two was found.

Research Questions

This quantitative predictive correlational study answered the following research questions:

RQ1: Is there a significant predictive relationship between the effectiveness of PBIS implementation scores and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

RQ2: Is there a significant predictive relationship between the amount of time implementing PBIS and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

Hypotheses

The null hypothesis for this study was:

$H_0$1: There is no significant predictive relationship between the effectiveness of PBIS implementation, as measured by the BoQ, and teacher perception of PBIS, as measured by Teacher Perceptions of Positive Behavior Intervention Support Survey (Thornton, 2012*),* in rural schools implementing positive behavior intervention support systems.

The predictor variable, effectiveness of PBIS, was assessed using the BoQ (Childs et al., 2010). The criterion variable, teacher perception, was assessed using the Teacher Perceptions of Positive Behavior Intervention Support Survey.

$H_0$2: There is no significant predictive relationship between the amount of time a school has implemented PBIS and teacher perception of PBIS, as measured by Teacher Perceptions of Positive Behavior Intervention Support Survey, in rural schools implementing positive behavior intervention support systems.

The predictor variable, amount of time implementing PBIS, was collected through demographic information of the Teacher Perceptions of Positive Behavior Intervention Support Survey. The criterion variable, teacher perception, was assessed using the Teacher Perceptions of Positive Behavior Intervention Support Survey.

Participants and Setting

The participants for this study were recruited using nonprobability purposeful criterion-based sampling of elementary, middle, and high school teachers in a rural school district in Northeast Tennessee during the 2020-2021 school year. Convenience sampling is a type of nonprobability sampling that is convenient to the researcher (Lavrakas, 2008). It was appropriate because the researcher was an employee of the district sampled, which was not revealed to the participants. The district has 664 teachers, which was hoped to provide a large sample size. A large sample size improves the external validity of the study by increasing accuracy and eliminating any outliers (Zamboni, 2010). Warner (2013) suggested having a study with a sample size of at least N=100 in order to have statistical power and to contain enough information to satisfy assumptions made. All teachers in the district were invited to participate, but participation in the study was optional. An email was sent via Liberty University email to the

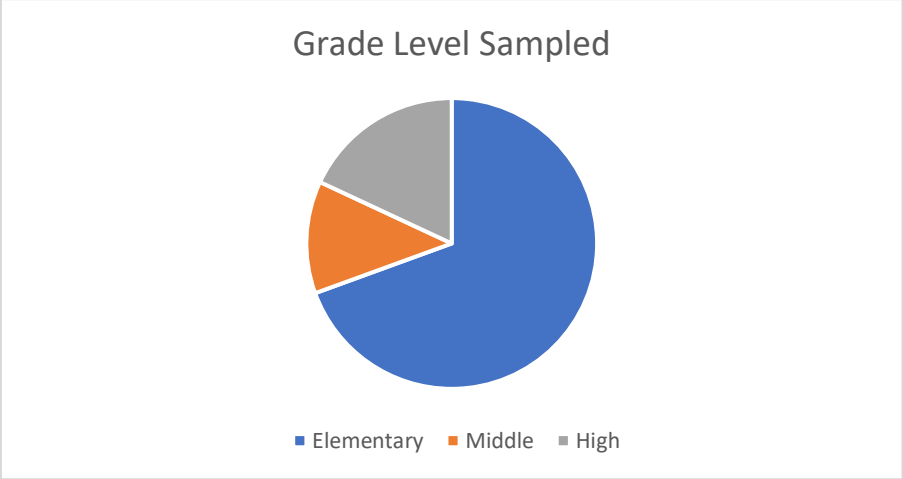
director of schools for approval, and it was then sent from the director's office to the rest of the district. A statistical significance of .025 was used by the researcher to determine the significance of the data, and the null hypothesis was rejected due to a Bonferroni correction of $p<.03$ (Warner, 2013).

The population was a rural public-school system in Northeast Tennessee. The population from which the sample was taken has seven elementary schools, four K-8 schools, five middle schools, and four high schools which serve over 9,500 students (Sullivan County Schools, n.d.). The district houses 39 administrators, 664 classroom teachers, and 59 additional employees including counselors, instructional coaches, and librarians (Tennessee Department of Education, n. d.). According to the report card produced by the Tennessee Department of Education (n.d.), 94.6% of the students in the district identified as Caucasian. Other nationalities represented include Hispanic (2.1%), Black or African American (2%), Asian (0.7%), Native American (0.4%), and Pacific Islander (0.1%). The report card also revealed 35.2% of students on free and reduced lunch and 17.4% of students receiving some form of special education services.

The sample size for this study was 72 which met the recommendation by Gall et al. (2007) of $N=66$ for a medium effect size with a statistical power of .7 at the .05 alpha level for the correlation coefficient (r). The sample consisted of 50 elementary school teachers, nine middle school teachers, and 13 high school teachers from 11 elementary schools, seven middle schools, and four high schools within the district. This information is displayed in Figure 1 below. The age range of teachers surveyed was from 22 to 64 with the mean age being 36.5. Males comprised 15.3% of the sample with the remaining 84.7% being female.

