2023

A Longitudinal Analysis: Interpreting PBIS SAS Results and Disciplinary Patterns in a Middle Georgia School District

Johnathan Andrew Gross

A Longitudinal Analysis: Interpreting PBIS SAS Results and Disciplinary Patterns in a Middle Georgia School District

by

Jonathan Andrew Gross

A Dissertation
Submitted in Partial Fulfillment of the Requirements for
The Degree of Doctor of Education
In Curriculum and Leadership
(Curriculum and Instructions)

Columbus State University
Columbus, GA

Robert Waller, Ed.D., Chair, College of Education and Health Professions
Parul Acharya, Ph.D., Methodologist, College of Education and Health Professions
Richard Rogers, Ed.D., Member, College of Education and Health Professions

Dedication

To my loving family, who have provided unwavering support and encouragement throughout my academic journey. Your belief in me has been a constant source of strength. To my committee for their invaluable guidance, expertise, and mentorship. Your passion for knowledge has inspired me to push boundaries and strive for excellence.

To my peers and colleagues, who have shared their insights, experiences, and camaraderie, making this journey all the more enriching. In memory of my loved ones who have passed on, whose wisdom and love have shaped me into who I am today. May this work honor their legacy. Thank you all for being my guiding light in this pursuit of knowledge.

Acknowledgments

First and foremost, I would like to express my deepest gratitude to my wife, Hannah, and our three children, Jaxon, Emily, and Ella, for their unwavering love, support, and understanding throughout this academic journey. My passion for learning and scholarship was born from my desire to instill in you a love of learning and respect for hard work. Your constant encouragement and the joy you bring to my life have driven dedication to this project.

I want to express my sincere appreciation to my dissertation committee members, Dr. Robert Waller, Dr. Parul Acharya, and Dr. Richard Rogers. Their collective wisdom, insightful feedback, and constructive criticism have been instrumental in shaping and refining my work. Dr. Waller's deep understanding of the subject matter and attention to detail pushed me to think critically and strive for clarity in my writing. Dr. Acharya's expertise in quantitative methodology, thought-provoking questions, and ability to identify gaps in my argumentation helped me develop a more robust and cohesive dissertation. Dr. Roger's encouragement and genuine interest in my research motivated me to persevere during the most challenging moments. I am genuinely grateful for their time, dedication, and invaluable contributions to my academic growth.

I would also like to express my heartfelt appreciation to all the educators who have inspired me throughout my academic journey and instilled the passion to be a life-long learner. Your dedication, wisdom, and encouragement have left an indelible mark on my personal and professional growth, and I am forever grateful for your guidance. Additionally, I thank the Houston County School District for their support and cooperation in allowing me to conduct my research within their schools. Their commitment to fostering a learning and continuous

iv

improvement culture has been an invaluable asset to this study. Thank you to Karen Phillips who saw me through the arduous dissertation process.

      Lastly, a special thanks goes to Mr. Pinkney for his collaboration and assistance with the PBIS survey data. His expertise, patience, and willingness to share his insights have been instrumental in the successful completion of this project. I am truly grateful for his time and dedication to ensuring the accuracy and reliability of the data.

Vita/Resume

Jonathan Andrew Gross, MS
1013 Chattahoochee Drive, Bonaire, Ga. 31005
Email: jonathan.gross@hcbe.net
Home/Cell Phone: (478) 662-7290

Professional Profile

Georgia Southern University (GSU) master's graduate in Kinesiology with emphasis in Exercise Science. Certified in broad-field science (6-12) and social studies (6-8). I am excited to continue to learn and grow in the field of education to make a greater impact in students' lives.

- Warner Robins Middle School, HCBE, Teacher (2022-present)
- Northside High School, Houston County BOE, Teacher (2015-2022)
  - Course team leader (Anatomy/Physiology
  - Member of Professional Learning Communities
    - Better Seeking Team
    - Title One Team
    - RTI School-wide Improvement
- Fort Valley State University (FVSU) Strength and Conditioning Specialist (2013 - 2014)
  - Developed and implemented a sport specific program focusing on injury prevention and sport specific movements for a variety of athletic teams.
  - Assessed athlete development and progression, modified exercise prescription based on individual need.
- FVSU Full Adjunct Instructor of Health and Physical Education (2011 - 2012)
  - Developed and taught various courses in exercise science including biomechanics and exercise physiology; current with professional standards commission (PSC) standards and ACSM recommendations.
  - Developed and taught online Personal and Community Health course.
  - Developed and taught various physical activity courses ranging from physical activity (PA) for students with disabilities to yoga.
- Served at a clinically based wellness center as an Exercise Physiologist (2011 -2012)
  - Evaluated fitness level and prescribed/oversaw exercise program implementation.
- Served as Graduate Research/Teaching Assistant (GSU)
  - Assisted GSU faculty in data collection/interpretation/presentation for scholarly article publications in exercise science (2010)
  - Co-Published research article in *College Student Journal*, a scholarly journal of research articles
  - Created, implemented, and evaluated course objectives/assessments for students in various PA courses.
  - Served as liaison between American Cancer Society and the department of Health and Kinesiology (2008, 2009)
  - Served as vice-president of Exercise Science Club (2008, 2009)

Educational Background

Columbus State University, Columbus, GA
Ed.D in Curriculum and Instruction
Degree in progress
Current GPA – 3.94

Georgia Southern University, Statesboro, GA
Master of Science in Kinesiology with emphasis in Exercise Science
Graduated, Spring 2011
Overall GPA 3.41/4.0
Presidents and Dean's List Awards

Georgia Southern University, Statesboro, GA
Bachelor of Science in Kinesiology with emphasis in Exercise Science
Graduated, Spring 2008
Overall GPA 3.31/4.0
Presidents and Dean's List Awards

Work Experience

Warner Robins Middle School, HCBE   2022 - present
Teacher
Social Sciences – 8th grade Georgia Studies

Northside High School, HCBOE, Warner Robins, GA   2015 - 2022
Teacher
Developed and taught courses including Anatomy/Physiology and Biology
Certified Broad-field science and course team leader (Anatomy/Physiology)
Member of several Professional Learning Communities including the Better Seeking Team, Title
One Team, and the RTI School-wide Improvement Team

Fort Valley State University, Fort Valley, GA   2012 - 2014
Strength and Conditioning Specialist
Developed year-round training cycles for multiple athletes and athletic teams including football,
basketball, track and field, cross country, tennis and softball. Programs developed through
research-based performance models focusing on specific sport performance techniques and
injury prevention. Scheduled and monitored training sessions and performance evaluations.
Serve as advisor for Student Athlete Advisory Council.

Fort Valley State University, Fort Valley, GA   2011 - 2012
Full Time/Permanent Assistant Professor of Health and Physical Education
Developed multiple courses including Fitness and Lifestyle Assessment, Personal and
Community Health (Traditional and Online), Measurement and Evaluation, Biomechanical
Analysis of Human Movement, Exercise Physiology, and multiple physical activity courses all
aligned with Georgia Professional Standards and FVSU College of Education's conceptual

framework.

Cantrell Center for Physical Therapy and Sports Medicine, Warner Robins   2010 - 2011
Exercise Physiologist and Group Fitness Instructor
Responsibilities include client consultation/ fitness assessments and follow ups. Exercise
prescription, instruction and supervision.
Instructor of aqua aerobics and classes for members transitioning from physical therapy to
wellness. Assisted therapists with exercise.
routines for patients.

Georgia Southern University, Statesboro,   2008-2010
Graduate Teaching/Research Assistant
Instructor for physical activity program courses including PA for students with disabilities,
weight training, intermediate weight training, body conditioning, and recreation fitness activities.
Instructed classes of up to 35 students, incorporated various training strategies and techniques.
Member of research committee for GSU department Health and Kinesiology, co-author of one
published article.

Georgia Southern University, Statesboro,   2007
Tutor
Tutor of anatomy and physiology for College of Health and Human Science, taught basic
structure and function of body systems and the cooperation of systems for optimal function.

REFERENCES ARE AVAILABLE UPON REQUEST

Abstract

This study examined the relationship between staff perceptions of Positive Behavioral Interventions and Supports (PBIS) and Office Discipline Referrals (ODR) across elementary, middle, and high schools in a middle Georgia school district over a three-year period (2019-2022). PBIS is a research-based framework that aims to improve school-discipline procedures, effectively reduce ODR, and enhance school climate. The study focused on the Self-Assessment Survey (SAS) data and ODRs to determine whether staff perceptions of PBIS impacted student behavior management across all levels of the district. Using causal-comparative and correlational research designs, the study analyzed staff perceptions obtained through the SAS survey instrument and compared the data to disciplinary trends from 2019 to 2022. The study added to the existing literature on PBIS by longitudinally investigating the influence of staff perceptions on ODR at different school levels. Findings from the study provide valuable insights for school leaders and teachers seeking to improve school climate and student outcomes using the PBIS framework. Understanding the factors contributing to the successful implementation of PBIS with fidelity at different school levels and over time informed more effective PBIS implementation strategies, which could be tailored according to each school level's unique contextual factors.

Table of Contents

List of Figures

CHAPTER I: Introduction

In this study, the researcher examined positive behavioral interventions and supports (PBIS) survey data and the number of office discipline referrals (ODR) based on school level in a middle Georgia school district. Survey data from the PBIS Self-Assessment Survey (SAS) was analyzed in this study to determine any relationships these data have with the number ODR. Additionally, SAS scores and ODR data was analyzed to determine if the school level (elementary, middle, and high schools) influences these variables. The original intent of PBIS was to develop research-based practices focusing on preventative strategies for students with behavioral disorders (Gresham, 1991; Sugai & Simonsen, 2012; Walker et al., 1996). In addition, these practices included a focus on school-wide behavioral expectations, explicit instruction of exemplary behaviors, and an emphasis on student outcomes (Gresham, 1991; Sugai & Simonsen, 2012; Walker et al., 1996). Since then, over 25 years of research have assessed PBIS as a framework for positive school change. This study aims to fill the gaps in the literature by investigating how the perceptions of school staff towards PBIS impact ODR across all levels of a single school district over a period of three years, from 2019 to 2022. The researcher is not aware of any previous studies that have explored the link between staff PBIS perception and student behavior management over three years and across all schools in a single district, within the confines of a single study conducted in the Southeastern US. PBIS will serve as the conceptual framework to explain the phenomenon of school behavior change elicited by this multi-tiered system of supports (MTSS). Extant literature on PBIS served as the basis for the conceptual framework of this study, contending that PBIS has the potential to improve school-discipline procedures, effectively reduce ODR, and improve school climate. The current study examined staff perceptions of PBIS obtained through the SAS survey instrument across all school levels

spanning three consecutive academic years from 2019 to 2022 and compare these data to disciplinary trends over the same period. Thus, the literature review concentrates on the following domains: behaviorism, student discipline, behavior management, and PBIS.

A Brief History of School Violence and Misbehaviors

The management of students through discipline to reduce problem behaviors and improve student outcomes in public schools is an obligation of administrative personnel. Student management improves school safety and provides an environment conducive to learning (Eckes & Russo, 2012; Sugai & Horner, 2002). The incidence of problem behaviors in school settings is not new, and school officials have attempted to manage these behaviors so long as they have existed. The history of problematic behaviors dates back centuries (Aries & Baldick, 1962; Midlarsky & Klain, 2005). The perception that schools are more violent today is misleading as schools may be less violent today than in previous periods throughout history (de Mause, 1974; Prothrow-Stith & Quaday, 1996). For example, in 17th-century France, students dueled with pistols and physically beat their teachers on campus (Aries & Baldick, 1962; Volokh & Snell, 1997). While the nature of problematic behaviors has changed over time, the issue of how to best handle problematic behaviors in schools remains ever-present.

The debate about how to best ensure the safety of students, best disciplinary practices to modify behavior, and generally how to keep schools safe is ongoing (Eckes & Russo, 2012). Current National Center for Education Statistics (NCES) data indicates that violent crime and drugs on public school campuses are trending upward (Irwin, Wag, Cui, Zhang, & Thompson, 2021). Recent Gallup polls report that parents of K-12 students remain fearful for the safety of their children at school; this fear has remained relatively stable, with 35% of respondents citing school safety fears from 2018 to 2019 after the Newtown and Parkland school shootings

(Brenan, 2021). Many schools are adopting the PBIS framework to improve student educational outcomes, reduce problem behaviors, and improve school climate. Nationwide, 27,000 schools have adopted this framework, and over 1,400 schools in Georgia have adopted this framework (Positive Behavior Interventions and Supports, 2021). PBIS is a framework grounded in behavior theory and applied behavior analysis and has demonstrated the ability to improve outcomes in school climate and culture, academics, and reduce ODR (Baer et al., 1968; Coffey & Horner, 2012; Cooper et al., 2020; Dunlap et al. 2008; Simonsen et al. 2012). Ancillary tiers of support exist to provide more personal and targeted interventions for students who are non-responsive to PBIS (Kern & Yell, 2020; Sugai & Simonsen, 2012).

Behaviorism and Classical Conditioning

Early behaviorists noted the connections animals made between behaviors leading to pleasing results and those that led to less pleasing results (Thorndike, 1898). Building on Thorndike's work in a series of controversial experiments, John Watson showed that classical conditioning could create a predictable outcome in children (Watson, 1913). Later, B.F. Skinner's work led to the development of the theory of operant conditioning, which is different from classical conditioning, and served as the basis for applied behavioral analysis (Maag, 2016; Pierce & Cheney, 2004; Shepherd & Linn, 2015; Skinner, 1937; Skinner, 1953).

First recognized by Ivan Pavlov, classical conditioning involves connecting a neutral stimulus (bell ring) and an unconditioned stimulus (food; Cambiaghi & Sacchetti, 2015). Once associations are made between the neutral and unconditioned stimulus, the neutral stimulus becomes a conditioned stimulus. The newly conditioned stimulus will evoke the unconditioned response without the unconditioned stimulus. Most researchers agree that this is an inherent form of learning in animals (Rehman et al., 2021; Stussi et al., 2019). While both result in learning,

classical (respondent) conditioning differs from operant conditioning, which Skinner developed (Lorenzetti et al., 2005; Skinner, 1937; Staddon & Cerutti, 2003).

Operant Conditioning and Token Economies

B.F. Skinner coined operant conditioning in the late 1930s (Skinner, 1937). Operant conditioning is based on the theory that environmental consequences control behavior and that behavior can be guided by punishments, rewards, and reinforcements (Skinner, 1937; Skinner, 1938; Staddon & Cerutti, 2003). Although operant conditioning is not new and may be referred to as habitual behavior, Skinner's addition to the field of research involved the use of reinforcement schedules to either strengthen or extinguish a learned behavior (Staddon & Cerutti, 2003). Notably, Skinner thought operant conditioning is most effective when reinforcement schedules are employed for easily repeatable behaviors (Skinner, 1938; Skinner, 1986; Staddon & Cerutti, 2003). These reinforcement schedules are conditional and based on connections between antecedent behavior and consequences, such as positive and negative reinforcement and positive and negative punishment (Kazdin, 2012; Kazdin & Bootzin, 1973; Pierce & Cheney, 2004; Shepherd & Linn, 2015; Skinner, 1953). Based on this research, token economies were developed and founded on the work of behaviorists through operant conditioning (Ayllon & Azrin, 1965; Ayllon & Azrin, 1968).

Token economies are behavior management systems that use operant conditioning for behavior therapy, rewarding desirable behaviors with tokens that can be exchanged for items or privileges (such as food or free time). In addition, token economies punish undesirable behaviors (such as destruction or violence) by taking away tokens (Kazdin, 1982; Kazdin & Bootzin, 1973). Donald Levis, in *Foundations of Behavioral Therapy* (2017), defines the components of a token economy which include clearly defined desirable behaviors,

representative mediums of exchange (tokens), and a means to utilize tokens (reinforcers; Levis, 2017). A significant catalyst for token economies was a program developed for psychiatric patients in the 1960's (Ayllon & Azrin, 1965; Ayllon & Azrin, 1968). Other systems emerged from this pioneering psychiatric program and extended to other areas, such as the classroom setting (Kazdin & Bootzin, 1973; O'leary & Drabman, 1971). Although the idea of reward-based systems has been around for centuries in educational settings, Ayllon and Azrins work reignited interest in human behavior change in the classroom setting (O'Leary & Drabman, 1971; Skinner, 1966; Staats et al., 1962).

In the 12th century, rewards such as honey, figs, and nuts were given to students who showed academic achievement in learning the Torah (Birnbaum, 1962). In the 1500s, children were rewarded with cakes and cherries for academic achievement in acquiring the Latin and Greek languages (Lancaster & Corston, 2014; Skinner, 1966). However, frequent and systematic classroom rewards did not appear until the early 1960s (O'leary & Drabman, 1971). In 1961, they developed their token-based economy with psychiatric patients (Ayllon & Azrin, 1968). Around the same time, Professor Staats utilized a token economy with children (Staats et al., 1962). Before this, few token economies existed to modify or direct desirable behaviors (O'Leary & Drabman, 1971). From the extant literature, token economies first appeared in educational settings on a large scale in the 1970s and the 1980s (Boegli & Wasik, 1978; Kazdin, 1982). Token economies are scientifically supported through empirical research in behavior theory and are effective in educational settings when embedded in frameworks designed to support students (Sugai & Horner, 2002; Sugai & Horner, 2006). Frameworks that use token economies have been implemented in educational settings for over 30 years. One framework incorporating token economies to promote behavior change in school settings is PBIS.

Positive Behavior Interventions and Supports

Applied behavior analysis is the science of behaviorism applied systematically to improve behavior and identify the factors that influence behavior change (Cooper et al., 2020). PBIS incorporates applied behavior analysis and the use of token economies. PBIS was developed in the early 1980s by researchers at the University of Oregon attempting to manage students with behavioral and emotional disorders (Kincaid et al., 2015; Sugai & Horner, 2002, 2006; Sugai & Simonsen, 2012). Early research in what is now known as PBIS indicated that data-based decision-making and preventive strategies were needed. Furthermore, these strategies should be embedded school-wide and aim to model and teach appropriate behaviors to improve student outcomes (Horner et al., 2010; Lewis & Sugai, 1999; Sugai & Horner, 2002). In response to public demand for congress to address the rights of students with disabilities, the Education of Children for All Handicapped Act was passed in 1975 (Kern & Yell, 2020). This law's name changed in a 1990 reauthorization to the Individuals with Disabilities Act, which was reauthorized in 2004 (Kern & Yell, 2020).