Figure 1

Pie Chart of Grade Level Demographics Sampled



All data from the survey were collected remotely using an online version of the instrument. No specific data collection site was necessary, and the researcher was able to work remotely. PBIS was adopted in the district after a push to attend the Ron Clark Academy for professional development in 2015. It began in elementary schools but trickled into high schools afterward. Much of the training done was given only to guidance counselors, administrators, and special education teachers, and they returned to deliver training to general education teachers. The redelivery was not always up to par with the initial training and left gaps in teacher knowledge of the programs. Focus in the district was placed on tier I implementation, and full tertiary implementation, meaning implementation of all three tiers for behavior intervention, was not reached at all schools.

Instrumentation

Since no instrument included both the teacher training piece and teacher perceptions of PBIS, the researcher found the BoQ (Childs et al., 2010) and the Teacher Perceptions of Positive Behavior Intervention Support Survey to be appropriate to measure the predictive relationship

between teacher training on PBIS and teacher perception of PBIS programs. The BoQ measured the implementation fidelity of tier 1 PBIS programs, while the Teacher Perceptions of PBIS Survey measured teacher perception. Both of the tools are used to assess schools implementing PBIS. The BoQ survey assesses the fidelity of PBIS implementation and helps identify strengths and weaknesses of PBIS programs within individual schools (PBIS Apps, n.d.). The Teacher Perceptions of Positive Behavior Intervention Support Survey is used to assess teacher perceptions of PBIS programs (Thornton, 2012).

The surveys were merged into a single Google form containing the questions from the original instruments, but the contents were not altered. The BoQ was contained in part 1 of the survey, and the Teacher Perceptions of PBIS Survey was contained in part 2. A demographics section to assess the demographics of each participant was also included in part 3.

Benchmarks of Quality (BoQ)

The BoQ contains 53 items that are rated on a 3-point to 0-point scale (Cohen et al., 2007), with a rating of 0 interpreted as does not happen and a rating of 3 interpreted as this always happens. The items included in the rubric are organized by 10 critical elements identified for successful PBIS implementation and are scored independently and holistically. The lowest score one can give on the BoQ is 0 with the highest score being 107. A low score is interpreted as implementation with low fidelity. A high score is interpreted as implementation with high fidelity. Team members complete the BoQ individually, and then results are compiled to give an unbiased score and produce constructive feedback for schools.

The BoQ was developed to identify areas of success and areas for improvement with tier 1 implementation of PBIS. The tool is used as a coaching mechanism to give schools an idea of the successes and weaknesses of their PBIS systems. The specific focus for this study was on

PBIS training, implementation, and ongoing support questions. Cohen et al. (2007) developed the instrument. The 10 critical elements of the instrument are as follows: PBIS team, faculty commitment, effective procedures for dealing with discipline, data entry and analysis plan established, expectations and rules developed, reward recognition program established, lesson plans for teaching expectations/rules, implementation plan, classroom systems, and evaluation.

The BoQ has an overall Cronbach's coefficient alpha of 0.96 (subscale range of .43 to .87) demonstrating strong internal consistency reliability among items in the instrument (Cohen et al., 2007). Moderate concurrent validity (r=0.51) was found with the School-wide Evaluation Tool (SET) (Thornton, 2012), an instrument designed to evaluate the components of school-wide behavior supports yearly. Based on the results, the BoQ was found to be an appropriate instrument for measuring fidelity of tier 1 PBIS implementation in schools (Cohen et al., 2007).

The BoQ was administered to participants in this study via Google Forms and took approximately 20 minutes to complete. Previous studies have also used this instrument for data collection when researching fidelity with PBIS programs (see, for example, Kittelman et al., 2019; Noltemeyer et al., 2016; Mcintosh et al., 2018). A 70% total score is required for meeting the threshold of fidelity (Cohen et al., 2007).

Teacher Perceptions of Positive Behavior Intervention Support Survey

The Teacher Perceptions of PBIS Survey was created by Thornton (2012) to gather information about teacher perception of PBIS programs. The survey was tested for validity and reliability in a pilot study. The data from the pilot test were then inputted into SSPS software, and the data were vetted by a panel of experts to determine the validity (Thornton, 2012). Based on the findings, it was determined to be valid for research. The Cronbach alpha internal consistency reliability coefficient was found to have a level of .88 in the pilot study and .80 in

the research study (Thornton, 2012). Since the level was above .70, the instrument has strong internal reliability among items. The survey has three parts: a demographic section, a section with questions about the perception of PBIS, and a section about the most successful PBIS strategy (Thornton, 2012).