PBIS is, in structural design, much like a MTSS framework, and both PBIS and MTSS structurally resemble the response to intervention (RTI) framework. MTSS frameworks generally assume three tiers of stratified interventions. These tiered interventions range from school-wide behavioral expectations to more individualized and intensive interventions for students that are not responsive to the school-wide, universal tier to which all students are exposed (Fletcher & Vaughn, 2009). While RTI is a framework that targets academic interventions, PBIS targets student behavioral interventions (August et al., 2018; Fletcher & Vaughn, 2009). These two frameworks are intimately linked, as studies show that the PBIS framework was designed to increase students' academic and social skills using behavior

interventions (Coffey & Horner, 2012; Sugai & Simonsen, 2012). Many studies have found that the PBIS framework significantly improves student outcomes (Bradshaw et al., 2015; Bradshaw, Waasdorp, & Leaf, 2015; Flannery et al., 2014; Kelm et al., 2014; Lane & Menzies, 2003; Luiselli et al., 2005; Simonsen, Eber et al., 2012). Many studies also cite the importance of PBIS implementation with fidelity to achieve significant positive student outcomes (Bradshaw et al., 2009; Burk et al., 2012; Childs et al., 2010; Cohen et al., 2007; Irvin et al., 2006; Spaulding et al., 2010). The most common measure assessing the critical features of PBIS implementation is the school-wide Evaluation Tool (SET) (Center on PBIS: SET, 2022). A different measure of PBIS effectiveness is the SAS. The SAS analyzes implementation status and identifies areas for growth within four support systems using ordinal scale item responses. These support systems include universal (school-wide) discipline, non-classroom management, classroom management, and systems for addressing consistent problematic behaviors of individual students (Center on PBIS: SAS, 2022).

Statement of the Problem

The problem to be examined in this study is the potential differences in elementary, middle, and high school PBIS SAS survey results and ODR rates over three years from 2019 to 2022 and the relationship between SAS results and ODR rates by school level. Effective PBIS implementation is highly context-specific, and the effectiveness of PBIS is not always realized when certain contextual factors impede implementation. School level, the fidelity of implementation across time, school areas of PBIS implementation, and teacher buy-in are all critical for positive outcomes of PBIS implementation. As schools continue to implement the PBIS framework, it is necessary to continuously observe how PBIS is perceived by school staff across all school levels over time to identify barriers that may impede implementation at

different levels. The high magnitude of contextual differences across school levels may affect

perceptions of PBIS and the implementation of PBIS with fidelity, leading to adverse student

behavior outcomes. These negative outcomes may be reflected in the number of disciplinary

actions issued by the school. Staff perceptions of the implementation status and areas for

improvement across time gleaned from the PBIS SAS may help explain how school levels differ

regarding outcomes in PBIS implementation fidelity, school climate, and student behavior

management in PBIS school systems or districts.

Statement of the Purpose

The purpose of the current study is to examine staff perceptions of PBIS using the SAS

survey instrument and to determine the impact these perceptions have on ODR using the Georgia

Department of Education's database across all school levels and over a consecutive three-year

period from 2019 to 2022 in a single middle Georgia school district. SAS results (dependent

variable) and ODR data (dependent variable) from 2019 to 2022 were compared to determine if

SAS scores had an impact on ODR based on school type (independent variable). Students spend

much time in schools, and this time could be used to, among other things, teach socio-behavioral

skill development, as not all students are equally afforded this learning opportunity outside of

school (Mathews et al., 2013). Implementation of the PBIS framework has been shown by

multiple studies to improve school climate and culture, school organizational health, and student

behavioral and academic outcomes (Bradshaw et al., 2009; Horner et al., 2010; Kelm et al.,

2014; Lane, & Menzies, 2003; Luiselli et al., 2005). This quantitative study identified possible

differences in perception of PBIS held by staff from different school levels using a three-year

time duration as a factor of analysis while simultaneously examining ODR from the same period.

This study will reveal valuable data using quantitative survey results regarding school staff

perceptions of PBIS effectiveness at improving school climate and reducing office disciplinary referrals (ODR) at different school levels. Results from the present study can be used for effective PBIS implementation at multiple school levels in districts that are contextually similar to schools in this study.

Research Questions

The researcher employed multiple quantitative techniques to analyze the data for the current study's research questions. Five research questions guided the study.

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021- 2022 school year?

$H1_O$: There is no significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

$H1_A$: There is a significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?

H1$_O$: There is no significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There is no significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There is no significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There is no significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Conceptual Framework

The current study will examine SAS data and disciplinary records, looking for trends across all school levels in a middle Georgia school district. Staff perceptions of PBIS may differ in different school levels, and the time factor may significantly affect these perceptions. As time passes, perceptions of PBIS effectiveness may change, which may affect the efficacy of the behavior management framework. Problems with the fidelity of PBIS implementation should be reflected in school discipline data. Thus, it is necessary to explore staff perceptions of the efficacy of PBIS across all school levels and over time. Differences may exist in staff perceptions of PBIS at different school levels, and the operational scale may affect perceptions because of the complexity of a larger student body and school building. Furthermore, perceptions of PBIS may change over time as PBIS implementation may become more efficient as a natural result of acclimatization. The current study's conceptual framework was based on a better understanding of the differences in perception of PBIS among school staff across all school levels over time and how these perceptions relate to ODR.

Figure 1

Conceptual Framework of the Study of Perceptions of School-based Positive Behavior

Interventions and Supports (PBIS)
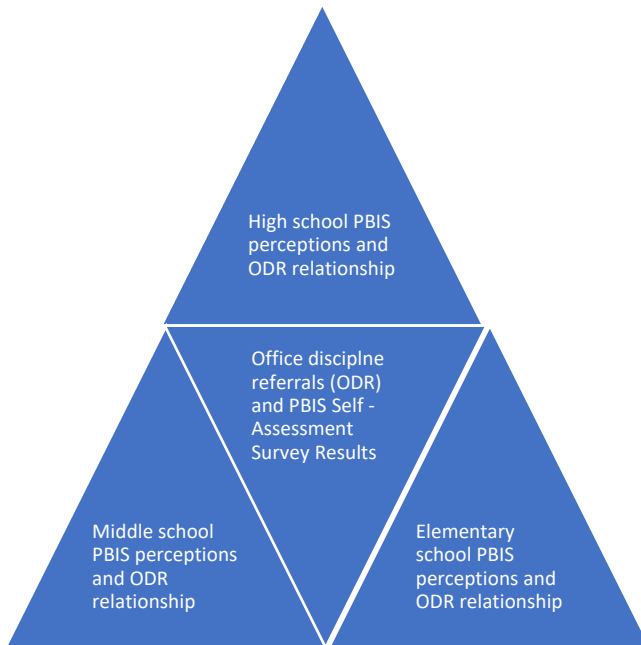
Methodology

The current study will use a causal-comparative and a correlational research design to answer the five research questions. In causal-comparative research, the researcher examines the variables in natural group settings which cannot be altered and finds participants who differ in some regard, then attempts to find other variables that explain the difference (Goertzen, 2017). A correlational study investigates the direction (positive or negative) and strength (strong, medium, weak) of the relationship to a statistically significant degree. Correlation does not always lead to causality (Babbie, 2017). In this study, the researcher focused on staff perceptions of PBIS across all grade levels and over three years in a Central Georgia school district while comparing PBIS perception data with school's ODR data. Dean (2018) found a disconnect between

teachers' and administrators' perceptions of PBIS at one high school in the same district as the current study. The study took place at one high school during the beginning of PBIS implementation, limiting the scope and generalizability of the research findings. The present study will investigate all school levels in the school district regarding staff perceptions of PBIS and attempt to correlate these data with discipline data from the same three-year time period from 2019 to 2022 academic years.

Another study conducted by Baskin-Downs (2020) examined the PBIS perceptions of middle school teachers and how these perceptions affect PBIS implementation. The researcher used a mixed methods design to determine correlations among teacher perceptions of behavioral expectations defined, behavioral expectations taught behavioral reward systems, years of teaching experience, and familiarity with PBIS. In the current study, the researcher also examined in-school suspension (ISS) rates for the schools sampled in the study. Baskin-Downs found that teachers who were on the PBIS team and were assumed to be more knowledgeable of PBIS held more positive perceptions of PBIS than teachers who were not members of the school's PBIS team. Additionally, teachers with 15 or fewer years of teaching experience held more positive perceptions of PBIS. Teachers with 11-15 years of teaching experience were more knowledgeable about PBIS but were also more aware of existing barriers to implementation. Also, teachers in the 11-15 years teaching experience category compared the effectiveness of PBIS at their current school to the more effective implementation of PBIS at prior schools of employment.

Baskin-Downs (2020) reported a lack of teacher buy-in because not all areas of change were functional regarding PBIS implementation. The researcher found that perceptions of behavioral expectations defined, taught, and rewarded were all significantly correlated with years of service

and PBIS membership. It seems that newer teachers and teachers on the school's PBIS team have positive perceptions. These teachers had better perceptions, leading to better student behavioral outcomes despite fidelity and buy-in. However, teachers with more years of teaching experience and knowledge of PBIS had more negative perceptions of PBIS. The sustainability of PBIS was found to be an issue in the study as several participants noted that PBIS implementation with fidelity expired around the sixth year of implementation, and it seemed that students and teachers were uninterested in the framework. The most frequently cited barrier to PBIS implementation by teachers was teacher buy-in. Finally, the researcher's recommendations for future research include teacher perceptions from different locations with different school-level factors. While this study examined factors related to PBIS and disciplinary actions taken by the school, the study did not attempt to correlate these factors. If PBIS is managing behaviors and improving student outcomes, then staff perception data should be positive, and at the same time, there should be a noticeable reduction in disciplinary actions taken by the school to manage problem behaviors.

The current study included all school levels (elementary, middle and high) within the same district, and these schools are not in their first year of PBIS implementation. The current study added to the body of literature by explaining how perceptions of PBIS may differ by school level and time and how these perceptions are related to behavior management and disciplinary actions taken by the school. If disparities in PBIS perceptions at different school levels lead to sub-optimal implementation and effectiveness, the *a priori* assumption is that this ineffective implementation will reflect in the disciplinary records of the school. The current study utilized a causal-comparative and correlational research design to answer quantitative research questions.

Quantitative research questions one and two aimed to identify differences in the SAS results of PBIS which measured the perceptions of PBIS and ODR efficacy data (dependent variable) based on school level (independent variable). For research questions three, four, and five, the researcher examined the impact PBIS perceptions (independent variable) had on the number of ODR (dependent variable) at each school level (independent variable). Archival school discipline data from 2019 to 2022 academic year were retrieved from the Georgia Department of Education's online database. The researcher assessed school staff perceptions of PBIS using the school district's archival SAS data from 2019 to 2022. The SAS measures the status and areas for improvement of four behavior support systems:

1. SWS - School-Wide Systems: Guidelines and interventions aimed at promoting positive behavior across the entire school.
2. NCSS - Non-Classroom Setting Systems: Behavior support mechanisms specifically designed for school areas outside traditional classrooms.
3. CS - Classroom Systems: Behavior support strategies tailored for individual classrooms.
4. ISS - Intensive Support Systems: Specialized, intensive supports for students with unique behavioral needs.

The items on the SAS have three responses for each behavior support system category, and the response scale is ordinal. Participants responded to the system's status by selecting whether the system is in place, partially in place, or not in place. Participants responded to the system's need for improvement by indicating it as a low, medium, or high priority. Solomon et al. (2015) tested the internal consistency of survey items by measuring the four SAS factors. These factors include SWS, NCSS, CS, and ISS. The researchers found that all factors had an acceptable level of internal consistency ($\alpha \geq .82$) (Solomon et al., 2015). Quantitative data was collected upon

approval of the proposed study and the study's ethical and methodological design. Approval for the study was granted by the Columbus State University Institutional Review Board (IRB) and the school district under investigation. Data was analyzed using SPSS (v. 28) software for Windows providing descriptive statistics, factorial and repeated measures ANOVA models, correlation and regression analysis. There were two lines of quantitative data analysis. A factorial ANOVA was used to answer research question one and a repeated measures ANOVA was used to answer research question two. These analyses were used to determine differences in SAS scores and ODR rates from 2019 to 2022 based on school type (elementary, middle, and high). Correlation and regression was used to answer research questions three, four, and five to determine the impact of SAS scores on ODR rates for elementary, middle, and high schools.

Limitations

Ross and Bibler-Zaidi (2019) state that limitations can threaten a study's validity and reliability of the study's findings. Theofanidis and Fountouki (2018) noted that limitations are potential weaknesses in a study and can be present in theory, design, analysis, participants, and many other aspects of research. Proper vetting of a study's limitations helps contextually frame the results to provide the reader with more meaningful conclusions about a study (Ross & Bibler-Zaidi, 2019). A possible limitation of the current study is the researcher's previous experience with PBIS, which may present biases in the researcher's interpretation of the data. Although the researcher collected and analyzed data from participants from all school levels, PBIS experience most likely affected the researchers' thinking regarding PBIS. The researcher considered these biases when interpreting the current study's results. A second possible limitation of the study is the presence of extraneous (confounding) variable which may change the dependent variable scores. Extraneous variables are those that are outside the researcher's control and may affect the

results. A third possible limitation of the study is the lack of randomization inherent in a causal-comparative study as the groups are pre-formed. A fourth possible limitation of the study is the researcher's inability to manipulate the independent and dependent variables.

Delimitations

Delimitations define the boundaries of a given study and are often referred to as the study's scope (Newman et al., 1997). Furthermore, Theofanidis and Fountouki (2018) acknowledge that delimitations include researcher-controlled variables such as participants, research sites, and research design. Essentially, delimitations are the limitations the researcher applies to the study to limit the scope of a study to an administratively feasible level (Newman et al., 1997; Theofanidis & Fountouki, 2018). The first delimitation of the current study is the research questions that bind the current study. These research questions direct the study toward the primary goal of understanding the differences in PBIS perceptions usage of SAS survey between school staff at different school levels to see if there are associated changes in disciplinary actions taken by the school. A second delimitation is the quantitative research design that characterized the present study. A third delimitation is the timeframe of the selected archival data that was analyzed in the present study. PBIS SAS survey and discipline data was retrieved for 2019 through the 2022 academic years for examination. The study included only complete responses, and no partial responses were used in the current study.

Definitions of Terms

Behavior support systems: PBIS support systems: (a) school-wide systems, (b) non-classroom systems (e.g., recess, hallway, cafeteria), (c) classroom systems, and (d) systems for students engaging in persistent problem behaviors (Sugai & Simonsen, 2012)

Discipline: School discipline focuses on school-wide, classroom, and personal student needs through wide-ranging prevention, focused interventions, and the acquisition of self-discipline. Many methods of school discipline exist, ranging from positive (e.g., school climate improvements and use of recuperative practices) to penal (e.g., suspension, expulsion, and corporal punishment) (Eggleton, 2001).

Fidelity of implementation: Fidelity of implementation implies that teachers and administrators are committed to the processes and procedures which define PBIS, and PBIS implementation is occurring per the framework's intentional design (Bradshaw et al., 2009).

Positive Behavioral Interventions and Supports (PBIS): PBIS is a framework designed to improve academic and behavioral outcomes for students by underscoring data used to inform decision-making about the choice, application, and monitoring of the progress of behavioral practices; and arranging resources and structures to advance the fidelity of implementation (Sugai & Simonsen, 2012).

School-wide positive behavior interventions and supports (SWPBIS): SWPBIS is a universal deterrence approach that intends to modify the school's structural context to apply improved methods and systems to direct data-based judgments related to student behavior issues and academics. It regularly applies behavioral, social learning theory, and organizational tenets to the whole student body across all school contexts (e.g., classroom and non-classroom settings) (Bradshaw, Waasdorp, & Leaf, 2012).

Token economy: A formal description of contingency relations intending to modify behavior by delivering conditioned reinforces (Kazdin, 1982).

Proposed Significance

The current study analyzed school staff perceptions of PBIS using the SAS survey and ODR rates across all school levels over a consecutive three-year period from 2019 to 2022. The study correlated PBIS perceptions and school-level ODR rates from 2019 to 2022. Baskin-Downs (2020) compared teacher perceptions of PBIS elements, including behavioral expectations defined (BED), behavioral expectations taught (BET), and ongoing reward systems (OR) to years of teaching, PBIS team membership, and PBIS team member role while examining in-school suspension rates. Using a mixed methods design, Baskin-Downs investigated two Central Georgia middle schools within an urban school district. Most of the participants in Baskin-Down's dissertation were African American (83.15), identified as Female (65.5%), and were in the age range of 39-56 (51%).

Most participants reported having administrative support for PBIS implementation, but approximately half of the participants either disagreed or cited being unsure of PBIS regarding buy-in. Teachers did not agree or were unsure if PBIS reinforcements were being modified based on trends in data (45%), and 40% of teachers did not think or were unsure if the PBIS team obtained student feedback. Baskin-Downs found statistically significant differences in BED and BET based on PBIS team membership, indicating that knowledge of PBIS influences perceptions of PBIS. Only one analysis of variance yielded a statistically significant result for BED and years of teaching experience (F=5.37, $p \leq 001$). Significant differences were found between groups of teachers with 6-10 and 11-15 years of teaching experience and between groups with 11-15 years and 20 or more years of teaching experience (Baskin-Downs, 2020). Data analyzed from the researcher's study support the claim that years of teaching service and knowledge of PBIS affect perceptions of PBIS.

Furthermore, Baskin-Downs reported a significant difference in ISS rates among teachers with positive perceptions of PBIS. This report indicates that perceptions of PBIS affect the implementation of PBIS with fidelity and may influence disciplinary actions taken by the school. However, this study only assessed middle schools, while the present study assessed PBIS perceptions and associated discipline data at all school levels in a single school district.

Bohanon and Wu (2014) showed that staff buy-in is critical in PBIS implementation with fidelity. Although the PBIS framework has been implemented in all schools at the current study's research site, no school in the district is at the distinguished level as of 2019 (PBIS Distinguished Schools, 2019; PBIS Operational Schools, 2019). This data infers that, as of 2019, all schools that have adopted the PBIS framework are at the installing, emergent, or operational level of implementation. The results of the current study may prove beneficial for school leaders attempting to improve student behavior and student outcomes district-wide by the implementation of the PBIS framework.

The current study attempts to fill the gap in educational research by addressing the perceptions of PBIS held by staff across time, and how these perceptions influence the number of ODR and behavior management at different school levels. Extant PBIS research in the proposed school district of inquiry has not considered data points across time as a variable for analysis. Data obtained from this study will prove helpful to district leaders in PBIS implementation among schools with differing demographics, as comparisons of perceptions and implementation effectiveness can be used to highlight best practices within the district. Individual school leaders can use information from this study in the training and professional development of the district and school employees on PBIS implementation barriers and best practices. The proposed study will highlight the differences in the perceptions of PBIS across all school levels over a

consecutive three-year duration, and if these differences coincide with changes in the number of ODR. Contextual differences at the school level may alter staff perceptions of PBIS effectiveness and poor PBIS perceptions lead to ineffective implementation. As PBIS is the behavior management framework used by the school district under study, then negative perceptions of PBIS and ineffective implementation should be reflected in the disciplinary record of the schools sampled. The current study attempts to add to the literature on PBIS best practices, barriers to implementation, and overall perceptions of PBIS effectiveness.

Summary

The use of discipline to address problematic behaviors in schools has changed throughout the centuries. Formerly, the use of exclusionary discipline practices has led to unintended consequences that have resulted in less-than-optimal outcomes for students excluded from inclusive educational environments because of behavioral issues. By promoting a more inclusive environment and successful student outcomes for all students, alternative methods to deal with problematic student behaviors have been explored and researched. One such alternative method is PBIS. PBIS is a researched-based intervention framework grounded in behaviorism and applied behavior analysis. This approach has effectively reduced ODRs, improved student social skills, and improved student academic outcomes. The current study explored staff perceptions of the efficacy of PBIS. Specifically, the current study examined staff perceptions of PBIS effectiveness across all school levels in a Central Georgia school district over a three-year period from 2019 to 2022 academic years. The current study will also analyze ODR data in addition to staff perceptions of PBIS over the same consecutive three-year period from 2019 to 2022. SAS surveys are completed annually by all certified staff in the school district, and archival SAS data was used for sampling. Many studies tout the effectiveness of PBIS in improving student

outcomes and reducing problematic student behaviors. However, the literature also underscores that the implementation of PBIS is context specific. Effective PBIS implementation may differ at different school levels (e.g., elementary, middle, and high school) and depends on the school's unique contextual factors. Thus, another phenomenon the current study examined is the impact of PBIS perceptions on ODR at different school levels from 2019 to 2022. The understanding of factors contributing to the successful implementation of PBIS with fidelity at different school levels and over time will provide valuable insight for school leaders and teachers who want to improve school climate and student outcomes using the PBIS framework.

The current study will utilize multiple quantitative methods to analyze PBIS SAS data by school level over a consecutive three-year period from 2019 to 2022. The current study also analyzed ODR rates by school level over a three-year period from 2019 to 2022, and compared ODR rates to PBIS perception data to see if the two variables are related. This study will add to the current knowledge base of PBIS by analyzing school staff perceptions of PBIS over time while comparing these data to ODR over the same three-year period from 2019 to 2022. In addition, the current study correlated PBIS perceptions with ODR at each school level from 2019 to 2022 to determine the impact of PBIS perceptions with school discipline rates. School district administrators can use the results of the current study to design more effective PBIS implementation strategies as all methods of implementation will not work in all settings. School level must be considered when implementing PBIS as existing literature on the topic suggests that PBIS implementation is perceived differently at different school levels. Also, the literature cites the importance of positive PBIS perceptions as perceptions affect implementation fidelity and student outcomes regarding behavior. Results from the current study can be used to identify trends in PBIS perceptions by school level, and how these perceptions influence the number of

disciplinary actions taken by the school to manage student behavior. A better understanding of the interaction between PBIS perceptions and ODR by school level is valuable for school districts looking to implement PBIS or to enhance the implementation process at each school level. Furthermore, the analysis of SAS survey data would also indicate the type of improvement (School-wide systems, Non-classroom setting systems, Classroom systems and Intensive support systems) that is warranted within each school based on the status (in place, partially in place, or not in place) and priority (low, medium, or high priority) of PBIS implementation. Finally, examining these data over time will add to the literature as most studies reviewed in the literature offer a snapshot of PBIS perceptions at one time point as they relate to ODR. The current study added to the extant literature by examining PBIS perceptions, ODR, and how this relationship may vary at different school levels over time (cross-sectional).

CHAPTER II: Review of Literature

Throughout schooling, many strategies have been implemented to curb students' misbehaviors. Interestingly, what educators perceive as student misbehavior has changed along with strategies to address these inappropriate actions. Still, some behaviors will never be tolerated in an educational setting, especially those behaviors that threaten the safety of students and staff. Violence on school campuses has existed since the inception of public schools dating back centuries. Violence on school campuses still exists, along with a host of other behaviors threatening the safety of students and learning. For example, Irwin et al. (2021) stated that in grades 9-12, a few student-reported problem behaviors on school campuses had trended downward from the year 2009 to 2018, such as being bullied at school (22 in 2019 vs. 28 percent in 2009), hate speech (7 vs. 9 percent) and seeing gang-related activity (9 vs. 20 percent) at school. Contrary to this downward trend, other student-reported problem behaviors have risen or remained unchanged such as being threatened or injured with a weapon (7%) and 22% of students reporting illegal drug activity (Irwin et al., 2021). Though we have learned a great deal about human behavior and how these behaviors can be influenced through conditioning to create a safer, more conducive environment for learning, there is still much work to be accomplished regarding student safety.

The present study will explore school staff perceptions of the efficacy of PBIS as a framework for improving school climate and managing student misbehavior within a Central Georgia school district. A substantial amount of extant literature on behaviorism relates to the augmentation of human behaviors toward more desirable outcomes. This magnitude of research in human behavior is rivaled by research on PBIS as a framework grounded in behaviorism and aimed toward helping students adopt more appropriate behaviors at school. To provide sufficient

evidence that supports the use of PBIS as a behavior change framework in education, research that occurred well over 20 years ago in both behaviorism and PBIS will be included in this literature review. Thus, research in behaviorism and behavior management in schools will be reviewed. To provide a scope of the magnitude of public education's issues regarding student behavior, the literature review begins with a historical overview of misbehaviors and violence in schools. The first domain to be investigated is that of discipline in schools. Under that heading, the following topics will be investigated: (1) corporal punishment, (2) exclusionary discipline, and (3) zero-tolerance policies. The second domain to be addressed in the study is that of behaviorism. Under that heading, the following topics will be investigated: (1) human behavior, (2) respondent and operant conditioning, (3) token economies, and (4) applied behavior analysis. Lastly, the domain of student behavior management will be investigated. Under that heading, the following topics will be investigated: (1) multi-tiered system of supports and (2) PBIS. Specifically, PBIS, a type of MTSS, will be explained in the literature review. This focus on PBIS will include an analysis of the three tiers of support, the importance of implementation with fidelity, staff perception regarding PBIS implementation, and research reporting negative results of PBIS implementation.

PBIS implementation is highly context specific. School-level (i.e., elementary school, high school), the fidelity of implementation across time, school operation areas of change, and teacher buy-in are all critical for positive outcomes of PBIS implementation. This study explores administrators' and teachers' perceptions of the efficacy of PBIS in Central Georgia schools.

The previously mentioned research domains and topics addressed in the literature review will provide a framework for exploring PBIS in Central Georgia schools.

Misbehavior and Violence in Schools

Midlarsky & Klain (2005) stratified student violence and misbehaviors into four types that have been observed throughout documented history on the topic:

1. Acts of rebellion

2. Acts of anger

3. Acts of protest

4. Acts of random violence

Midlarsky and Klain (2005) describe rebellion as lacking malice, while acts of anger are focused and goal-oriented. Acts of protest are demonstrative and usually occur to support or show dissatisfaction with a symbolic belief or a socio-political cause. Finally, when the motive is absent, but malice exists, this categorizes violence or misbehavior as random (Midlarsky & Klain, 2005). It may be assumed that weapons being brought to school, and used, is a more recent development, given the past Sandy Hook and Columbine school shootings, but this notion is far from the truth. As Midlarsky and Klain (2005) describe in the following passage:

> In France, for example, schoolchildren were usually armed. They fought with one another and beat their teachers. Revolts and riots were common in the schools; passersby tried to avoid walking past the schools out of fear of being attacked by students. In 1646, armed schoolboys staged an attack at the Jesuit College of La Fleche to free a fellow student who was being held for punishment. During a struggle between the school headmaster, the school servants, and the students, a musket went off, shooting a student in the abdomen. In the same year, two pupils were killed on separate occasions during battles between the Humanities class and the Philosophy class at Aix College. In 1649, students barricaded themselves in Die College. They fired pistols, tore up schoolbooks, threw

benches out of the windows, and attacked passersby with swords. At Beaune in 1661, an Oratorian father was assaulted by his pupils at school, an attack that resulted in serious injuries. (p. 40)

Another example of violence in European schools comes from the "ragged schools" in England. Ragged schools were free schools offering education to the poorest children of 19th-century Britain (Ashley-Cooper, 1847; Cornwallis, 1851). In a historical account of violence in ragged schools, Ashley-Cooper (1847) reported the following passage:

(t)he floors were sprinkled with blood, benches broken down, lesson boards torn asunder, the scholars tumbling over each other in wild confusion, the master with his clothes torn, teachers obliged to escape for their lives out of the windows and over the roofs of houses (p. 129)

It was often challenging to recruit and keep teachers in the classroom amidst such a violent, chaotic environment (Midlarsky & Klain, 2005). Other education systems arose around the same time as ragged schools, such as the monitorial or Lancasterian System. Under this system, the more advanced students instructed the less advanced students, thereby reducing the number of adult faculty. To account for reduced adult faculty, these schools enforced strict disciplinary codes of conduct to reduce problematic behaviors (Kaestle, 1973; Lancaster & Corston, 2014).

The phenomenon of student violence and misbehavior is not absent from the historical record in the American colonies or the United States. Bybee and Gee (1982) reported an incident in Massachusetts in 1669 where a schoolmaster was attacked by a student and threatened with his death. Additionally, Volokh and Snell (1997) described that the American colonies were the setting of approximately 300 rebellions each year. These rebellions often involved students removing teachers from the schools and not permitting their re-entry. After the Revolutionary

war, schools were to become vectors for the newly formed republic to promote qualities such as discipline, liberty, and sacrifice (Kaestle, 1983). However, many other accounts of school violence in early America are present in the literature (Baker & Rubel, 1980; Crews & Counts, 1997; Mann, 1934; Midlarsky & Klain, 2005). The campus of Princeton was rocked by explosions accompanied by student rioting and ended in the expulsion of half of the graduating class (Baker & Rubel, 1980). Horace Mann (1934) reported that in 1843, more than 400 schools in Massachusetts were dismantled due to student discipline issues.

Violence in schools continued into the 20th century. Princeton University, again, was the stage of student violence. In 1914, students set fire to buildings and other structures on campus (Baker & Rubel, 1980). During the Great Depression, it is noted in the literature that there was a downtrend in student violence (Baker & Rubel, 1980; Crews & Counts, 1997; Midlarsky & Klain, 2005). The primary misbehavior school officials and teachers experienced was excessive truancy (Crews & Counts, 1997). Some researchers suggest that the reduction of violence in American schools during the Great Depression was due to many students leaving the schoolhouse for the workforce (Baker & Rubel, 1980). In the 1950s, American schools experienced increased violence and assaults (Beavan, 1970; Crews & Counts, 1997). From 1964 to 1968, student assaults toward teachers rose from 253 incidents to 1,801; during the same period, weapons incidents increased from 396 incidents to 1,508 incidents (Beavan, 1970).

The summer of 1966 saw the first seemingly random act of violence on an American school campus when Charles Whitman, a University of Texas student, shot and killed 13 people and wounded another 31 (Altman & Ziporyn, 1967). Driven by documented increases in school violence, the American public's concern for violence in schools was palpable and, for the first time, appeared in the top ten public concerns about schools in the annual Gallup poll (Gallup,

1978). From 1970 to 1973, homicides on school campuses increased by 19.5%, student assaults increased by 85.3%, teacher assaults increased by 77.4%, confiscated weapons on school campuses increased by 54.4%, and rapes or attempted rapes increased by 40.1% (Goldstein et al., 1984). Disappointingly, Crews and Counts (1997) reported that in 1978 teenagers were more likely to be the victims of a violent incident on school campuses than in any other location they may occupy. Blyth et al. (1980) stated:

> Acts of violence in schools, such as "juvenile gangsterism," stealing, armed assault, and murder, seemed to be occurring with increased frequency, particularly in blighted urban areas. (p. 377)

Schriro (1985) also reported on trends in school violence and found similar upward trends in school-related violent crimes from the 1950s through the 1970s. Students with ages ranging from 12 years old to 19 years old were surveyed in 1989, and the survey results reported that 9% of students claimed to be the victim of a violent crime while 2% reported having been the victim of more than one violent crime (Crews & Counts, 1997). This increase in violent crime on American school campuses is often attributed to increases in drugs, weapons, and gang presence on school campuses (Baker & Rubel, 1980; Crews & Counts, 1997; Simonsen, 1991). It is estimated that around 20% of students brought weapons onto a school campus, and approximately 270,000 guns were on school campuses daily (Crews & Counts, 1997). From 1997 to 1998, it was reported that 253,000 incidents involved either rape, robberies, or assaults on American school campuses. Furthermore, between 1994 and 1998, 668,000 violent crimes committed on school campuses were committed against teachers by students (Kaufman et al., 2000).

In the 20th century, specific criminal issues and misbehaviors decreased, and some have increased (Irwin et al., 2021). For example, compared to 2009, 2019 saw a decrease in students aged 12 to 18 reporting bullying incidents (28 percent in 2009 compared to 22 percent in 2019. Also reduced from 2009 to 2019 were reports from 12- to 18-year-old students of incidents involving hate speech (9 percent vs. 7 percent), observations of gang activity (20 percent vs. 9 percent), violent victimization (4 percent vs. 2 percent), fighting (11 percent vs. 8 percent), and weapons on campus (6 percent vs. 3 percent; Irwin et al., 2021).

However, other crime and misbehavior incidents have not changed or have increased in frequency. For example, there is no significant difference from 2009 to 2019 in the frequency of incidents involving injuries by a weapon, being threatened by another student, or interactions with illegal drugs (Irwin, 2021). The School-Associated Violent Death Surveillance System (SAVD-SS), National Vital Statistics System (NVSS), and the K-12 School Shooting Database (K-12 SSDB) all collect statistics on violent deaths and school shootings. The SAVD-SS defines school-associated violent death as a homicide, suicide, or legal intervention death (involving a law enforcement officer), in which the fatality happened on the campus of a working elementary or secondary school in the United States (NCES, 2021b). The following figure illustrates the number of school-related violent deaths, homicides, and suicides of children ranging from five to 18 years old from the 1992-93 school year to the 2017-18 school year.

Figure 2

Number of Student, Staff, and Nonstudent School-associated Violent Deaths and Number of

Homicides and Suicides of Youth Ages 5-18 at School: School Years 1992-93 to 2017-18
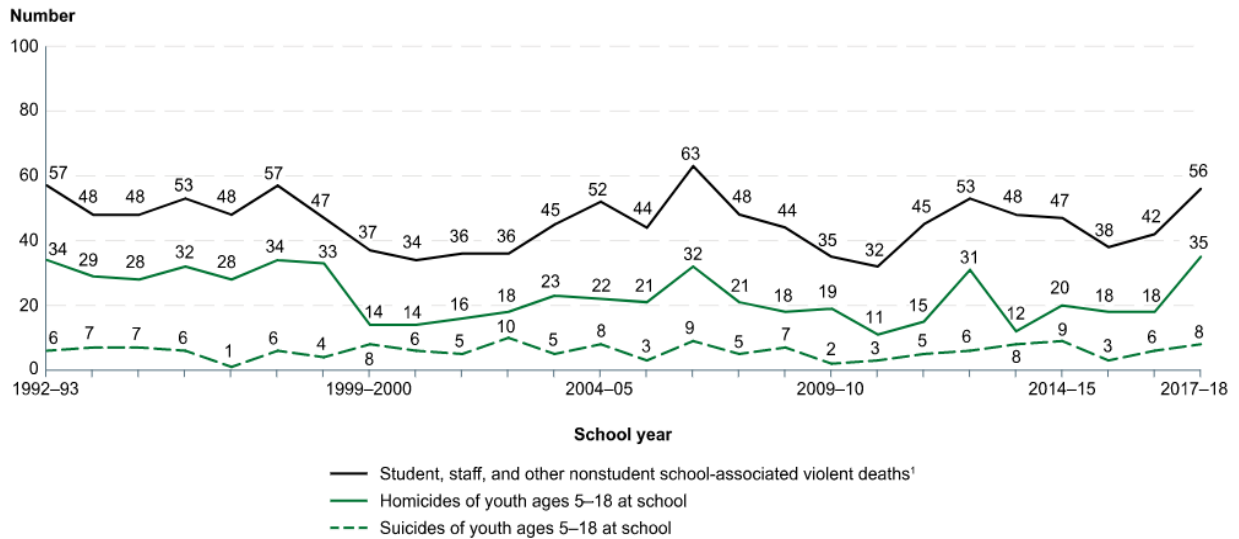
School shootings are always a primary public concern for schools. The K-12 SSDB

collects data on school shootings from public sources and compiles this information into a single

database. The K-12 SSDB defines school shootings as an incident where a gun is brandished or

fired on school property or a bullet hits school property for any reason, regardless of the number

of victims (which could be zero), time of the day, day of the week, or reason (NCES, 2021b). In

2001, the NCES released data regarding school shootings from the academic year ranging from

2000-01 to 2019-20. Reports show the highest rate of school shootings in 2018-19 and 2019-20,

with 75 shootings for both academic years. Most shootings occurred at the high school level,

were the product of escalated disputes, and occurred in the parking lots on campus. The figure

below illustrates the number of shootings with and without fatalities from 2000-01 through 2019-

20.

Figure 3

Number of School Shootings with Casualties at Public and Private Elementary and Secondary

Schools: 2000-01 through 2019-20

Number of school shootings
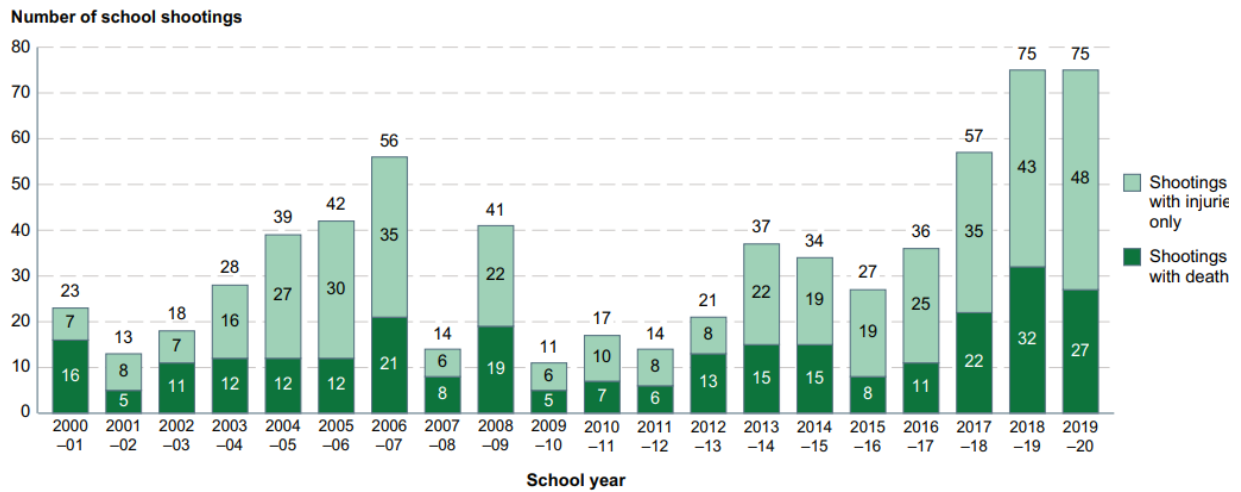
Victimization is a concern on school campuses, including theft and violent victimizations such as rape, robbery, and assault (NCES, 2021a). The National Crime Victimization Survey (SCVS) is a survey administered annually. It estimates the number and type of criminal incidents on school property or on the way to or from the school. The NCES reported the victimization rate at schools or on the way to or from school for the 2019-20 school year (NCES, 2021a). The results indicate that students are more likely to experience non-fatal victimization at school than at any other physical location.