The second section, which contains 24 questions, will be used for this study, and teacher perceptions are rated on a Likert-style scale of 1 to 5 with 1 = *None*, 2 = *Very Little*, 3 = *Some*, 4 = *Quite a Bit*, or 5 = *A Lot*. On one subsection, the scale is 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, or 5 = *Strongly Agree*. Scores range from 24-120 with a lower score relating to a negative perception of PBIS and a higher score relating to a positive perception of PBIS. The survey requires 10-15 minutes to complete.

Procedures

Prior to the study, the researcher contacted the superintendent of the school district for permission to survey teachers and conduct the study. The researcher then obtained institutional review board (IRB) approval from Liberty University. See appendix A for the IRB approval letter. Surveys were then sent to participants from the researcher's Liberty University email account to the district email platform to all teachers and administrators asking for participation via Google Forms. The district central office then forwarded the email via district email to facilitate the research study. The survey was embedded in the email using Google Forms. In an effort to maintain confidentiality, names and email addresses of participants were not collected. Results from individual surveys were not shared with administration at the school or district level, but the collective findings were shared in the final reporting of the study.

The email sent to participants from the researcher can be found in appendix B. The survey was live for three weeks following the initial email. At the beginning of each week, a

reminder email was sent out with another link to the survey urging teachers and administrators to complete the survey if they had not already. While all teachers and administrators are encouraged to participate, it is optional, so teachers may decline the invitation. However, an incentive was provided to encourage participation. Implied consent was used. Subject participation indicated their consent. The data from the Google Form was automatically recorded into a Google Sheet, which allowed the researcher to further examine it. The data collected from the surveys was then analyzed using the SPSS (Statistical Package for the Social Sciences) Version 28 software for data analysis.

Data Analysis

A bivariate linear regression was used to examine the relationship between effectiveness of PBIS programs, measured by the BoQ, and teacher perception of the programs, as measured by the Teacher Perceptions of PBIS survey, for both research questions. Gall et al. (2007) supports the selection of bivariate correlational analysis because the researcher was analyzing the magnitude of the relationship between two variables. A bivariate regression analysis generates a prediction between the raw scores of an *X* variable, known as the predictor, and the raw scores of a *Y* variable, or the criterion variable. In this case, the regression will consider two factors (1) effectiveness as measured by the BoQ and (2) perceptions as measured by the Teacher Perceptions of PBIS survey. Like Pearson's *r*, bivariate regression assumes a linear relationship exists between *Y* and *X*, meaning the value of *Y* could be predicted using a function of *X* (Warner, 2013). Therefore, the relationship between teacher effectiveness of Positive Behavior Intervention Supports (PBIS) based on implementation fidelity and teacher perceptions of the programs was appropriately determined by this type of analysis.

Data Screening and Assumption

Prior to analyzing data, data screening was conducted. Visual screening of the data to check for missing data points and inaccuracies in the data was done first. The assumption of bivariate outliers was tested using a scatter plot to determine the relationship between the predictor variables (x) and criterion variable (y). The scatterplot also identified any extreme bivariate outliers. The assumption of linearity was also tested using a scatterplot. The assumption of bivariate normal distribution was met when the relationship between predictor variables (x) and criterion variable (y) create a "cigar shape" within the scatterplot generated from results.

Bivariate Linear Regression

The descriptive statistics of mean, median, and standard deviation of the variables were also reported. After all assumption tests were met, bivariate linear regressions were conducted on the variables for each null hypothesis. The effect size for bivariate regression is Pearson's *r* (r^2) between the predictor and outcome variables (Warner, 2013). Pearson's *r* is measured on a scale of -1.0 to +1.0. An effect size of at least 0.022 was needed to show a medium effect size in the predictive relationship between teacher training and teacher perception of PBIS programs. An effect size of .010 or smaller does not rule out a predictive relationship, but it does require more attention to the data for the effect to be noteworthy (Warner, 2013). SPSS software was used to conduct all data analysis. To limit the effects of type 1 error, a Bonferroni correction was needed in this study since two tests of significance were run (Warner, 2013). The typical alpha level for *p* of $p<0.05$ was divided by two, since two tests of significance were planned, so the alpha level for p was $p<0.03$ in this study (Warner, 2013).

CHAPTER FOUR: DATA ANALYSIS

Overview

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. There were two research questions that directed this study. Each question was examined using a bivariate linear regression. Descriptive statistics and an examination of each research question and hypothesis are discussed in this chapter.

Research Questions

RQ1: Is there a significant predictive relationship between the effectiveness of PBIS implementation and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

RQ2: Is there a significant predictive relationship between the amount of time a school has implemented PBIS and teacher perception of PBIS in rural schools implementing positive behavior intervention support systems?

Null Hypotheses

$H_0$1: There is no significant predictive relationship between the effectiveness of PBIS implementation, as measured by the BoQ, and teacher perception of PBIS, as measured by the Teacher Perceptions of Positive Behavior Intervention Support Survey, in rural schools implementing positive behavior intervention support systems.