Figure 4

Rate of Nonfatal Victimization Against Students Ages 12-18 per 1,000 Students, By Type of Victimization and Location: 1992 through 2019
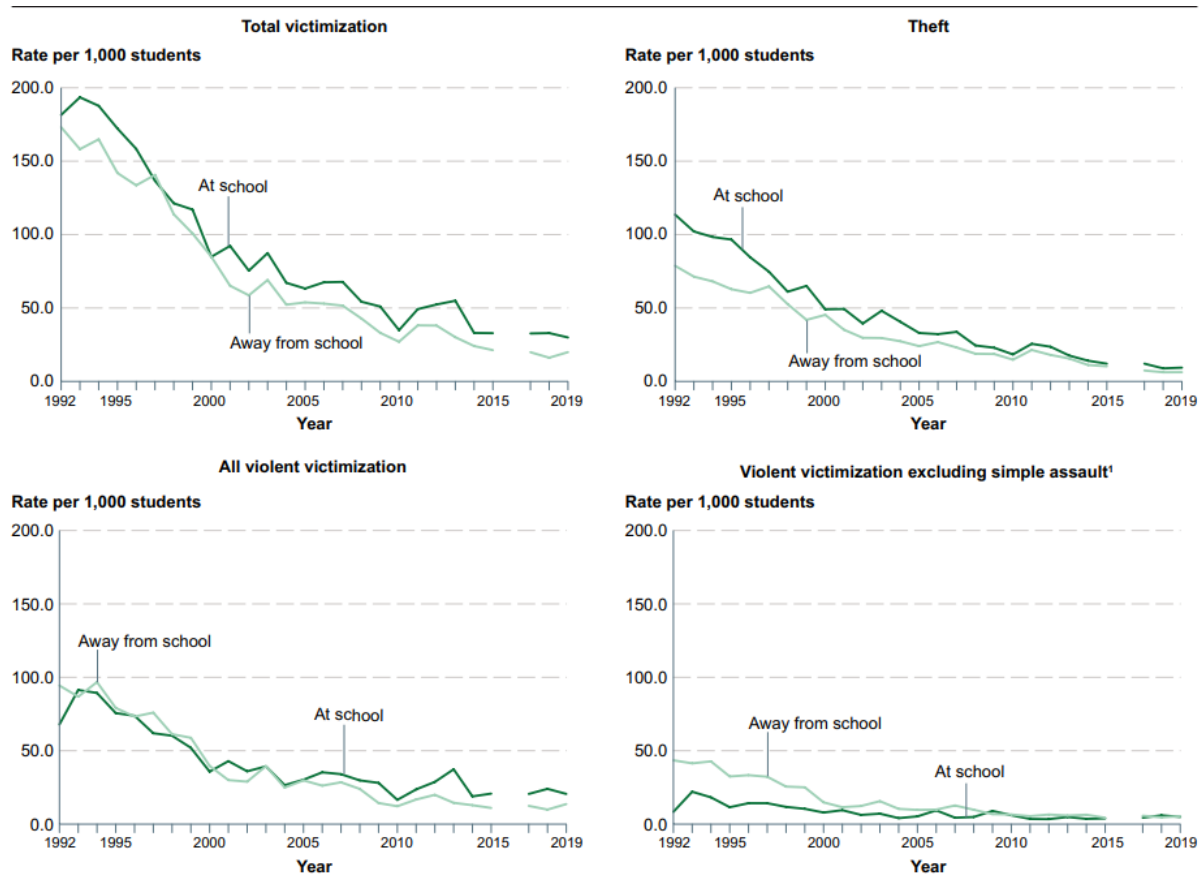
It is clear from the literature that while the type of school-related behavior issues has differed, disruption from inappropriate and often violent student behaviors have plagued schools on American soil and abroad since public schooling began (Altman & Ziporyn, 1967; Ashley-Cooper, 1847; Baker & Rubel, 1980; Beavan, 1970; Bybee, 1982; Crews & Counts, 1997; Goldstein, Apter & Harootunian, 1984; Irwin et al., 2021; Mann, 1934; Midlarsky & Klain, 2005; Simonsen, 1991). Teachers often resorted to violent punishments to combat student violence, which often did not result in optimal outcomes. The following section will describe the historical and contemporary use of punishments in schools.

Discipline in Schools

Punishment for deviant behavior that does not adhere to the societal norms of the time has always existed. This social dynamic can also be referred to as societal sanctions. Sanctions can be positive or negative, but the purpose is to maintain order for groups to exist and efficiently work together (Coleman, 1990; Ehrlich & Levin, 2005). Punishments for behaviors that are not conducive to the efficient operation of the group come in various forms but are necessary for solidarity and should be researched. Robert Horner (2002) stated this need for punishment and punishment research by stating:

> Teachers, parents, employers, and friends in all parts of our society regularly deliver contingent punishers that result in reduction of specific responses. The frowns, reprimands, parking tickets, red marks on class papers, spankings, and unlimited array of social jibes from peers are examples of the contingent delivery of aversive stimuli or the contingent removal of reinforcing stimuli that are associated with reduction in a specific response. Punishment is a natural part of life. (p. 465)

The use of punishments dates back centuries in the form of anecdotal records (Aries & Baldick, 1962; Midlarsky & Klain, 2005). Ancient Mesopotamian clay tablets dating back to 2000 BC have been discovered that depict student misbehaviors and the need for discipline in schools (Volokh & Snell, 1997). These anecdotal pieces of evidence, and more current methodologically sound research on the topic, illuminates the vital role of discipline in managing the safety of students and managing students in the classroom to provide an environment conducive to learning (Craig, 1847; Eckes & Russo, 2012; Midlarsky & Klain, 2005; Sugai & Horner 2002). Though, what school officials and the public saw as the most crucial discipline issues has not

remained stable across time, nor have the types of punishments used to thwart such issues in the

schoolhouse (Craig, 1847; Eckes & Russo, 2012; Midlarsky & Klain, 2005; Schriro, 1985).

Table 1

Teacher Ratings of Top Discipline Problems

1940	1990
1. Talking out of turn 2. Chewing gum 3. Making noise 4. Running in the hall 5. Cutting in line 6. Dress code violations 7. Littering	1. Drug abuse 2. Alcohol abuse 3. Pregnancy 4. Suicide 5. Rape 6. Robbery 7. Assault

Corporal Punishment

Corporal punishment is defined by the American Academy of Child and Adolescent

Psychiatry as the purposeful infliction of physical pain to an individual's body with a hand or

instrument (cane, paddle) to cause pain, fear, or both (AACAP, 1988; Eckes & Russo, 2012).

Corporal punishment used in schools to control behavior in America is documented in the

literature as far back as colonial times and was commonly used to control student behaviors

(Baker & Rubel, 1980; Midlarsky & Klain, 2005). Students would be forced to undergo rote

memorization drills, and those that did not show progress would be flogged (Baker & Rubel,

1980). In 1970, over 60% of the U.S. population viewed corporal punishment as an acceptable

form of discipline (Elam, 1978). Most of the population felt schools needed stricter management

of problem behaviors (Elam, 1978). Historically, corporal punishments were encouraged and

used in American schools (Baker & Rubel, 1980; Elam, 1978; Midlarsky and Klain, 2005).

However, the detrimental effects of corporal punishment have been observed in the literature for quite some time.

Baker and Rubel (1980) noted that some colonial American (c. 1647-1779) teachers were at odds with the practice of corporal punishment but felt that they had little choice in the matter and were compelled to inflict this punishment. Further back, Craig (1847) observed the limitations of corporal punishment by acknowledging that repeated floggings would result in a negative rapport with the student. The problem behavior may persist despite the physical strike. For example, in experiments with mice, researchers demonstrated that previous exposure to intermittent electrical shock diminishes the effect of further shock treatment (Shemer & Feldon, 1984). This effect is congruent with more recent studies that confirm a decrease in the sensitivity to punishment upon repeated exposure to physical punishment (Capaldi et al., 1985; Halevy et al., 1987).

These findings were replicated with neuro-typical children with no observable developmental issues with a loud buzzer sound serving as the punishment (Deur & Park, 1970). In addition to the extinction of efficacy with repeated use, corporal punishment created poor relationships with seething tensions between teachers and students in the twentieth century (Middleton, 2008). Numerous accounts of corporal punishment in schools resulted in adverse outcomes for students cited in the literature (Baker & Rubel, 1980; Craig, 1847; Gershoff & Font, 2016; Hyman & Wise, 1979; Middleton, 2008; Midlarsky & Klain, 2005). Corporal punishment was not found to violate the eighth amendment (cruel and unusual punishment) in the landmark case of Ingraham v. Wright (Oluwole, J., 2022, April 12). Although still legal in 19 states, corporal punishment has experienced a dramatic decline in usage from the late 1970s to today (Finkelhor et al., 2019; Gershoff & Font, 2016). The figure below shows states that have

banned corporal punishment and the year in which the use of that form of discipline was outlawed. The table below presents this information in chronological order of the states that have abolished corporal punishment.

Table 2

States that have Banned Corporal Punishment in Chronological Order

State	Year	State	Year	State	Year
New Jersey	1867	Wisconsin	1988	Utah	1992
Massachusetts	1971	Alaska	1989	Illinois	1993
Hawaii	1973	Connecticut	1989	Maryland	1993
Maine	1975	Iowa	1989	Nevada	1993
District of Columbia	1977	Michigan	1989	Washington	1993
Rhode Island	1977	Minnesota	1989	West Virginia	1994
New Hampshire	1983	North Dakota	1989	Delaware	2003
New York	1985	Oregon	1989	Pennsylvania	2005
Vermont	1985	Virginia	1989	Ohio	2009
California	1986	South Dakota	1990	New Mexico	2011
Nebraska	1988	Montana	1991		

While the rates of corporal punishment use in schools have declined, the use of alternative methods of discipline has taken the place of physical punishment.

Exclusionary Punishment

As school behavior issues grew more violent in the mid-20th century, and as media coverage of this violence increased, Americans' concern for this violence grew enough to spur government intervention (Blyth et al., 1980; Schriro, 1985; Toby, 1998). Because of this intervention, the U.S. government commissioned a study published in 1977 titled *Violent Schools-Safe Schools.* The study aimed to assess the state of violence in American schools (Schriro, 1985, Toby, 1998). While violence in schools was currently on the rise, it was not as ominous as perceived by the American public (Schriro, 1985; Toby, 1998). As corporal punishments decreased, alternative methods of punishment for misbehaviors took the place of

physical punishments because many researchers agreed that punishments were the best way to correct problematic behaviors exhibited by students (Kleck & Barnes, 2013; Mayworm & Sharkey, 2014; Skiba et al., 2014). School suspensions and other exclusionary practices have been used in U.S. schools throughout history; however, their use as a preventative measure for reducing problem behaviors increased substantially in the 1970s (Losen & Skiba, 2010). Exclusionary punishment is an alternative method, other than corporal punishment, in the attempted management of student behavior. The American Psychological Association (APA) defines exclusionary punishments as any punishment that removes the student from their usual educational setting (Discipline facts - APA, n.d.). These practices include in-school suspensions (ISS), out-of-school suspensions (OSS), or expulsion from school.

ISS is often considered a punishment where a student is separated from the general population of students and student activities for a predetermined period while completing coursework (Hyman, 1997). OSS is an exclusionary discipline practice where students are banned from school campuses for up to 10 days (Hyman, 1997). However, despite the widespread use of OSS as a punishment practice, research indicates that the practice of using OSS to reduce problematic behaviors is ineffective and often has unintended consequences (Bear, 2012; Sharkey & Fenning, 2012). The intended purpose of OSS is to remove problematic student behaviors to gain control and curate an environment more conducive to learning (Flannery et al., 2014; Perry & Morris, 2014). Unintended consequences of OSS include missed educational opportunities for students (Bear, 2012; Perry & Morris, 2014).

Additionally, using OSS as a disciplinary practice created hostile school climates by increasing tension and mistrust between teachers and the school's administration (Bear, 2012; Perry & Morris, 2014; Sharkey & Fenning, 2012). In essence, school administrators who heavily

relied on OSS as a disciplinary action only treated the symptoms (misbehaviors) and did not address the root of problematic behaviors. Students with chronic discipline issues in school should receive additional support to address the root causes of misbehaviors and not simply provide quick fixes with unintended consequences (Bear, 2012; Moreno & Gaytán, 2012). A meta-analysis published in 2015 reported that in the 2011-2012 academic year, 3.5 million U.S. students were given ISS, and 3.45 million U.S. students were given OSS (Noltemeyer, Ward, & Mcloughlin, 2015). Even though the negative consequences of OSS are documented in the literature, schools have deemed OSS necessary for the duration of schools that are safe and conducive to a positive culture and learning environment (Hyman, 1997; Perry & Morris, 2014; Sharkey & Fenning, 2012).

Many studies conclude that exclusionary discipline practices do not have the intended effect of positive behavior change and often come along with unintended negative academic consequences for students creating disparities among students concerning discipline (Curran, 2019; Gregory et al., 2010; Borsuk & Murphy, 1999; Cerrone, 1999; Fabelo et al., 2011; Fenning & Rose, 2007; Losen & Skiba, 2010; Skiba et al., 2014; Marchbanks et al., 2015; Noltemeyer & Mcloughlin, 2010; Noltemeyer et al., 2015; Skiba & Peterson, 1999; Skiba & Rausch, 2006). Several researchers cite the loss of instructional time associated with exclusionary discipline practices (Fabelo et al., 2011; Losen & Skiba, 2010; Skiba et al., 2014). Researcher's report that students receiving at least one exclusionary discipline action because of behavior were far more likely to repeat a grade level than their peers who never received an exclusionary discipline action (Fabelo et al., 2011). Skiba et al. (2014) reported that students who receive exclusionary discipline punishments were much more likely to have excessive absences, receive future exclusionary punishments, and drop out of school. Skiba et al. (2014) also reported that OSS and

expulsion are risk factors for various undesirable developmental effects regardless of student demographic, level of achievement, or the school system status. Poor academic outcomes, and increased dropout rates, for students subjected to high-frequency exclusionary discipline has an economical cost. Marchbanks III et al. (2015) examined student discipline on students' risk for being retained at a grade level and dropout rates. The sample consisted of 7th through 12th grade students in Texas. The study's results indicate that school discipline relates to 4,700 student grade-level retentions per year. The study also indicated that student grade-level retention is associated with delayed entry into the workforce, costing the state of Texas over $68 million per year. The study also reported a 29% increase in students dropping out of high school because of disciplinary actions. These additional dropouts cost the state of Texas $711 million per year. Results also indicate that school discipline relates to a 29% increase in high school dropouts. These additional dropouts account for an economic effect of $711 million annually (Marchbanks III et al., 2015).

Another unintended consequence of exclusionary discipline practices is the disproportionality of students of color receiving exclusionary punishments (Fenning & Rose, 2007; Gregory et al., 2010; Losen & Skiba, 2010; Marchbanks III et al., 2015; Skiba et al., 2014). Gregory et al. (2010) reported that males across all racial and ethnic groups were more likely to be the recipient of some disciplinary action, including exclusionary discipline. Black males were most at risk for disciplinary actions. According to one study, Black males were 16 times more likely than white females to be suspended from school (Gregory, 1997). Fabelo et al. (2011) found that nearly 60% of Texas public school students experienced some form of expulsion or suspension from seventh to 12th grade and that Black students were more likely to

be the recipient of disciplinary action than students of any other race or ethnicity (Fabelo et al., 2011).

Table 3

Overall Discretionary Disciplinary Actions by Race/Ethnicity

	Percent with One of More Disciplinary Actions during Study Period	Percent First Disciplinary Action Was Code of Conduct Violation	First Disposition if First Disciplinary Action Was for a Discretionary Code of Conduct Violation			
			In-School Suspension	Out-of-School Suspension	Disciplinary Alternative Education Program	Expulsion
African American	75.1%	94.2	71.5%	26.2%	2.2%	0.01%
Hispanic	64.8%	92.7	79.1%	18.0%	2.7%	0.001%
White	46.9%	93.3	86.5%	9.9%	3.5%	0.01%

Unfortunately, Fabelo et al. (2011) also reported that Black students were assigned OSS at 26.2% as a first disciplinary action, compared with Hispanic students at 18% and white students at 9.9%. These data suggest that, when given discretion over the office referral, males and students of color more often receive disciplinary actions that are more severe than those experienced by white students. Some research suggests that these exclusionary discipline practices increase the frequency of interaction with law enforcement for deviant behavior outside of school. This increased frequency of interaction could be used as data explaining the higher proportion of incarcerated people of color (Monahan et al., 2014; Skiba et al., 2014). The school-to-prison pipeline is the phrase used to describe this phenomenon of school-exclusionary discipline practices leading to a higher risk of student interaction with law enforcement (Skiba et al., 2014). Several studies have indicated that higher frequencies in school exclusionary discipline correlate with a higher risk of criminal charges for students by law enforcement

(Borsuk & Murphey, 1999; Fabelo et al., 2011; Gregory et al., 2010). Monahan et al. (2014)

noted that these student interactions with law enforcement were universal and did not

discriminate based on race, ethnicity, or sex. However, it is not reasonable to correlate criminal

charges solely to using exclusionary discipline practices. Instead, the increased criminal charges

incurred by those students frequently excluded from school may result from minimal educational

opportunities, poor academic achievement, and a negative perception of schools (Skiba et al.,

2014). Exclusionary punishment is a well-defined term, but a less well-defined term

incorporating exclusionary practices is zero-tolerance.

Zero-tolerance Policies

Zero-tolerance discipline practices intend to punish students through exclusionary

punishment (Skiba, 2000) severely. Zero-tolerance policies took form during the early 1990s

when a surge of drugs, violence, and gang activity grew to alarming rates leading to the Gun-

Free Schools Act of 1994 (Cerrone, 1999; Skiba, 2000). The Gun-Free School Zone Act of 1990

and subsequent zero-tolerance policies were intended to prevent guns and gang-related activity

on public school campuses. However, schools began to include other behaviors under the

umbrella of zero-tolerance policies (Skiba, 2000; The Civil Rights Project, 2000). Some school

districts have added other behaviors, such as fighting to their zero-tolerance policies (Petrillo,

1997). Kumar (1999) notes zero-tolerance policies extending to include drugs and alcohol, and

other districts are cited in the literature for extending zero-tolerance policies to include threats

(Borsuk & Murphy, 1999). Additionally, zero-tolerance policies enforced exclusionary

punishments for offenses involving cough drops and paper clips (Skiba & Peterson, 1999), not

the severity of incidents the policy intended to target. In addition to minimal infractions

receiving maximal punishments, zero-tolerance policies have detrimental side effects (Civil

Rights Project at Harvard University, 2000; Fabelo et al., 2011; Skiba, 2001). Thus, a need exists

for alternatives to exclusionary discipline practices in schools, and researchers have specifically

mentioned Positive Behavior Interventions and Supports (PBIS, 2021; Fenning & Rose, 2007;

Skiba & Rausch, 2006). A background in behaviorism research is necessary to understand how

PBIS can provide a better alternative to exclusionary discipline.