$H_0$2: There is no significant predictive relationship between the amount of time a school has implemented PBIS and teacher perception of PBIS, as measured by the Teacher Perceptions

of Positive Behavior Intervention Support Survey, in rural schools implementing positive behavior intervention support systems.

Descriptive Statistics

The participants in this study consisted of 72 teachers from a rural school district in Northeast Tennessee. Table 1 displays the descriptive statistics for the effectiveness of PBIS programs, as determined by implementation fidelity of the BoQ and teacher perception of PBIS programs, as measured by the Teacher Perceptions of Positive Behavior Intervention Support Survey. The survey used a Likert-style scale to assess teacher rating of the questions with a rating of 1 being *strongly disagree* to a rating of 5 being *strongly agree*. All participants completed the survey, and no data were excluded from analysis. Table 1 includes a summary of participant scores for each set of questions.

Table 1

Variables Descriptive Statistics

Variable	Minimum	Maximum	Mean	Median	*SD*
Effectiveness	42.00	90.00	73.53	77.00	11.99
Perception	24.00	120.00	67.75	68.00	16.77

Results

Data Screening

Data screening was conducted prior to running the tests. The researcher examined the data for missing data points and inconsistencies in the data. No errors in the data were identified, so no data were excluded from testing.

Assumption Test

Warner (2013) suggested the distribution of scores in data must be similar to a normal distribution in order for means, correlations, and other parametric measures to be used. Bivariate linear regression is required to meet the assumption of bivariate outliers, the assumption of linearity, and the assumption of bivariate normal distribution. In order to test these assumptions, a scatterplot was created for the pairs of variables in this study. By examining each scatterplot (see Figures 2 and 3), the assumption of linearity and the assumption of bivariate outliers were met for both null hypotheses. The assumption of bivariate normal distribution was also met due to the cigar shape of the data points shown in the scatterplots.

Figure 2

Scatter Plot of Effectiveness of Implementation and Perception Survey Scores

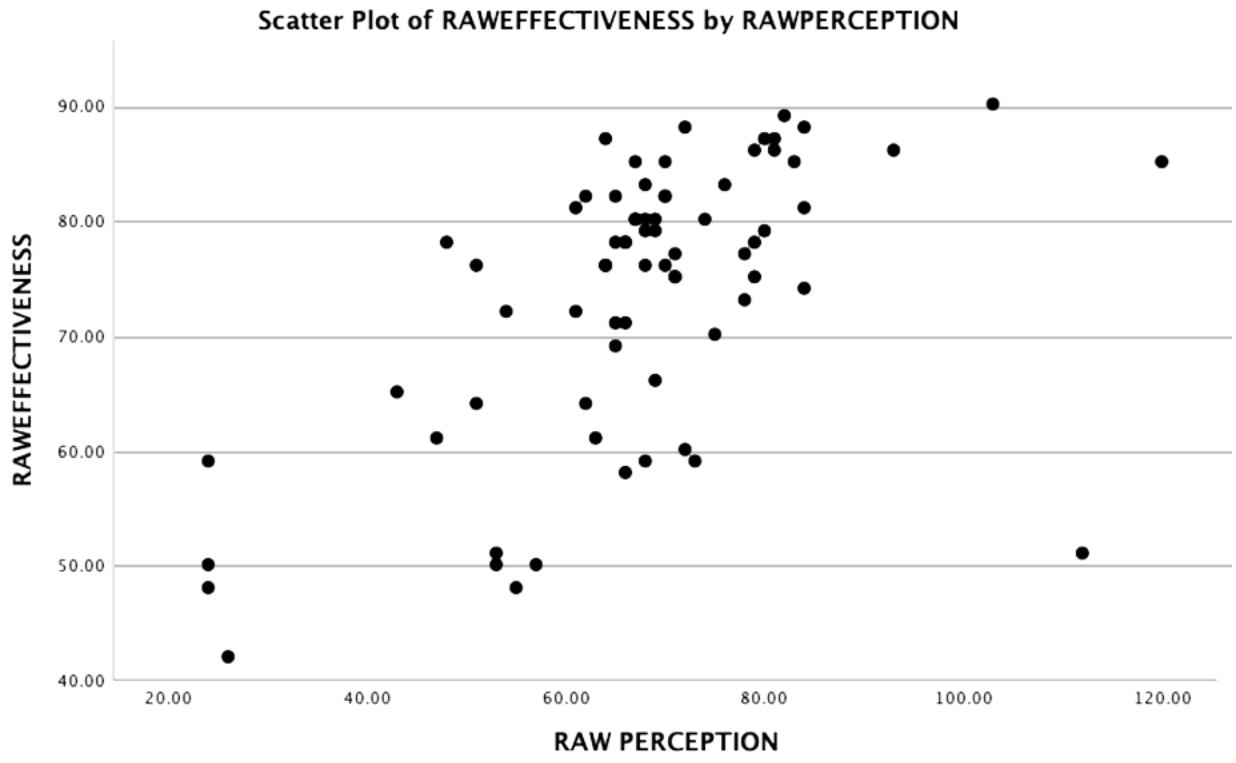
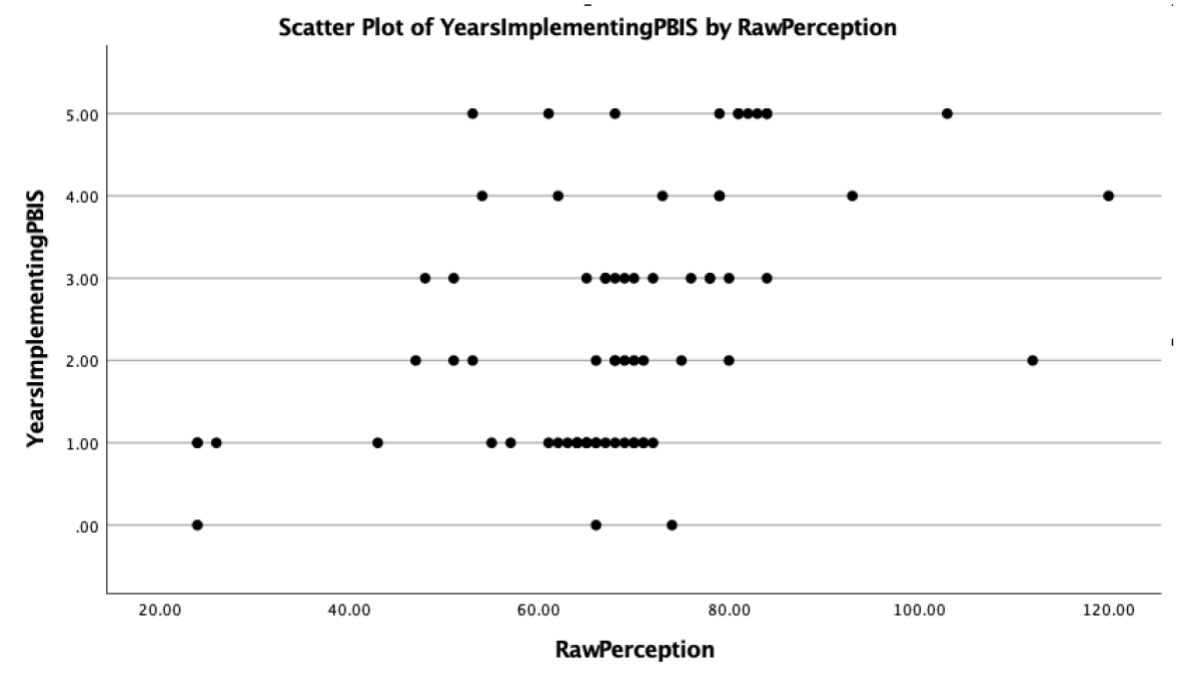


Figure 3

Scatter Plot of Time Spent Implementing PBIS vs. Teacher Perception



Null Hypothesis One

Bivariate Linear Regression

A bivariate linear regression was conducted to determine if a significant predictive relationship existed between effectiveness of PBIS programs and teachers' perceptions of PBIS programs. The data were taken from surveys administered to 72 teachers in a rural school district in Northeast Tennessee. For each participant, questions pertaining to the effectiveness of PBIS programs generated a score ranging from 0-107 points, and questions pertaining to teacher perceptions of PBIS obtained a summed score ranging from 24-120.

For the effectiveness variable, scores were closer to the high end of the scale, suggesting a high level of effectiveness of PBIS programs in most schools where teachers surveyed are

employed. For the teacher perception variable, scores were close to the middle of the scale, suggesting the presence of both positive and negative perceptions. A positive predictive correlation between the two variables in the collected data was found; Pearson's $r = .56$, $F = 32.09$, $p < .001$ (see Table 2). The r^2 was .32, meaning 32% of the variance of teacher perceptions of PBIS programs could be explained by the variance associated with the effectiveness of PBIS programs.

Table 2

ANOVA for Effectiveness vs. Perception

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	3209.94	1	3209.94	32.09	<.001
Residual	7002.01	70	100.03		
Total	10211.944	71			

The results from the regression analysis show the effectiveness of PBIS programs do have a small correlation with teacher perceptions of PBIS programs. The results are shown in a scatterplot with a line of best fit below (see Figure 2). Given the results, the null hypothesis for RQ1 was rejected.