Behaviorism

Behaviorism is a school of psychology that attempts to develop a theory based on

objective evidence of behavior with no regard to consciousness or the internal mechanisms of the

mind (Watson, 1913). Near the end of the 19th century, psychologists' progress in understanding

human behavior had stalled because of a focus on unseen mental states which could not be

measured (Thorndike, 1898; Watson, 1913). Rather than focus purely on introspection,

researchers such as Edward Thorndike and John B. Watson argued that the study of animal

behavior should be the focus of the investigation, as behaviors are observable and can be

measured, unlike consciousness (Thorndike, 1898; Watson, 1913). As a result, early

behaviorists focused on empirical behaviors rather than subconscious notions. Behaviors are

observable and can be measured to generate theories about why animals behave in specific ways

and then attempt to predict animal behavior. Early behaviorists were interested in the root causes

of behavior and motivational factors that lead to specific behaviors (Cambiaghi, & Sacchetti,

2015; Rehman et al., 2021; Thorndike, 1898; Watson, 1913; Watson & Rayner, 1920).

Edward Thorndike and the Law of Effect

Some regard Edward Thorndike as a revolutionary psychologist providing significant

contributions to educational psychology (Catania, 1999; Galef, 1998). Whether the origination of

educational psychology lies with Thorndike or other researchers, Edward Thorndike is one of the

earliest pioneers of educational psychology (Catania, 1999; Galef, 1998). The subjects of Thorndike's experiments were dogs, cats, chickens, and other animals. In these experiments, Thorndike would put animals (while hungry) in cages they could escape from by pulling a wire or pressing a button (Thorndike, 1898). The most well-known experiments involved hungry cats put into wooden boxes with a mechanism that would open the door to the box (Chance, 1999; Thorndike, 1898). Doors on some boxes would open by pulling a wire or could be pushed open from the side. The most complicated box would require the cat to pull a wire, press a treadle, and push a bar before the door would open (Thorndike, 1898). Thorndike (1898) stated:

> When placed in the box, a cat normally tries to squeeze through any opening; it claws and bites at the bars or wire; it thrusts its paws out through any opening and claws at everything it reaches; it continues its efforts when it strikes anything loose and shaky; it may claw at things within the box. It does not pay very much attention to the food outside but seems simply to strive instinctively to escape from confinement. The vigor with which it struggles is extraordinary. For eight or ten minutes it will claw and bite and squeeze incessantly. (p. 13)

After many repeated trials, the cats would eventually become more docile in the box and happen upon the correct door-opening mechanism. Once the cat achieved the right door opening and was placed in the box again, the cat would immediately open the door (Thorndike, 1898).

From Thorndike's experiments came what he coined the Law of Effect (Thorndike, 1898). This law essentially states that associations are made between behaviors that lead to pleasant outcomes and behaviors that lead to less pleasant outcomes and that learning occurs. Furthermore, those behaviors that lead to positive outcomes will most likely be repeated (Thorndike, 1898). Thorndike's work evoked immediate criticism. Professor Wesley Mills, a

renowned animal psychologist at McGill University, wrote a scathing critique of Thorndike's experiments (Chance, 1999; Mills, 1899). In Mill's paper, he criticized Thorndike for his use of unnatural animal environments and, in Mill's view, only showing that animals appear to imitate. Mills also rejected Thorndike's idea that comparative psychologists were too focused on the mind, likening them to cognitive psychologists and not on the behaviors of animals (Mills, 1899). Despite these criticisms, Thorndike's concept of stimulus-response and associative learning is echoed in the research of several prominent behaviorists, including Ivan Pavlov and John B. Watson (Gewirtz, 2001; Malone, 2014).

Ivan Pavlov and Classical Conditioning

Born in Russia, physiologist Ivan Pavlov is most well-known for his work with dogs and conditioned reflexes. A conditioned reflex is not a reflex but a learned behavior (Garcia et al., 2019). Defining terms associated with this associative learning is essential to better understand classical conditioning. A neutral stimulus is a stimulus that does not provoke a response that can be measured as an index of conditioning (Skinner, 1953, 1966). An unconditioned stimulus is a stimulus that elicits an unconditioned response, as in sweating in response to elevated body temperature. A conditioned stimulus is a once-neutral stimulus that is repetitively paired with an unconditioned stimulus until it elicits a response that it previously did not. An unconditioned response is any response that occurs naturally and without any conditioning. Finally, a conditioned response is a learned response to a stimulus for which the animal has been conditioned.

Classical conditioning is a type of conditioning in which the conditioned stimulus (sound of a bell) is paired with and precedes the unconditioned stimulus (the sight of food) until the conditioned stimulus by itself is enough to provoke the response (salivation in a dog; Skinner,

45

1937). Garcia et al. (2019) elaborate that a conditioned response is a learned behavior elicited by a previously neutral stimulus. The animal, or human, learns to associate the previously neutral stimulus with a stimulus with some natural consequence. Pavlov's work contributed such a substantial amount of knowledge to classical conditioning that the term is often referred to as Pavlovian conditioning (Amd et al., 2019; Stussi et al., 2019; Totani et al., 2019). In his famous experiment, the conditioned stimulus (a bell) and the unconditioned stimulus (food) were administered into the mouth of the dog while the dog was bound; the conditioned stimulus preceded the unconditioned stimulus irrespective of the dog's response. After training, the conditioned reflex [which was Pavlov's criterion reference of learning] was demonstrated when the dog salivated to the sound of the bell alone and in the absence of food (Garcia et al., 2019; Rehman et al., 2021). This action implies that, in animals, a previously unconditioned stimulus could be conditioned to evoke the unconditioned response, making it now a conditioned response to a previously unconditioned stimulus. In other words, Pavlov made clear that animals can learn to respond similarly to different stimuli that do not naturally elicit that specific response. Another behaviorist, soon after this discovery, would put the concept of conditioned stimuli to the test using human subjects.

John B. Watson and Classical Behaviorism

Classical behaviorism focused solely on measurable and observable data and rejected thoughts and ideas as immeasurable constructs. Classical behaviorism focuses on the subject's response to stimuli controlled externally by the environment and internally through natural processes (Watson, 1913). As a behaviorist, Watson believed that psychology had failed to consider the natural world. Watson contended that the physical world was not only a means to an end, with that end being a psychological state. Instead, Watson believed that physical objects and

animal interactions with the natural world were areas of needed inquiry. Watson (1913), in his publication, "Psychology as the Behaviorist Views It," stated:

> Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. (p. 158)

This viewpoint implies that by objectively studying the behavior of animals regarding physical stimuli in the natural world, one could generalize these results to the behavior of human beings. Watson attempted to show associative learning by reinforcing unconditioned stimuli in humans, aiming to induce and transfer the emotional response of fear. In a series of what would now be considered controversial experiments, Watson demonstrated the associative learning of fear acquired through repeated previously unconditioned stimuli to control a desired behavioral outcome (Harris, 1979; Watson, 1913; Watson & Rayner, 1920).

Little Albert was described as a standard and otherwise healthy nine-month-old infant. Watson and Rayner (1920) described their reasoning for the selection of Albert as a participant in their experiments, stating:

> Albert's life was normal: he was healthy from birth and one of the best developed youngsters ever brought to the hospital, weighing twenty-one pounds at nine months of age. He was on the whole stolid and unemotional. His stability was one of the principal reasons for using him as a subject in this test. (p. 1)

At 11 months of age, the conditioning trials began to answer four research questions, (a) can a child be conditioned to fear a white rat when paired with known fear-inducing auditory stimuli (loud banging), (b) can this fear, if learned through conditioning of a specific stimuli, be transferred to other animals (rabbits, dogs) or objects (wooden blocks, package of white cotton), (c) what effect does time have on the conditioned emotional response, and (d) if the emotional response does not become extinct, then what methods can be devised to remove the response (Digdon, Powell, & Harris, 2014; Harris, 1979; Watson & Rayner, 1920). In the experiment, baseline measurements were taken on Albert's emotional responses to various animals (rat, dog, rabbit) and objects (cotton, wooden blocks, burning newspaper). Albert was observed to show no fear of any of the stimuli. However, during this testing phase, Albert showed an emotional fear response to the sound of a hammer striking a steel pipe directly behind the child's head (Harris, 1979). Watson and Rayner (1920) then paired the rat with the sound stimulus to condition Albert to fear the white rat. The sound stimulus and the white rat pairing occurred two sessions one week apart. Albert responded with avoidance behavior and crying when the rat was presented without the sound stimulus (Harris, 1979, Watson & Rayner, 1920).

This phase of the research answered the researcher's first research question, which asked if a child could be conditioned to fear a white rat alone after pairing the rat with a known fear-inducing sound stimulus. Five days after the initial conditioning trials, the researchers presented Albert with the rat, rabbit, dog, wooden blocks, and other stimuli to answer the researcher's second research question. Albert showed a strong fear response to all the animals but not the wooden blocks, which he played with freely and without fear (Harris, 1979). To test the third research question, Watson and Rayner (1920) waited approximately one month and presented Albert with the animals and objects to Albert. Albert feared the animals but also touched the

rabbit, which showed "strife between withdrawal and the tendency to manipulate" (Watson & Rayner, 1920, p.10). Before the fourth research question could be tested, Alberts's mother removed him from the hospital setting (Harris, 1979; Watson & Rayner, 1920). This experiment showed that a human being, like Pavlov's dogs, could be conditioned to respond to previously unconditioned stimuli, like a banging sound or a bell, evoking an unconditioned response, such as fear or salivation. B.F. In his research, Skinner assumed this behavioristic approach while standing on the shoulders of Thorndike, Watson, and Pavlov.

Figure 5

A Timeline of Behaviorists' Significant Contributions Culminating in B.F. Skinner's Operant Conditioning
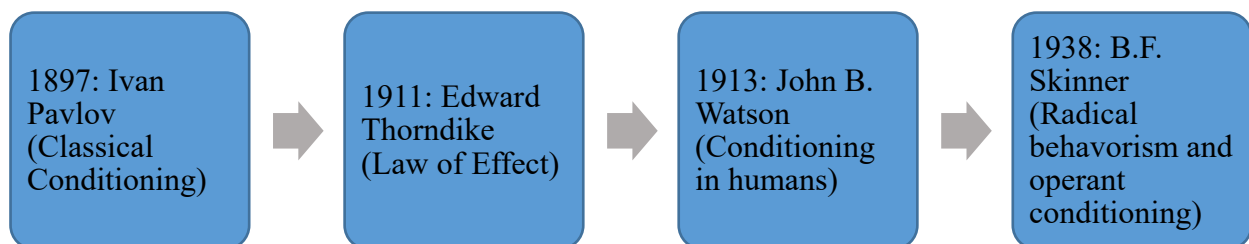
B.F. Skinner and Radical Behaviorism

Behaviorists agree that behavior can be studied as a natural science (Baum, 1995). A significant difference in Skinner's works, compared to his behaviorist predecessors, was the union of the observable and non-observable events in determining behaviors (Baum, 2017). In other words, in the natural world, things can happen without causation, but other natural events can influence behaviors and events. This theory would become known as radical behaviorism, and what makes this "radical" is that behaviors could be interpreted regarding past and present environmental conditions (Baum, 1995; Baum, 2011; Baum, 2017; Pierce & Cheney, 2004;

Skinner, 1938). Radical behaviorism is contrary in theory to behaviorists' ideas before Skinner's time, disregarding mental states as a factor of analysis (Baum, 2017; Shepherd & Linn, 2015; Skinner, 1938). Skinner was one of the founders of behavior analysis and defined operant conditioning, which defined habitual behavior as controlled by consequences (Skinner, 1937; Staddon & Cerutti, 2003). When a performed behavior is bolstered or diminished by its consequence, it is termed an operant behavior (Pierce & Cheney, 2004).

Figure 6

Conceptual Framework of Operant Conditioning.
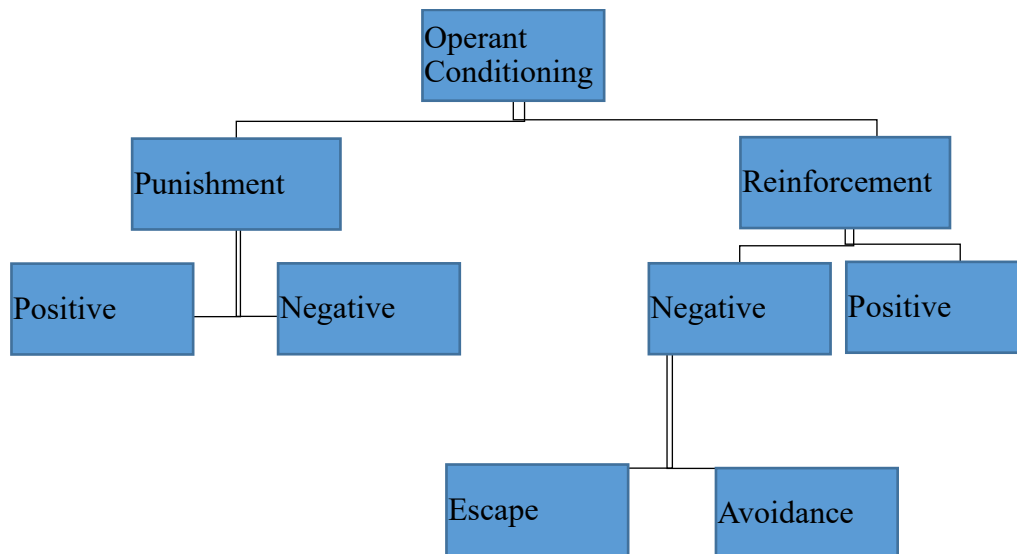
For example, running is a behavior, but running for improved fitness is an operant because of the consequence of improved fitness. This behavior will increase in frequency because of the consequence of improved fitness. Skinner differentiated operant conditioning (learned behavior) from respondent conditioning (reflex; Skinner, 1937). Respondent conditioning is a reflex, while operant conditioning controls behavior through the behavior's elicited consequences (Amd et al., 2019; Pierce & Cheney, 2004; Skinner, 1937; Stussi et al., 2019). For example, respondent

conditioning occurs when an individual squints their eyelids in response to an increased light stimulus due to a biological reflex. The same individual may put on a hat to block the light stimulus. This action is not innately known but is a learned behavior as the intensive light stimulus' absence occurs because the stimulus is removed upon wearing a hat. Skinner created easily replicated laboratory conditions for studying animal behavior that could provide insight into human behavior (Baum, 2011; Skinner, 1937; Skinner, 1953).

Contingencies of Reinforcement

Profoundly, Skinner's work included the concept of contingencies of reinforcement, defined as the relationship between the contextual setting in which the behavior occurred, the type or operant, and the resultant consequences of the behavior (Kazdin, 2012; Maag, 2016; Pierce & Cheney, 2004; Skinner, 1937; Staddon & Cerutti, 2003). There are four contingencies of operant behaviors: positive reinforcement, negative reinforcement, positive punishment, and negative punishment.

Table 4

The Four Basic Contingencies of Reinforcement

	Behavioral Effect	
Post-behavioral Stimulus	Increase	Decrease
Present/On	Positive Reinforcement	Positive Punishment
Absent/Off	Negative Reinforcement	Negative Punishment

Each contingency can either be presented (on) or removed (off). Contingencies depend on the stimulus following the behavior and whether the behavior increases or decreases in frequency

(rate of response). The procedural aim of the operant is to increase or decrease the response rate. These reinforcement schedules bring about desired behaviors and reduce undesirable behaviors (Kazdin, 2012; Maag, 2016; Pierce & Cheney, 2004; Shepherd & Linn, 2015).

Positive Reinforcement.

Positive reinforcers are an added environmental stimulus that comes after an emitted behavior increasing the frequency of that behavior (Pierce & Cheney, 2004). These stimuli are usually verbal or tangible rewards such as praise or food. Notably, these stimuli cannot be called positive reinforcers unless the introduction of the stimuli increases the targeted behavior (Pierce & Cheney, 2004). Critics of using rewards for behavior modification include educators and psychologists. The worry is that rewards are thought of as controlling by the participant, thus leading to a decline in the participant's intrinsic motivation and creative performance (Deci & Ryan, 1985; Kohn, 1993; Lepper, Greene, & Nisbett, 1973).

To further explore the theory that rewards and positive reinforcement lead to decreases in intrinsic motivation and creativity, many researchers investigated this proposed phenomenon through quantitative meta-analyses of the extant literature (Cameron, Banko, & Pierce, 2001; Cameron & Eisenberger, 1997; Pierce & Cameron, 2002). The findings from these studies showed that positive reinforcers in the form of rewards could be used successfully to improve or sustain a person's intrinsic motivation. Specifically, verbal reinforcers increased people's task engagement and completion. Regarding tangible rewards such as food, the results indicated that these positive reinforcers improved task engagement and completion for events that were initially found to be uninteresting to the participants. Events that individuals found to be initially engaging, the results from the meta-analysis underscore the importance of participant perception of activities as initially engaging or unengaging as the main factor of intrinsic motivation

(Cameron, Banko, & Pierce, 2001; Cameron & Eisenberger, 1997; Eisenberger & Cameron, 1996; Pierce & Cameron, 2002).

Negative Reinforcement.

Negative reinforcement is defined as an increase in response rate when an operant results in the removal of an event (Pierce & Cheney, 2004). In other words, an emitted behavior takes away some unwanted event or stimulus, increasing that behavior. For example, if a child is restricted for misbehaving, they will view this as an unwanted consequence of their behavior. However, if the child then exhibits good behavior, and on that excellent behavior, the child's restriction is lifted, then the removal of the restriction is termed a negative reinforcer. Both positive and negative reinforcement increase the frequency of target behaviors in operant conditioning (Pierce & Cheney, 2004).

Positive Punishment.

When an emitted behavior's response rate is decreased due to the introduction of a stimulus, the contingency is known as positive punishment (Pierce & Cheney, 2004). Positive punishment occurs when the introduction of a specific action decreases the frequency of a behavior. Positive punishment would be placing the child on restriction in the first place. When a child misbehaves, and the parent/guardian places the child on restriction, the behavior that caused the restriction should be reduced if the contingency acts as operant and effectively reduces the problematic behavior. Critics of positive punishment cite the correlation between positive punishment and future misbehavior, such as increased aggression. Most of this research links future aggressive behaviors to corporal punishment in young children (Craig, 1847; Middleton, 2008; Gershoff & Grogan-Kaylor, 2016; Taylor et al., 2010; Youssef, Attia, & Kamel, 1998). The limited positive effects of corporal punishments are cited in the late 19th

century by Craig (1847) when he described the use of corporal punishment to an educational end for the student. The passage in his work, *The Philosophy of Training, or, the Principles and Art of a Normal Education: With a Brief Review of its Origin and History*, he describes the diminishing effects of the use of corporal punishment as a positive punishment used in what is now known as operant conditioning stating

> Whereas, if it is not got, and flogging ensues, his fear is only changed into revenge against his taskmaster; and, on the other hand, if a punishment does not follow the omission of it, even the master's physical control is at an end, for the chances of a similar escape in time to come will neutralize the most positive threatenings of punishment (p. 303-304).