Null Hypothesis Two

Bivariate Linear Regression

Assumption testing was conducted and met all assumptions as seen in Figure 3. A bivariate linear regression was conducted to determine if a relationship exists between the amount of time in years a school has been implementing positive behavior intervention support systems and teacher perceptions of PBIS. In the demographic section of the survey, data was collected on how many years teachers had been implementing PBIS at their schools ranging from 0-5+. Once again, questions related to teacher perceptions of PBIS ranged from 24-120. A

significant predictive relationship between the two variables was found, $r = .398$, $F = 12.95$, $p < .001$ (see Table 3).

Table 3

ANOVA for Perception vs. Time in Years

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	29.52	1	29.52	12.95	<.001
Residual	157.27	69	2.28		
Total	186.79	70			

Teacher perceptions of PBIS programs did positively correlate with the amount of time teachers have spent implementing PBIS programs. Given the results, the null hypothesis for RQ2 was rejected.

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. In this chapter, a discussion of the data analysis, implications, limitations, and recommendations for future research are included. The data analyzed in this study were collected from teachers in a school district in Northeast Tennessee.

Discussion

The purpose of this quantitative predictive correlational study was to examine the relationship between the fidelity of PBIS implementation, teacher perceived effectiveness of the programs, and time spent implementing the program. The relationship was examined by analyzing data collected from an online survey that focused on the effectiveness of PBIS programs and teacher perceptions on PBIS. The collected data provided a greater understanding of the relationship that exists between the effectiveness of PBIS programs and teacher perceptions of these programs. The body of literature included in this discussion represents the literature with a link to PBIS and teacher perception. The study examined the following research questions:

Effectiveness of PBIS Implementation

It was determined by the researcher there is a significant predictive relationship between the effectiveness of PBIS implementation and teacher perception of PBIS in rural elementary schools implementing positive behavior intervention support systems. After analyzing the data, the researcher found a statistically significant predictive relationship ($r = .56$, $p < .001$) between

the effectiveness of PBIS implementation and teacher perception of PBIS programs, meaning as the effectiveness of programs increases, teachers' perceptions also increase.

In the literature review, the benefits of PBIS programs were shown to positively impact school environments (Childs et al., 2016). Since public education was created to give all students an equitable chance at a free education despite their background, students come from all walks of life (OSEP Technical Assistance Center, 2019). Positive Behavior Intervention Supports were created to address the behavioral needs of all students, including the ones who qualified through IDEA (Betters-Buon et al., 2016). An improvement in student behavior, a decrease in bullying occurrences, a decrease in citations for drug possession, and a decrease in disciplinary proceedings were all cited by the OSEP Technical Assistance Center (2019) as benefits experienced by schools implementing PBIS. Mental health was also positively impacted by PBIS usage. By improving these aspects of PBIS through improving fidelity of implementation, teachers will start seeing the benefits of PBIS programs which will lead to improved perceptions of the programs.

Schools also saw an improved sense of self-worth in teachers who were effectively implementing PBIS programs, which also supports the findings of the current research study (Childs et al., 2016). A positive self-efficacy is also largely supported by research to impact the extent to which teachers believe their influence can impact student learning and achievement (Tschannen-Moran, 2014). In addition to eliminating negative behaviors, PBIS encourages positive behaviors in students by reinforcing these behaviors in the classroom (Walker et al., 2017). When teachers are aware of this positive change, they are more confident with their ability to keep students on task in the classroom, which can also lead to a positive perception of PBIS programs (OSEP Technical Assistance Center, 2019).

Theoretically, a decreased amount of time solving disciplinary issues can lead to an increased amount of instructional time in the classroom (Gage et al., 2013). Realistically, just because time is increased does not mean the quality of instruction in the classroom will. However, increasing instructional time can definitely be step 1, and the improved instructional practices can come later through improved professional development in specific math and literacy deficits.

Time Spent Implementing PBIS

The researcher found a significant predictive relationship does exist between the amount of time a rural elementary school has implemented PBIS and teacher perception of positive behavior intervention support systems. According to Horner effective PBIS systems were ones that were rooted in sustainability, quality, and cultural responsiveness to students of all cultures (Stonemeier, 2016). Since sustainability, or the ability to keep up the program over a long period of time, was found to be a variable for effective PBIS systems, the data from this research question logically supports the research from the literature review. In the first research question, effectiveness was positively correlated with teacher perceptions of PBIS programs. Thus, if programs are sustainable, teachers are more likely to have positive perceptions of the programs. In order for PBIS systems to work effectively, the OSEP Technical Assistance Center (2019) suggests the same goals of sustainability and longevity. With these goals at the forefront of development, Childs et al. (2016) suggest teacher self-worth could improve. Teacher buy-in was also cited by Scaletta and Tejero Hughes (2021) as a factor that develops further over time as the longevity of a program continues. This supports the findings of research question 2.