Negative Punishment.

Negative punishment is exhibited when the removal of a stimulus results in a decrease in operant behaviors (Baum, 2017; Pierce & Cheney, 2004). To illustrate this reinforcement contingency, consider a classroom of misbehaving children. The children misbehave because of a disagreement about an instructional game being played. Some opposing team members are in a quarrel about the fairness of the game. Too many students are involved in the quarrel, and the teacher decides to discontinue the game, even though the students typically enjoy this game. If the teacher's removal of the stimulus (game) results in a decrease in the operant behavior (quarrel), this teacher's actions will impose a negative punishment.

Another example may be removing privileges to reduce an operant behavior. For example, a teenager speaks to an adult with disrespect and loses the privilege of devices such as a cell phone. The removal of the stimulus (cell phone) will decrease verbal disrespect (respondent behavior) if the cell phone is acting as an operant, which alters behaviors in an

environment (Baum, 2017; Pierce & Cheney, 2004). Skinner believed that the principles of operant conditioning extended beyond a laboratory setting and could affect behavior change in everyday life (Morris et al., 2005; Skinner, 1953).

Applied Behavior Analysis and Token Economies

Applied behavior analysis (ABA) targets behaviorism to change behaviors that will have a significant social impact (Baer et al., 1968). Using ABA, changes in behavior are achieved by evaluating the relationship between the environment and the behavior under scrutiny (Mace, 1994; Mace & Critchfield, 2010). The first use of ABA is evident in the study "The psychiatric nurse as a behavioral engineer" (Ayllon & Michael, 1959). In this study, Ayllon and Michael trained psychiatric hospital employees on using token economies based on the principles of operant conditioning. A token economy is a formal description of contingency relations intending to modify behavior by delivering conditioned reinforces (Kazdin, 1982). Later Ayllon and Azrin (1968), who worked with psychiatric patients, and Staats, Minke, and Butts (1970), who worked with children and the development of their literacy skills, created the primary impetus for the use of token economies (Boerke & Reitman, 2011; Kazdin, 1982). Token economies, is grounded in the principles of operant conditioning, and among the first to use ABA in real-world settings (Boerke & Reitman, 2011).

Kazdin and Bootzin (1972) elaborated on the advantages of using tangible rewards (tokens) to reinforce desired behaviors. Among these advantages are quantitative relationships to the reinforcement amount and durable tokens. They can be used continuously, and tokens are portable and can be in the participant's possession while far removed from the context in which the tokens were earned. The researchers also noted the importance of considering identified barriers to implementing token economies, including participant resistance, proper staff training,

circumvention of the contingencies, and non-responsiveness of participants. The use of ABA and token economies may have beginnings in clinical medical interventions but is also used in a broad range of other fields, including education and PBIS (Anderson & Freeman, 2000; Anderson & Kinkaid, 2005; Waasdorp et al., 2012). Token economies is an application of ABA, which is rooted in the principles of operant conditioning, and specifically is designed for classroom settings, that began to appear in the late 1970s and throughout the 1980s (Boegli & Wasik, 1978; Kazdin, 1982).

In education, the main action of a token economy is the distribution of tangible rewards (points or some other token) that act as an operant or an immediate reinforcer for the desired behavior. The tangible reward given for the desired behavior can then be traded later by the student for a prize or reward (candy or other student-valued items) that act as backup reinforcers for the desired behavior (Hayes, 2021). By offering immediate rewards for positive student behaviors, PBIS' use of token economies helps decrease the delay between the reinforcement and the behavior (Doll, McLaughlin, & Barretto, 2013). PBIS offers ongoing reward systems for achieving behavioral expectations exhibited by students, thereby providing an operant to reinforce desired behaviors, consistent with the tenets of behaviorism. Yassine and Tipton-Fisler (2021) provided an example of effective use of token economies in education. In their study of elementary school students, Yassine and Tipton-Fisler (2021) used token economies at recess to reduce aggression. The results of their study report a 50% to 100% reduction in aggressive behaviors across all grade levels.

Linking Operant Behavior and PBIS

Positive behavior intervention and supports (PBIS) is a framework that focuses on teaching and reinforcing positive behaviors (Horner et al., 2009). Rather than just punishing

negative behaviors, PBIS aims to create a positive school culture by teaching and reinforcing

prosocial behaviors (Sugai & Horner, 2002). The four contingencies of operant behavior are

strategies that can be used within the PBIS framework to increase or decrease the likelihood of a

behavior occurring in the future (Skinner, 1953). Positive reinforcement involves reinforcing a

behavior by providing a reward or consequence that is desired by the individual. This can be an

effective way to increase the likelihood of the behavior being repeated in the future. Negative

reinforcement involves reinforcing a behavior by removing an unpleasant or aversive stimulus.

This can also be effective in increasing the likelihood of the behavior being repeated (Skinner,

1953).

Positive punishment involves presenting an unpleasant or aversive stimulus in response

to a behavior. This is intended to decrease the likelihood of the behavior being repeated in the

future. Negative punishment involves removing a reward or desirable consequence in response to

a behavior. This is also intended to decrease the likelihood of the behavior being repeated

(Skinner, 1953). PBIS typically focuses on using positive reinforcement and negative

reinforcement as the primary strategies for shaping behavior (Sugai & Horner, 2002), rather than

relying on punishment (Horner et al., 2009). However, all four contingencies can be used as part

of an overall PBIS plan, depending on the individual needs of the learner and the specific

behavior being targeted (Sugai & Horner, 2002).

PBIS

PBIS is theoretically grounded in behaviorism and is the practical application of ABA in

an educational setting (Dunlap et al., 2008; Sugai & Horner, 2002, 2006). As defined by Sugai

and Simonsen (2012) in their published work titled "Positive behavioral interventions and

supports: History, defining features, and misconceptions,"

PBIS is an implementation framework that is designed to enhance academic and social

behavior outcomes for all students by (a) emphasizing the use of data for informing

decisions about the selection, implementation, and progress monitoring of evidence-

based behavioral practices; and (b) organizing resources and systems to improve durable

implementation fidelity. (p. 1)

Mounting social pressures led school leaders to look toward more effective methods of

maintaining school order that was preventative in design, as opposed to reactive forms of

behavior management (Bradshaw & Pas, 2011; Schriro, 1985). Richter et al. (2011) found

correlations between principal leadership skills, PBIS school status, and teacher job satisfaction.

School staff of PBIS and non-PBIS schools were surveyed and interviewed in this mixed

methods study. Results demonstrate that leadership and administrative support to utilize PBIS for

behavior management were strong predictors of positive school climates and teacher job

satisfaction compared to non-PBIS schools.

PBIS is purported to contribute to the success of positive behavior change (Flannery et

al., 2013). The U.S. Department of Education first mentioned PBIS in authorizing the Individuals

with Disabilities Education Act (IDEA) (U.S. Department of Education, 2016). IDEA has since

been reauthorized twice, once in 1997 and again in 2004, as an effective means of student

behavior management (U.S. Department of Education, 2016). Notably, in 1997 the U.S.

Department of Education's Office of Special Education Programs (OSEP) funded a technical

assistance center to explore the extension of PBIS to all students and not just those with

behavioral disorders (OSEP Technical Assistance Center on Positive Behavioral Interventions

and Supports, 2015). As a result of the OSEP Technical Assistance Center's inquiry, the

resultant definition of PBIS expanded to include evidence-based interventions for improved

academic and behavioral outcomes for all students (Sugai & Simonsen, 2012).

The PBIS framework was created to improve social skills through tiered interventions

based on frequent monitoring and data-based needs assessments regarding decision-making

about the most effective intervention (Coffey & Horner, 2012; Sugai & Simonsen, 2012).

Ultimately, the primary aim of PBIS is to improve the school climate and have proactive systems

in place that identify students needing behavioral interventions based on frequent monitoring

(Coffey & Horner, 2012). Core features of the PBIS framework include clearly stated

expectations regarding student behavior, a structured incentive-based system to acknowledge and

reward expected student behaviors, a positive school climate and culture, and data-driven

decisions regarding positive or negative student sanctions (Coffey & Horner, 2012; Sugai &

Horner, 2002). PBIS is linked to RTI and other MTSS by the core features that define the

framework. Generally, PBIS, RTI, and other MTSS share the following core features:

Figure 7

Core Features of PBIS
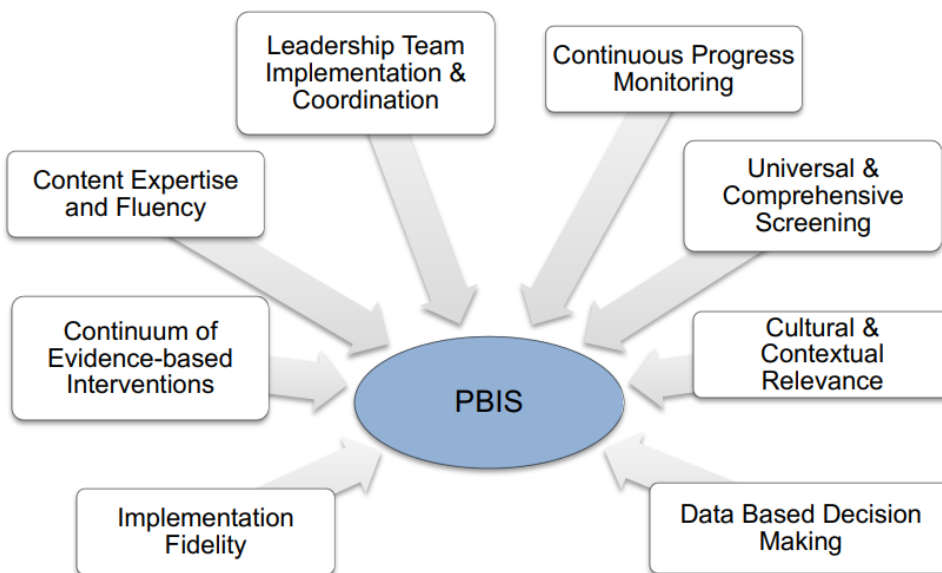
In the figure below, each core feature is briefly described:

Figure 8

PBIS Core Feature Descriptions

Feature	Description
Implementation Fidelity	Structures and procedures are in place to assess, ensure, and coordinate appropriate adoption and accurate and sustained implementation of evidence-based practices and systems in the context of assessment data regarding student responsiveness.
Continuum of Evidence-Based Interventions	An integrated and sequenced organization of practices is developed such that a (a) core curriculum is provided for all students, (b) modification of this core is arranged for students whose performance identified as nonresponsive, and (c) specialized and intensive curriculum is developed for students whose performance is deemed nonresponsive to the modified core. Elements of this continuum must have empirical evidence to support efficacy (intervention is linked to outcome), effectiveness (intervention outcomes are achievable and replicable in applied settings), relevance and socially valid (intervention can be implemented by natural implementers and with high fidelity), and durability (intervention implementation is sustainable and student outcomes are maintained). Intensity of implementation is matched to the intensity of behavioral challenge.
Content Expertise and Fluency	Local personnel have high levels of content knowledge, fluency, and experience to support the culturally relevant and high fidelity implementation of evidence-based practices and systems.
Leadership Team Implementation and Coordination	Implementation of evidence-based practices and systems are guided, coordinated, and administered by a local team comprised of representation from leadership, stakeholders, implementers, consumers, and content experts. This team is responsible for ensuring high implementation fidelity, management of resources, and data-based decision making.
Continuous Progress Monitoring	Performance is reviewed on a frequent and regular schedule to identify the adequacy of growth trends, student responsiveness, fidelity of support implementation, and adaptations and modifications in supports.
Universal & Comprehensive Screening	Performance and progress of all students are reviewed on a regular schedule (e.g., quarterly, annually) and in a systematic manner to comprehensively or completely assess (a) current level of progress, (b) adequacy of progress, (c) fidelity of support implementation, (d) effectiveness of support, and (e) need or change in supports.
Cultural and Contextual Relevance	Implementation of evidence-based practices, systems, and associated data-based decision making are adapted to the context of the local culture such that characteristics and cultural learning histories of stakeholders, implementers, and consumers are embedded in a comprehensive and authentic manner. The influences of individual or group perspective, bias, and/or beliefs (learning history) on actions and decision-making are highlighted.

Essentially, PBIS is a multi-tiered system of support (MTSS). Usually abstracted as a three-tiered model, MTSS frameworks provide stratified interventions that start with widespread, whole-school initiatives that intensify and individualize based on the student's reaction to prior intervention (Fletcher & Vaughn, 2009). The role of district-level leadership includes generating an inclusive plan for all schools using the MTSS framework, creating and implementing behavioral and academic training, and evaluating interventions to determine effort and effectiveness (George & Kinkaid, 2008).

Behavioral and academic training management is centered on positions formed within the district. Some districts provide MTSS training under the direction of district leaders while employing a district MTSS coordinator who helps plan and integrate the framework (Freeman, Miller, & Newcomer, 2015). The role of the principal and other building-level leaders is to establish a MTSS leadership team and have these representative school leadership teams attend district training. Some schools have separate RTI and PBIS teams, and others have an umbrella MTSS team. The goal, in either case, is to collect data, share it with school staff, and use it to drive shared decision-making for interventions aimed toward academic and behavioral school improvement (Freeman, Miller, & Newcomer, 2015).

Choi et al. (2019) found that MTSS technical assistance provided by school leadership had significant mediating effects on implementing both behavioral and academic MTSS. Teachers must be able to align MTSS practices with the leadership team's goal for the school if MTSS is to improve student academic and behavioral outcomes (Rowan et al., 2009). Within a MTSS, it is the teacher's role to coordinate academic and behavioral instructional activities to ensure that all students receive the same high-quality Tier I instruction (Coyne et al., 2016). Bohanon et al. (2016) observed the successful implementation of MTSS in secondary schools

with behavioral and academic components. Teachers implemented targeted interventions for academics and behaviors by explicitly teaching appropriate behaviors and acknowledging students' behavioral expectations (Bohanon et al., 2016). Leonard et al. (2019) found that teachers' collaborative use of best practices, use of data to made decisions, and providing consistent and differentiated instruction improved the implementation of MTSS within the school. However, Braun et al. (2018) interviewed teachers in an urban school district to explore their understanding of MTSS. The researcher's found high need urban teachers lack clarity in their MTSS roles. The only teachers with an understanding of MTSS had established roles on school leadership teams. All other teachers who were not directly involved with MTSS teams lacked clarity of the process and felt unprepared to implement MTSS due to insufficient training, lack of support, and unfamiliarity with the process and tools associated with MTSS (Braun et al., 2018). When teachers are not perceptually confident with an intervention like PBIS, it may lead to unpredictable implementation outcomes (Reinke et al., 2011).

Response to Intervention (RTI) and PBIS are similar types of MTSS as they aim to increase the frequency of interventions through a tiered support framework (Nocera et al., 2014). These frameworks use a methodical and analytically determined intervention level to guarantee that students obtain expedited and practical assistance (Fuchs & Fuchs, 2006; Hawken, Vincent, & Schumann, 2008). The PBIS framework comprises three tiers that comprehensively provide interventions for the entire school population, specific students, public school settings, and specific classroom settings (Carroll, Lawlor, & Phee, 2012; Kern & Yell, 2020; Sugai & Simonsen, 2012). PBIS tiers are classified as Tier 1 (universal), Tier 2 (targeted), and Tier 3 (intensive; Bradshaw, Waasdorp, & Leaf, 2012; Flannery et al., 2013; Nocera et al., 2014).

Tier I/Schoolwide Positive Behavior Interventions and Supports (SWPBIS)

Two overarching themes define PBIS, an emphasis on the entire school as the interventional component (Biglan, 1995; Mayer and Butterworth, 1979) and the concurrent creation of interventions linked to other tiered supports of increasing intensity and individualization (Fuchs & Fuchs, 2006). The figure below represents the multi-tiered approach, initially borrowed from the field of community health, and first introduced into the field of education by Hill Walker (Walker et al., 1996).

Figure 9

PBIS Multi-tiered Approach
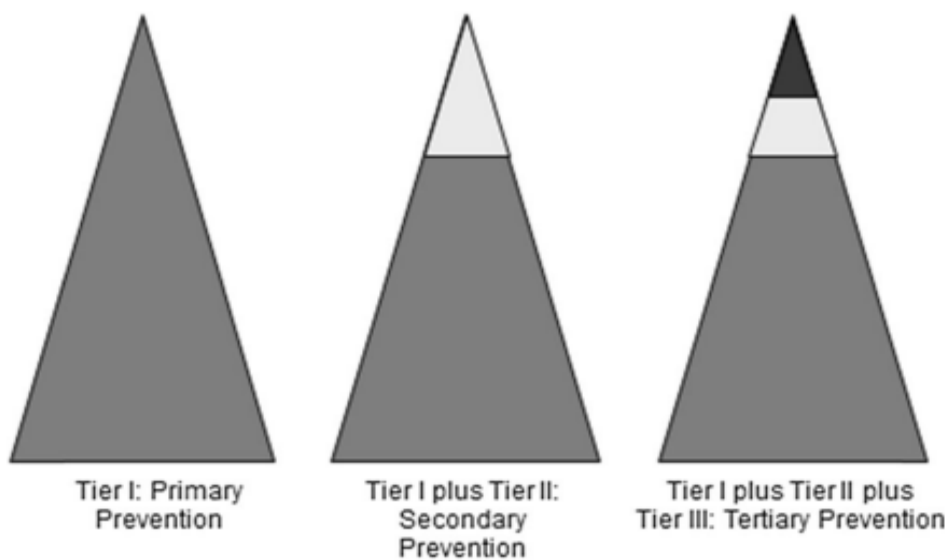
The initial goal of this method is to consider an institution's most valuable results and then select the smallest number of evidence-based interventions that will reach at least 80% of the institution's population (Horner & Sugai, 2015; Sugai & Horner, 2006). Tier I intervention levels in education aim to create a positive school culture built upon the identification and instruction of behavioral expectations, reinforcement systems when behavioral expectations are met, reinforcement systems when expectations are not met, and a system for data-based decision-

making (Horner et al., 2010; Putnam et al., 2002; Sugai & Lewis 1999; Sugai et al., 2014). As illustrated by the Tier I level in Fig. 10, every student is exposed to Tier I behavioral interventions and supports. Tier I is considered as primary prevention because the supports aim to proactively prevent problem behaviors before they have an opportunity to occur (Horner, Sugai, & Anderson, 2015). Primary prevention supports, referred to as SWPBIS, at the Tier one level include all school stakeholders and encompass all school and school-related settings (Carroll et al., 2012; Sugai and Horner, 2006). The core elements of Tier I include defined and taught behavioral expectations, reward and consequence systems, universal screening for behavior support, continuous data collection and data-based decision-making, and differentiated instruction for behavior (Flannery et al., 2013; Nocera et al., 2014; Sharkey & Fenning, 2012; Simonson et al., 2012; U.S. Department of Education, 2016).