In theory, PBIS systems work seamlessly, but the real-world implementation often looks much different. Because of a lack of resources, Molloy et al. (2013) claimed schools change the

programs to better match the availability of resources in the district. Since the modifications are leaving out many of the key components of the programs, they are altering the program fidelity. If the program is not followed with fidelity, Domitrovich and Greenberg (2000) suggest it can decrease the effectiveness of the program by half of the typical effect size.

Through PBIS, students who struggled with behavioral concerns were conditioned to alter their behaviors based on the antecedent prior to the behavior (Parkay et al., 2014). Additionally, teachers want to see how new programs will benefit them in their classrooms before they jump into implementation (Tyre & Feuerborn, 2017). Perhaps the same behavioral conditioning could be applied to teachers to help them see the benefits of PBIS. If schools change the training programs that happen before the program is implemented, the resulting perception of the program may produce a different outcome. With the help of administrators, a climate where positivity toward positive behavior interventions and supports and other new initiatives could be developed if teachers were given time to receive the proper training and implementation (Riordan et al., 2016).

Implications

The findings of this study contribute to the existing knowledge about Positive Behavior Intervention Supports and potentially improve the training procedures in place before implementation, specifically as they relate to program fidelity, thus improving effectiveness of the programs. The researcher found perceived effectiveness of PBIS programs have a predictive correlation with teachers' perceptions of PBIS programs. The researcher also found a predictive correlation between the amount of time a school has been implementing a PBIS program and teachers' perceptions of the programs.

The results from the study supported the classroom implications of the discussed literature in chapter 2. According to Tyre and Feuerborn (2017), in order for teachers to implement a program effectively in their classrooms, they first have to buy in to the program. Scaletta and Tejero Hughes (2021) discussed the nature of buy-in building as the programs continue, which would also support the research findings from the second research question. Research supported the relationship between effectiveness of programs and teacher perception, which also inferred a link with buy-in. In chapter 3, effectiveness of PBIS is defined by the degree of fidelity to which the implementation of PBIS programs is being followed with a focus on training procedures for faculty and staff (Childs et al., 2010). Therefore, the BoQ served as an appropriate measure of effectiveness for this study. Additionally, Vancel et al. (2016) cited a negative teacher perception surrounding PBIS because of educator misunderstanding of the programs. The current study supported this claim also since a low level of effectiveness in PBIS programs was linked to a low teacher perception of PBIS. While the names of the schools have been redacted, the high schools in the study had the lowest BoQ scores, the middle schools had the second lowest, and the elementary schools had the highest overall BoQ scores.

Teachers attitudes toward PBIS programs were distributed across the scale, but the majority of teachers revealed a positive attitude toward PBIS. The same is to be said about the effectiveness of the PBIS framework implemented in schools. The majority of teachers in the study found the framework to be effective, but some did report a lack of effectiveness at addressing discipline and encouraging positive behaviors when implemented in their schools. By analyzing the demographic information collected, the researcher found many of the negative perceptions came from high school teachers, while elementary teachers had a generally positive

perception about the programs which aligned with the claims of Vancel et al. (2016), who said elementary teachers were more willing to adopt PBIS than their high school counterparts.

Many teachers in this survey agreed their administrators were willing to support them, but most of them cited a lack of collaboration in goal setting and consistency with program implementation throughout the building. For PBIS to work, all stakeholders need to be involved and invested. By getting educators to understand this through training, the effectiveness of PBIS can also be improved. The most difficult implication of the study is creating a universal training protocol for PBIS that could potentially make it more effective and improve buy-in, thus changing the perception of teachers who are asked to implement the programs.

Prior to this study, most of the research surrounding this topic was focused on the fidelity of PBIS implementation. Many studies focused specifically on the effectiveness of programs, and others focused on teacher perceptions of PBIS, specifically teacher resistance to new programs. This study uniquely contributed to the literature by marrying the two ideas to determine if a relationship existed between the effectiveness of PBIS programs, as determined by tier 1 implementation fidelity, and teacher perceptions of PBIS programs. Literature on the length of PBIS implementation contributing to teacher perceptions was also not available, so research question 2 contributed to the literature in this way.

Moving forward, many of the strategies for effective professional development given by Palmer and Noltemeyer (2019) should be taken into consideration when training teachers with PBIS in the future. They suggest ongoing training throughout the year with administrative check-ins for fidelity is more effective than frontloading training with a workshop during the summer and not revisiting the content. The accountability and continued support from administration

during professional learning communities will also eliminate the problem of low administrative support Tyre and Feuerborn (2017) identified as a barrier to implementation.

Data collected in the survey should be distributed to the school district and the Center on PBIS. Understanding the correlation between the effectiveness of PBIS programs and the perceptions teachers have about PBIS should lead to a greater focus on training to ensure all programs are implemented with fidelity. More research, specifically a qualitative study about the training procedures, is needed in order to gain a greater understanding of how to make training more effective before sharing with district leaders and the Center on PBIS.

Limitations

The sample for this study was taken using convenience sampling from the school district in which the researcher worked. Warner (2013) suggests a convenience sample is not a true representation of any population that would occur naturally. During the course of the study, the researcher switched jobs from the district in which the study was being conducted to another district, which made gaining access to the sample a bit more difficult. The sample size for this study was 72, which met the recommendation by Gall et al. (2007) of N=66 for a medium effect size; however, it was still a small sample size.

The first limitation of the study was the location of the sample. Since it was taken from only one school district in Northeast Tennessee, all of the surrounding districts were not represented. The district was rural, so urban areas were also not included in the sample. By expanding the study to other parts of the state or country, these populations could have been included. A second possible limitation of the study was the timing of the survey. The survey was administered right after school let out for summer. In a year when teachers had many added stressors due to online learning and COVID-19 policies and procedures, teachers may have

welcomed the summer break and filled out surveys quickly to rush through. The third limitation was the researcher's personal knowledge of teachers in the district. Since the researcher was employed in the district, many of the teachers know the researcher. Because of this, the researcher used her Liberty University email when distributing surveys, and she used her first and last name rather than her middle and last name, which she is known by in the district.

The potential for threats to internal and external validity were examined. A positive relationship between the effectiveness of PBIS programs and teacher perceptions of PBIS programs was found. This study has strong internal validity because both instruments used to collect data were vetted for reliability and validity and found to be valid. Some threats to external validity were identified due to the current COVID-19 pandemic. Teachers were coming off one of the most difficult years of teaching in their careers, and they did not want to take a survey over their summer break. The researcher began collecting data at the end of the 2020-2021 school year, and collecting data was difficult to reach the numbers for validity.

The correlational design of this research study has some limitations of its own. While the existence of a relationship can be determined, the cause for the relationship cannot so further research would be needed to determine the cause. Some extraneous factors may also play into the effectiveness of the research. In this study, the COVID-19 pandemic was a huge impacting factor (Warner, 2013).

Recommendations for Future Research

In this study, an analysis was conducted to examine the predictive correlational relationship between effectiveness of Positive Behavior Intervention Supports (PBIS) programs and teacher perceptions of the programs. To further understand the correlation between these variables, the following recommendations are made for future research:

1. Since this study was conducted in only one school district in Northeast Tennessee, replicating the study in multiple districts in the area would allow for a larger study size. Additionally, the rural nature of the population could benefit from adding school districts from a more urban area to better understand PBIS in urban areas as well.
2. While this study determined there is a predictive correlation between PBIS effectiveness and teacher perceptions of PBIS, a qualitative study would give more information about the training teachers have received related to PBIS implementation. Having this information would help better understand the teacher perceptions related to PBIS.
3. A more in-depth look at PBIS implementation across grade-level bands rather than in one district would give a clearer picture of true perceptions. The majority of teachers who participated in this study were elementary school teachers, so it would be interesting to see if the results would have been different if the majority had been middle or high school educators.
4. The district began implementing PBIS as a district push five years ago, so five years was selected as the maximum number of years implementing PBIS. Since so many teachers selected 5+ years, additional research is recommended extending the maximum years implementing PBIS. It is possible some schools were implementing before the district initiative began, and the current study did not account for this possibility.
5. Studying districts with varying levels of PBIS implementation would also be interesting. The researcher would gather data from schools that had been implementing for a long time and schools that had recently started implementing and compare the data to see if the results of teacher perception was different.

6. In the time frame this study has been conducted, the disciplinary data in the researcher's current county has changed drastically. It would be interesting to read this dissertation again if all of the statistics were able to be updated to reflect behavioral data after the impact of the pandemic was recorded.

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Appendix A

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

May 13, 2021

Victoria Morley
D Mattson

Re: IRB Exemption - IRB-FY20-21-803 THE RELATIONSHIP BETWEEN THE AMOUNT OF TRAINING TIME AND PERCEIVED TRAINING EFFECTIVENESS TO TEACHER PERCEPTIONS ABOUT THE POSITIIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS FRAMEWORK

Dear Victoria Morley, D Mattson:

The Liberty University Institutional Review Board (IRB) 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 to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

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

Appendix B

Dear Educators:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Philosophy degree. Last week an email was sent to you inviting you to participate in a research study. This follow-up email is being sent to remind you to complete the survey if you would like to participate and have not already done so. The deadline for participation is June 14th.

If you choose to participate, you will be asked to complete an online survey via Google Forms. It should take approximately 30 minutes for you to complete the procedure listed. Your participation will be completely anonymous, and no personal, identifying information will be required.

In order to participate, please click here.

A consent document is provided as the first page of the survey. The consent document contains additional information about my research. After you have read the consent form, please click the button to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the survey.

Participants will be entered in a drawing to receive a $50 Amazon gift card.

Sincerely,

Victoria Leigh Morley
Doctoral Student
[redacted]