Paramount to the successful implementation of PBIS are the core practices and systems that comprise each Tier of the PBIS framework. At the Tier one level, successful implementation includes the practices of establishing and teaching school-wide expectations and behaviors, establishing and teaching classroom expectations, continuums of procedures for encouraging or discoursing behaviors, and engaging in school-family cooperatives (Flannery et al., 2013; Horner & Sugai, 2015; Kelm et al., 2014; Nocera et al., 2014; OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015). Bruhn et al. (2014) found that even in schools that did not have proactive disciplinary procedures in place, without clear expectations and defined behavioral expectations, the results of reactionary discipline did not produce positive student outcomes. Examples of SWPBIS core practices at the Tier I level include explicit instruction of how these procedures and behaviors looked in different school settings (e.g., classroom, lunchroom), posted signage acting as reminders to students of expectations, and

reminders to school faculty and staff to acknowledge acceptable behaviors (Kelm et al., 2014).

Acknowledgment for appropriate behaviors has successfully included verbal praise and tokens

such as tickets for school supplies (Kelm et al., 2014; Nocera et al., 2014). Teaching and

modeling appropriate behaviors are not always afforded to students with various backgrounds

and lives outside of the school setting; thus, these expectations were taught to all students (Bruhn

et al., 2014). Bruhn et al. (2014) elaborated on the importance of teaching and modeling

appropriate behaviors and recognizing and rewarding students to exhibit appropriate behaviors.

Data-driven decision-making to support the processes that underlie the implementation

and support of PBIS is an important team-oriented element of successful PBIS implementation

(Flannery et al., 2013; Waasdorp et al., 2012). Coffey and Horner (2012) identified teamwork as

essential to continuous PBIS implementation. PBIS teams consist of teachers, staff members, and

administrators who must continuously gather and analyze data to make decisions that promote

the success of PBIS implementation (Flannery et al., 2013; Sugai & Horner, 2006). If

implemented with fidelity, 80-90% of the student body generally had a positive outcome

regarding PBIS interventions and supports (Bradshaw, Pas et al., 2015; Flannery et al., 2013;

Horner & Sugai, 2015). However, the literature also reports that not every student responds to

Tier I interventions or supports in a positive way (Bradshaw, Pas et al., 2015; Flannery et al.,

2013; Kelm et al., 2014). Through continuous monitoring, data collection, and analysis, students

needing more intensive interventions or support were identified and provided with assistance as

needed (Freeman et al., 2015; Horner & Sugai, 2015; Kelm et al., 2014; Waasdorp et al., 2012).

Many schools only implement the Tier I level of PBIS because extra resources are required to

implement Tiers II and III successfully. (Bradshaw, Pas, et al., 2015; Horner & Sugai, 2015).

Tier II/Targeted

The U.S. Department of Education's Office of Special Education Programs describes the goal of Tier II as reducing the prevalence of problem behaviors that are high-risk or unresponsive to Tier I supports by offering intensified, focused, and frequent small group interventions where high-risk behaviors are more likely to occur (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015, p. 6). The secondary prevention practices of Tier II use moderate-intensity interventions to support the 10-15% of students who do not respond to Tier I interventions and exhibit an ongoing behavioral problem (Carroll et al., 2012; Flannery et al., 2013; Horner & Sugai, 2015; Kelm et al., 2014). Figure 9 illustrates the logic that Tier II supports are added to Tier I supports and represent a continuum of student support. Tier II was built to give more intensive support to students with ongoing behavioral problems who are non-responsive to Tier I interventions and supports (Horner & Sugai, 2015; Nocera et al., 2014).

Tier II's core systems and practices that comprise this intervention level include all Tier I practices mentioned previously. Tier II is also characterized by increased instruction and self-regulatory practice, increased supervision by adults, more positive reinforcement opportunities, and increased access to academic supports (Carroll et al., 2012; Flannery et al., 2013; Kelm et al., 2014; Nocera et al., 2014; OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015, p. 14). Tier II interventions may include social skill-building or self-management techniques (Anderson & Borgmeier, 2010). A well-known example of a Tier II intervention is the check-in/check-out (CICO) system. CICO is characterized by students checking in with a mentor at the beginning of each day with a token (points) based card and checking out with the mentor at the end of the day to be returned and signed by the parent for the

next day's check-in (Swoszowski et al., 2013; Wolfe et al., 2016). Tier II interventions like the

CICO system work well for the 10-15% of students who are unresponsive to Tier I interventions

(Carroll et al., 2012; Flannery et al., 2013; Horner & Sugai, 2015; Kelm et al., 2014;

Swoszowski et al., 2013; Wolfe et al., 2016).

Tier III/Intensive

Tier III emphasizes reducing the magnitude of the potency or intricacy of identified

students with problematic behaviors and the student is unresponsive to the other tiers. At this

level of intervention, the student receives the most differentiated and intensive intervention and

support where high-risk behaviors are more likely to occur (Bruhn et al., 2014; Carroll et al.,

2012; Kelm et al., 2014; OSEP Technical Assistance Center on Positive Behavioral Interventions

and Supports, 2015, p. 6). Once again, Figure 9 illustrates the continuum of support, as students

receiving Tier III support also receive Tier I and II support. Students in need of Tier III support

often have chronic behavior issues. Intervention practices include a functional behavior

assessment, individualized support plans that focus on teaching, positive reinforcement, and the

active involvement of family and community supports (Kern & Wehby, 2014; OSEP Technical

Assistance Center on Positive Behavioral Interventions and Supports, 2015, p. 15; Wehby &

Kern, 2014). Tier III interventions and supports are evidence-based and practical strategies and

typically serve 1-5% of students requiring this level of support (Bruhn et al., 2014; Carroll et al.,

2012; Flannery et al., 2013; Horner & Sugai, 2015).

PBIS, Staff Perceptions, and Implementation Fidelity

Implementing PBIS with fidelity is critical but often challenging when educators confront

different contextual barriers (Childs, Kinkaid, & George, 2010; Molloy et al., 2013). The

effectiveness of PBIS implementation and the strength of positive student outcomes are difficult

to determine without fidelity of implementation. (Simonsen et al., 2012; Sugai & Horner, 2006).

The literature suggests that PBIS teams, administrators, teachers, and staff need to observe

positive changes correlated with the PBIS framework to buy into and implement the PBIS

systems with fidelity resulting in positive student outcomes (Chitiyo & May, 2018; Coffey &

Horner, 2012). Childs, Kincaid, and George (2010) investigated the sustainability of PBIS

systems in Florida at the state level to provide districts and schools with data for informed

decision-making regarding PBIS (Childs et al., 2010). During the study, Florida's

implementation of PBIS with fidelity increased to 65% of schools. The significant barriers

identified were staff time, belief in effectiveness, staff sustainability, and adequate funding

(Childs et al., 2010). Despite barriers to achieving sustainable implementation with fidelity,

faithful implementation remains a critical factor in positive outcomes regarding student behavior

management.

Studies have shown that implementing PBIS with fidelity, compared with schools that

did not implement the PBIS framework, is effective at reducing the number of problem

behaviors measured by frequencies of ODRs, ISS, and OSS (Bohanon & Wu, 2014; Simonsen et

al., 2012). Kelm et al. (2014) reported that the effectiveness of essential components of PBIS

implementation could be negatively affected if a check for the fidelity of implementation were

not in place. The researcher stated that data-driven decision-making about PBIS areas of

improvement could help districts better implement PBIS (Kelm et al., 2014). Flannery et al.

(2014) noted that high-fidelity PBIS schools, defined by the PBIS School-wide Evaluation Tool

(SET), reported a more significant decline in ODRs than low-fidelity schools. Coffey and Horner

(2012) support the claim that using data to plan and make changes has greater PBIS

sustainability than schools that do not. The researchers reported that support from the

administration, which values communication about the core features of PBIS, is also instrumental in PBIS sustainability (Coffey & Horner, 2012). A dedication of three years by 80% or more of the schoolteachers and staff is recommended to sustain PBIS (Sugai & Horner, 2006).

Han and Weiss (2005) noted that administrators, teachers, and staff members are all critical teammates that ultimately determine the sustainment and success of PBIS implementation with fidelity. These researchers, along with other researchers, have noted that professional development and ongoing support, buy-in, and observability of effectiveness were all determinants in the sustainability of effective PBIS implementation (Childs et al., 2010; Han & Weiss, 2005). Research indicates that varied teacher and administrator perceptions regarding PBIS effectiveness influence processes that determine PBIS sustainability and student outcomes, reporting that more experienced staff member perceptions of PBIS can positively influence sustainability and student outcomes (McIntosh et al., 2014).

A recent study by Wight (2020) explored the effect of PBIS on teacher perceptions of school climate across PBIS and non-PBIS middle schools in Illinois. All participants were confirmed as being in a PBIS or a non-PBIS school and had completed the 5Essentials climate survey. The study showed that non-PBIS schools reported more positive survey scores on most survey items compared to PBIS schools. The perception of collective responsibility was a predictor of perceptions of safety reported by students. This study may indicate that collective buy-in from school staff to improve school climate is important regardless of the behavior framework or lack of a framework. Hansen (2014) explored relationships between perceptions held by teachers of PBIS and the implementation process. A 25-question survey was administered to participants at four schools in Mississippi. Participants were from elementary and middle schools. One research question in the study asked participants if there is a

relationship between the implementation process and teacher perceptions of PBIS. Hansen reported a statistically significant correlation between teacher perceptions and the implementation process ($r = .50$, $p < .001$). A moderate effect size was calculated ($r^2 = .25$), indicating that teacher perceptions accounted for 25% of the variance in the implementation process.

A study performed in 2017 explored perceptions of barriers to the implementation of PBIS at high-risk elementary and high schools in the Southeastern United States. Participants included teachers and administrators who reported that lack of ongoing training, low administrative support, and lack of motivation could lead to poor teacher buy-in, thereby affecting the outcome of PBIS implementation. As one teacher stated in the study, "if all the teachers are not buying into it, it's not going to work" (McDaniel, Kim, & Guyotte, 2017, p. 42).

In another study, researchers explored teachers' perceptions of the effectiveness of their school's socio-emotional learning (SEL) approach, which mimics PBIS strategies for behavior management. SEL is the evolution of knowledge, mindsets, and socio-emotional skills that lead to positive student outcomes (Steed, Shapland, & Leech, 2021). In the mixed methods study, the researchers surveyed 1,154 preschools through second-grade teachers and reported varied results regarding teachers' perceptions of the schools' behavior management programs. Barriers to implementation cited were insufficient time during the day, insufficient training, and problematic school-wide strategies. The researchers found that a lack of teacher buy-in is probable without administrative support. Furthermore, this lack of teacher buy-in negatively impacted teachers' perceptions of the school's behavior management method(s).

Lawson et al. (2019) found that teacher buy-in is critical for sustaining behavior management programs over time and that a lack of teacher buy-in makes implementing these

programs challenging. Teachers may perceive that behavior management programs are "pushed-down" from the district level, leading them to become disinterested in the program and lose trust in the school's behavior management approach (Jones et al., 2017). One of the direct implications for successfully implementing a behavior management program is obtaining staff buy-in, including teacher input, when choosing different programs to achieve adoption and implementation fidelity (Murano et al., 2020).

Bowling (2018) explored elementary school administrators' and teachers' perceptions and experiences regarding the implementation and sustainability of PBIS. The study analyzed many data sources, such as meeting minutes, PBIS fidelity checks, and interview data. Participants in Bowling's study reported that initial training was sufficient, and the data indicated successful PBIS implementation and improved student behavioral outcomes for the first few years. However, school staff also reported that ongoing and continuous training and a lack of administrative support and feedback led to poor sustainability as new staff members did not receive adequate training or support. These findings indicate that poor training and lack of administrative support can lead to problems with the sustainment of PBIS implementation.

Callaghan (2021) performed a qualitative study exploring k-12 teachers' perceptions of PBIS and how these perceptions influence the teachers' use of PBIS practices in a rural Louisiana school district. In the study, the researcher noted that participants expressed that suboptimal PBIS implementation was occurring because PBIS was not being used consistently. Participants cited common barriers to implementation, including initial training, ongoing professional development, and communication among staff members. In focus group interviews, teachers identified supports that would help them become more competent with PBIS and enable them to use it more frequently or effectively. One participant in the focus group stated, "I mean, I

feel like if you are passionate about it, and you believe in it and you really believe in the message of it and what it is there to do, you are obviously going to use it more than if there's a teacher who doesn't believe in it" (Callaghan, 2021, p.188). This quote indicates that a lack of understanding or support regarding PBIS affects teachers' perceptions of efficacy and may lead to an unwillingness to use PBIS, thereby affecting the quality of implementation and implementation fidelity. The study may also indicate that PBIS is perceived differently at different school levels, as one teacher in the focus group stated, "It seems like it's always better at the elementary level, it's like they forget about these older kids" (Callaghan, 2021, p. 201). The sentiment that PBIS practices work better with younger students was shared by teachers who had taught in elementary and middle school settings. For example, one teacher stated:

> But I find, especially with the younger ones, they look forward to getting those things that sometimes they can't afford, like popcorn. Some kids never get candy or room money, so in order to be able to earn something that you can actually use, doesn't cost money, they like that. I find that older kids do not want a [school] dollar. I find that it is less efficient, like when you get to junior high. (p. 202)

Teachers in the study reported that PBIS did not work as well in middle schools because the program was not specific for that age group. The researcher stated in the study that what works at one school level or grade level may not be practical or appropriate for all grades or school levels. This indicates that contextual factors regarding school level or grade level may be barriers to implementation if a universal design is applied to all schools in a district without considering contextual factors, particularly the student's age. Another barrier highlighted in the study was teacher perceptions or attitudes about PBIS. One teacher stated:

Honestly, I think it just depends on the teacher, period. Their personality. If they feel that

the PBIS works or doesn't work. If they think it works, they're going to use it. If they

have a negative attitude towards PBIS, they won't use it. (p. 203)

The researcher noted negative perceptions of PBIS throughout the interview process and that

these negative perceptions were barriers for teachers in the implementation process. The

researcher commented in the study that negative perceptions of PBIS are barriers to teachers

using PBIS and that this negativity can spread and impact how other teachers use PBIS. The

researcher also noted that negative perceptions of PBIS are infectious, can spread among

teachers, and ultimately affect the school's climate and culture (Callaghan, 2021).

Sara McDaniel, Ph.D., is the Director of the Alabama Positive Behavior Support Office

and an associate professor in the University of Alabama's Department of Special Education and

Multiple Abilities. Professor McDaniel conducted a study investigating contextual factors

regarding teachers' and administrators' perceptions of PBIS implementation. The study included

161 participants, including administrators and teachers who were PBIS team members, had been

trained in PBIS and had received technical assistance regarding PBIS implementation (McDaniel

et al., 2018). Surveys were sent to participants who had received recent training from the PBIS

technical assistance center in a southeastern U.S. state. For inclusion, the participating school

districts must have met a high-need distinction by having at least 25% of schools receive Title-I

monies for lower-income families. Participants were surveyed regarding their perceptions of

support from their district, initial training, ongoing and continuous PBIS implementation support,

and their expectations of outcomes from PBIS implementation. Contextual factors stratified the

survey items.

Factor one explored PBIS readiness and these survey items related to PBIS outcomes and PBIS implementation support. Administrators in the study rated their perceptions of PBIS implementation support and PBIS outcomes lower than teachers to a statistically significant degree ($p < .001$). This finding indicates that administrators view PBIS as exerting less of an impact on school outcomes when compared to teachers. The perceptions of this factor did not change when considering the Title-I designation or district type. This consistency of perception regarding factor one means that administrator perceptions and ongoing support are consistent barriers to PBIS implementation.

The second survey factor addressed staff buy-in, among other variables. Again, a discrepancy between administrators' and teachers' perceptions was found, with administrators perceiving faculty buy-in higher, to a statistically significant degree ($p < .001$). This finding indicates that position may alter the perception of PBIS buy-in. For example, an administrator may perceive PBIS buy-in as robust among teachers, while it may not be accurate. Implications of these findings concern as administrators may hold negative perceptions of PBIS as McDaniel's study found that they rated their opinions of PBIS school outcomes and support much lower when compared to teachers.

This differing perspective may affect teacher buy-in if teachers believe the administration is unsupportive or do not believe PBIS has a robust positive effect on school outcomes. Furthermore, McDaniel's study underscored a discrepancy between teachers' and administrators' perceptions regarding PBIS buy-in, with administrators holding a false perception of the amount of teacher PBIS buy-in. Suppose administrators believe they have more teacher buy-in than exists. In that case, administrators may become complacent in their efforts to provide motivation, positive feedback or constructive criticism, and ongoing professional development.

Grimm (2020) performed a study to examine administrators' perceptions of their school's readiness to implement a MTSS. Participants in the study consisted of 25 principals from high schools in Virginia. The survey completed by participants contained a self-assessment survey of PBIS, SEL, RtI, and school culture. This section was followed by Likert scale statements regarding the implementation readiness practices of PBIS, SEL, RtI, and school culture. The researcher found a statistically significant difference between the principals' self-assessment of SEL compared to their ratings of implementation readiness factors presented in the Likert scale statements ($p = 0.03$). Principals in the study rated themselves higher in areas under their direct control, such as creating the master schedule.

Principals scored much lower in areas that were not under their direct control, such as creating a school culture where SEL skills are taught schoolwide. Additional factors exhibited low scores, such as professional development and staff buy-in (Grimm, 2020). These findings indicate that principals may overlook areas that are not their primary responsibility and may not exude much confidence in critical areas for successful MTSS implementation. A significant component of MTSS is PBIS, and administrator leadership, support, and continuous professional development are necessary to implement PBIS successfully. A difference in administrators' and teachers' perceptions of PBIS and a lack of administrative confidence, leadership, or support regarding PBIS implementation may affect teacher confidence and buy-in (McDaniel et al., 2018).

In a noteworthy study from the University of Oregon, Furjanic et al. (2022) examined how student and staff input was used while refining the Inclusive Skill-building Learning Approach (ISLA). ISLA is an intervention that uses specific PBIS strategies to minimize exclusionary discipline in middle schools through the instruction and practice of therapeutic

methods (Nese et al., 2022). Participants in the study were from two middle schools in the Pacific Northwest serving a predominantly White student body (66%). They included school psychologists, teachers, special education teachers, and administrators (Furjanic et al., 2022). Multiple data sources were collected from staff meetings, student focus groups, and a staff survey assessing ISLA's social validity and acceptability. The research questions explored what areas of ISLA improved over time, still needed improvement, ISLA acceptability, and implementation fidelity.

Consistent with the literature, the researchers found a disconnect in the perceptions of the ISLA intervention between administrators and teachers. In the study by Furjanic et al. (2022), one administrator stated:

> "I do think the ISLA process does teach some good skills around behavior and it prompts students to reflect on their words and actions. Having kids reflect on their impact is great for developing empathetic skills and it is a very important element of social-emotional learning. Also, the connections with restorative justice is very helpful." (p.21)

Alternatively, a teacher stated, "I think the theory behind ISLA is good and interesting, but the logistics and actual implementation within the current educational model and schools resources make the ISLA model fall short of its potential" (Furjanic et al., 2022, p.20)

This difference in perception decreased from year one to year two of the study. In year one, 21 participants marked 71 survey items as "not applicable." In year two of the study, only six participants marked 11 survey items as "not applicable." Participants specifically mentioned not being aware of or informed about the implementation process. With a better understanding of the intervention from years one to two of the study, Furjanic et al. (2022) also reported an increase in

positive perceptions from staff from year one to year two. The researchers also reported an increase in implementation fidelity across all six ISLA components from year one to year two.

However, limited resources and time were cited as barriers to effective implementation in both years of the study. The study's results by Furjanic et al. (2022) indicate a correlation between staff perceptions of behavioral intervention and implementation fidelity. As teachers became more knowledgeable of the intervention over time, their perceptions of it became more positive, and as knowledge increased and perceptions became increasingly positive, implementation fidelity improved correspondingly. The researchers noted in the discussion that "This increase in fidelity in Year 2 may be associated with higher acceptability by school staff." (Furjanic et al., 2022, p. 28). This finding implies that teacher perceptions are correlated with implementation fidelity in schools participating in behavioral support and socio-emotional learning programs.

Table 5

Studies of PBIS Administrator and Teacher Perceptions

Study	Purpose	Participant	Design/Analysis	Outcome
Flannery, Fenning, Kato, & McIntosh (2014). Effects of school-wide positive behavioral interventions and supports and fidelity of implementation on problem behavior in high schools.	To analyze the effects of PBIS implementation with fidelity on problem behaviors in schools	12 total high schools from the Midwest and Pacific Northwest	Behavioral data, case studies, interviews, notes from meetings	The most significant barriers were negative teacher perceptions, low teacher buy-in, and a lack of ongoing and continuous professional development.
Flannery, Frank, Kato, Doren, & Fenning (2013).	Analyze	Eight total high schools from the Pacific	Paired *t*-tests to observe changes	High schools are much larger and more complex. It

Study	Purpose	Participant	Design/Analysis	Outcome
Implementing schoolwide positive behavior support in high school settings: Analysis of eight high schools.	administrator and teacher PBIS buy-in and explore potential solutions	Northwest and Midwest	in SET scores across two years	is not easy to implement with fidelity across all levels and areas. Researchers noted that continuous and transparent communication is necessary.
Lohrmann, Martin, & Patil, (2013). External and internal coaches' perspectives about overcoming barriers to universal interventions.	Explore administrator and teacher PBIS perceptions	18 total PBIS coaches: Including eight external coaches and eight internal coaches	Semi-structured interviews analyzed with open coding	The most significant barriers were negative PBIS staff perceptions and misunderstandings about PBIS. Low staff motivation and poor morale.
McDaniel, Kim, & Guyotte (2017). Perceptions of Implementing Positive Behavior Interventions and Supports in High-Need School Contexts Through the Voice of Local Stakeholders.	Explore perceptions of barriers to the implementation of PBIS	High school and elementary school in the Southeastern United States	Case study, semi-structured focus group	Significant barriers included a lack of buy-in from the state, district, and local levels. Additionally, lack of training, lack of communication, and a culture of poverty were cited as barriers.

Evaluation of PBIS Fidelity

Without PBIS checks for implementation fidelity, essential system components could become compromised and affect the validity of the entire framework (Childs et al., 2010; Kelm et al., 2014). Kelm et al. (2014) also described the importance of monitoring, collecting data, and using the data to make informed decisions that would strengthen PBIS effectiveness over time.

School-wide Evaluation Tool (SET).

The School-wide Evaluation Tool (SET) is one of the most commonly used multi-dimensional measures of PBIS fidelity (Bradshaw, Pas, et al., 2015; Horner et al., 2004). The SET is designed to measure the critical features of PBIS and determine the level of implementation of PBIS at the school. The SET is also designed to help educators plan goals for PBIS implementation and help evaluate those goals, as subsequent SET assessments are taken annually and can be used for comparison.

SET is administered once a year and contains 28 items on a Likert scale, with 0 indicating no implementation, 1 indicating partial implementation, and 2 indicating full implementation. The items are subdivided into seven scales measuring PBIS core features: (a) taught behavioral expectations, (b) defined behavioral expectations, (c) in-place and continuous system for acknowledging behavioral expectations, (d) a method for responding to behavior infractions, (e) behavior monitoring and data-based decision-making, (f) sustainment of best organizational practices, and (g) ongoing and continuous district-level support (Bradshaw, Pas, et al., 2015; Flannery et al., 2013; Horner et al., 2004). Salters-Pedneault (2019) found that Cronbach alpha scores of SET survey items were reliable, indicating that interpretation bias due to different question wording and the subsequent interpretation of the question was attenuated. Horner et al. (2004) described the SET and the psychometric properties of the survey. Results from Horner's study indicate that the SET is a valid and reliable measure used to determine the effect of PBIS implementation.

Vincent et al. (2010) focused on the validity and internal consistency of the SET across school levels. SET data were obtained and analyzed from 93 high schools, 264 middle schools, and 833 elementary schools. Results from the study by Vincent et al. (2010) indicate that the

SET tool works best in elementary schools and shows less consistency in middle and high schools. Flannery et al. (2013) analyzed SET scores from school staff while examining PBIS at the high school level. In Flannery's study, school staff initially scored high on the district support component but low on BED, BET, and OR systems. Changes in SET scores were analyzed by Flannery and colleagues (2013). Significant and meaningful changes were found in the following SET components: BET ($t(7) = 3.35, p < 0.05$), OR systems ($t(7) = 3.45, p < 0.05$), and responding to behavioral violations ($t(7) = 4.58, p < 0.01$). Baskin-Downs (2020) used the SET to compare teacher perception SET scores with PBIS team membership and years of teaching service. A significant difference in the sixth, seventh, and eighth-grade teacher perception scores measuring BED on the SET was found when considering PBIS team membership. PBIS team members generally held more positive views for BED as measured by the SET. Significant differences in teacher perception scores on the SET were also observed for BET.

Another study administered the SET to 32 principals from 32 separate school districts in southeastern Ohio (Cottrill, 2022). The SET results from Cottrill's study indicate that most principals in the study believe staff agrees to rules and expectations (1.64 rating on a 2-point scale). Most principals believe that at least 90% of teachers are teaching behavioral expectations to students (1.42 rating on a 2-point scale), and most principals stated that a system for ongoing rewards existed in their school (1.60 on a 2-point scale).

When administered, a trained PBIS observer collects data through interviews, observations, and physical or digital documents. Documentation may include a school's improvement plan, PBIS reward systems, or any other critical component of PBIS. The goal for each component of the SET is 80% or higher, and it is noted that full implementation takes a

commitment with fidelity of two to three years (Bradshaw, Pas, et al., 2015; Flannery et al., 2013; Horner et al., 2004)

Self-Assessment Survey (SAS)

The Self-Assessment Survey (SAS) is designed to measure the perceptions teachers and staff have regarding PBIS fidelity and implementation and identifies areas for improvement (Sugai, Horner, & Todd, 2003). Any school employee can complete the SAS, which is structured into four components containing 46 items. The components are school-wide, non-classroom, classroom, and individual student systems (Solomon, Tobin, & Schutte, 2015). Sugai et al. (2003) defined these components:

1. School-Wide Systems: "School-wide is defined as involving all students, all staff, & all settings" (p. 2).

2. Non-classroom Setting Systems: "Non-classroom settings are defined as particular times or places where supervision is emphasized (e.g., hallways, cafeteria, playground, bus)" (p. 4).

3. Classroom Systems: "Classroom settings are defined as instructional settings in which teacher(s) supervise & teach groups of students" (p. 5).

4. Individual Student Systems: "Individual student systems are defined as specific supports for students who engage in chronic problem behaviors (1%–7% of enrollment)" (p. 6).

On the SAS, participants answer exemplary PBIS declarations regarding implementation (e.g., "expected student behaviors are taught directly") along two measures: status and priority for improvement. The scale for current status is an ordinal scale with the response options of in place, partially in place, and not in place. The scale for priority for improvement is also an

ordinal scale with the response options of high, medium, and low (Solomon et al., 2015; Sugai et al., 2003).

The internal consistency of the items of the school-wide system on the SAS was validated in a study of 1,219 school administrators and faculty members across 35 schools in Alabama. Most of the sample consisted of general education teachers (75%). Hagan-Burke, Burke, Martin, Boone, and Kirkendoll (2005) reported internal consistency of α = .88 for the school-wide systems factor of the SAS. Horner et al. (2004) also reported that items on the SAS appeared to have good content validity to measure perceptions of PBIS implementation with fidelity. Solomon et al. (2015) also found that the SAS had satisfactory internal consistency results through all components (α = .88).

Negative Results and Opposition to PBIS

The literature clarifies that implementation with fidelity is critical in achieving positive results with PBIS interventions (Childs, Kinkaid, & George, 2010; Molloy et al., 2013; Simonsen et al., 2012; Sugai & Horner, 2006). However, Simonsen et al. (2012) reported that improvement in state standardized reading scores was not related to the school's level of PBIS implementation. Some research indicates that PBIS interventions may lead to positive academic outcomes (Lane & Menzies, 2003; Luiselli et al., 2005; McIntosh et al., 2006; Simonsen et al., 2012). Substantial research indicates that PBIS implementation, regardless of fidelity, may not improve student academic achievement due to different contextual factors (Benner et al., 2012; Bradshaw & Pas, 2011; Bradshaw, Mitchell, & Leaf, 2010; Caldarella et al., 2011). Ervin et al. (2006) reported that no relationship was evident between increases in SET scores and annual percentages of students at-risk or at benchmark criterion.

Within the existing literature on PBIS, there is opposition to research findings regarding the effectiveness of PBIS in influencing student academic outcomes. The extant literature on PBIS and behavioral outcomes also has ambiguous findings. Some research indicates that PBIS interventions result in improved behavioral outcomes for students showing reductions in ODRs and other minor offenses (Bradshaw, Mitchell, & Leaf, 2009; Flannery et al., 2013; Horner & Sugai, 2015). Other research indicates that PBIS does not influence more problematic and severe behaviors. Guillory (2015) reported reductions in out-of-school suspensions (OSS) for the first two years of a study evaluating PBIS as a behavior management alternative but reported a 111% increase in the number of students who received OSS in the third year of the study. PBIS implemented with fidelity should show improvements in student behavioral outcomes across time as in other studies. Flannery et al. (2013) reported that it took a minimum of two years to achieve statistically significant results. Nevertheless, the researchers reported that using PBIS as a framework resulted in meaningful changes.

A partial explanation of this ambiguity of outcomes related to PBIS interventions could be related to school demographics. A substantial body of literature has examined the effectiveness of PBIS in positively influencing behavioral and academic outcomes for students. There is an existing body of literature linking students from low socioeconomic backgrounds to problems in school, both behavioral and academic (Balfanz et al., 2007; Brooks-Gunn & Duncan, 1997; Caldas & Banston, 1997; Coleman, 1968; Hogrebe & Tate, 2010). Brooks-Gunn and Duncan (1997) found that family income substantially affects children's and adolescents' well-being. The researchers of that study found that children who live at or below the poverty line for multiple years suffer the worst school-related outcomes and that children who grow up in

poverty experience more significant drop-out rates than children who only experience poverty in later years (Brooks-Gunn & Duncan, 1997).

A recent study investigated associations between 10th-grade science competence and contextual aspects related to school atmosphere, curricula, and educators (Hogrebe & Tate, 2010). Interaction effects were examined for free/reduced lunch (FRL) variables and minority percentages. The unit of analysis was the school, and all Missouri high schools in 2002 were used for data analysis (Hogrebe & Tate, 2010). Students were substantially at greater risk of dropping out if they scored low on the state's science proficiency test administered in the 10th grade, especially when moderated with free and reduced lunch (FRL) percentages and minority status. School variables of higher dropout rates were observed, especially when moderated by free/reduced-price lunch percentage (FRL pct) and minority status. A Decrease in science proficiency scores was correlated with higher dropout rates when FRL and minority percentages were higher (Hogrebe & Tate, 2010).

A review of several studies on PBIS reveals that the effectiveness of the program can be influenced by a range of factors, and some results are ambiguous or inconclusive. For instance, Lassen et al. (2006) investigated the relationship between PBIS and academic achievement in an urban middle school This study found that although reading and math scores improved, the improvements were not statistically significant and were not consistently related to PBIS implementation. Similarly, Waasdorp et al. (2012) examined the impact of PBIS on bullying and peer rejection in a randomized controlled trial involving 37 Maryland public elementary schools. While the program reduced bullying and peer rejection, the effect sizes were small, and there was variability in the results across schools. Another study by McIntosh et al. (2017) assessed the technical adequacy of the SWPBIS Tiered Fidelity Inventory (TFI), which measured the fidelity

of PBIS implementation. Although the TFI demonstrated acceptable reliability and validity, there were inconsistencies in the relationships between TFI scores and student outcomes, warranting further exploration. Furthermore, Bradshaw et al. (2008) found that PBIS had a positive effect on overall organizational health, but the effect was moderated by initial levels of organizational health.

Horner et al. (2009) found that PBIS implementation led to a significant reduction in office discipline referrals, but there were no significant differences in academic achievement or teacher-rated social competence between the PBIS and wait-list control schools. Pas and Bradshaw (2012) found a relationship between PBIS implementation fidelity and student outcomes, such as fewer office discipline referrals and modest improvement in standardized test scores, but the overall effect sizes were small, indicating a more complex relationship between PBIS implementation fidelity and student outcomes. Lastly, Barrett et al. (2008) reported on the evaluation of PBIS implementation across more than 250 schools in Maryland, with a significant number of schools not demonstrating the expected improvements in discipline and academic outcomes. These studies emphasize that the effectiveness of PBIS can be influenced by various factors, and there is still much to learn about the conditions under which PBIS is most effective. This supports the importance of examining a wide range of studies and perspectives to gain a comprehensive understanding of PBIS implementation and its outcomes.

Summary

Throughout history, schools have struggled to find the best methods of teaching and learning while maintaining order in the classroom. Contemporarily, school behaviors and managing student behavior, in general, are of great concern and debate. A drastic reduction in punitive and exclusionary consequences for misbehavior is fading as educators find that old

methods are not producing optimal student outcomes. Advancements in behaviorism and applied behavior analysis have proven helpful in the classroom as a more proactive method of behavior management. PBIS is a type of MTSS which uses the tenets of operant conditioning and token economies, offering improved student behavioral and academic outcomes. PBIS has improved student outcomes at all school levels if implemented with fidelity while considering contextual factors. PBIS must also have school buy-in from the administration, teachers, and students. School contextual factors can play a significant role in the effectiveness of PBIS implementation. There is limited research comparing staff perceptions of PBIS across all school levels in school districts across time while attempting to correlate PBIS perception trends with ODR data. Studies have shown that perceptions of PBIS are linked to the effectiveness of implementation and possibly student outcomes. Differences in educator perceptions of PBIS moderated by school factors will provide valuable data missing from the current literature.

Chapter III: Methodology

Chapter Three includes the current study's methodology. This chapter explains the current study's causal-comparative design and the researcher's reasoning for using this non-experimental quantitative research design. A second line of quantitative analysis used a correlational design. Chapter Three explains the correlational design and the justification to use this design. The literature review revealed gaps in understanding PBIS perceptions and how these perceptions influence PBIS implementation fidelity and subsequent student behavior management (McDaniel, Kim, & Guyotte, 2017). Researchers on this topic have cited the need for studies exploring stakeholder perceptions of alternative methods to exclusionary discipline practices and the implementation of proactive behavior management systems (Gage et al., 2016; Gagnon et al., 2016; Nese et al., 2021). Participants were notified of the researchers' intent and credentials to investigate staff perceptions of PBIS and the effect these perceptions have on implementation fidelity and student behavior management. The current study addressed gaps in the literature regarding school staff PBIS perceptions and how these perceptions affect ODR at all school levels in a single school district over three academic years from 2019 to 2022. To the researcher's knowledge, no study has examined staff PBIS perception and the effect on student behavior management across all schools in a single district over time and within the bounds of a single study The study was completed in a school district located in south-eastern USA.

The researcher of this study believed that the best way to answer research questions one and two and gather data to fill gaps in the existing literature was by using a causal-comparative design. The current study utilized a causal-comparative design to examine the potential differences between school staff perceptions of Positive Behavioral Interventions and Supports (PBIS) and student behavior management from 2019 to 2022 academic year. This approach,

seeks to identify differences between groups, and has been recognized as a valuable way to determine if an independent variable affects a dependent variable (Brewer & Kubn, 2010). The researcher did not manipulate the group settings but assessed variables already present in pre-existing groups (Goertzen, 2017). In Chapter Three, the researcher provided a detailed overview of the causal-comparative design that was used to answer research questions one and two and collect and analyze quantitative data. The current study also used a correlational design to answer research questions three, four, and five. Correlational studies attempt to determine if a relationship or association exists between two or more variables without implying a causal relationship (Babbie, 2017). Five research questions guided the current study.

Research Questions

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021- 2022 school year?

$H1_O$: There is no significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

$H1_A$: There is a significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?

$H1_O$: There is no significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

$H1_A$: There is a significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

$H1_O$: There is no significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

$H1_A$: There is a significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

$H1_O$: There is no significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There is no significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There is a significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

The participants' section within Chapter Three describes the participant inclusion criteria, the demographics of the district's employees, and the process that was used to access participant PBIS SAS and ODR archival data. The instrumentation section within this chapter describes the PBIS SAS, the instrument's validity, and internal consistency measures. The section on data collection within this chapter explains the process of the SAS data retrieval from the district's archival records and the steps used to disaggregate the raw data. Institutional review board (IRB) regulations for the school district and Columbus State University were observed during participant consideration for inclusion, data collection, and data analysis to ensure the protection and confidentiality of the district's PBIS SAS data (Columbus State University Doctoral Handbook, 2021).

Research Design

The current study used a causal-comparative and correlational research design to examine school staff perceptions of PBIS in elementary, middle, and high school and corresponding school disciplinary data in a central Georgia school district over a consecutive three-year period from 2019 to 2022. This quantitative study used a causal-comparative research design to look for differences between PBIS Self-Assessment Survey (SAS) scores (dependent variable) and office discipline referrals (ODR) frequencies (dependent variable) based on school type (independent variable-elementary, middle and high.). A correlational design was used to determine if SAS results (independent variable) influence ODR frequencies (dependent variable) from the 2019-20 to 2021-22 academic years based on school type (independent variable).

This study examined SAS data on PBIS and ODR rates across different school levels from 2019 to 2022. The study utilized a causal-comparative design, which is a research design that seeks to understand the differences between predetermined groups that exist in natural settings where the researcher has no control on the assignment of participants in each group (Schenker & Rumrill, 2004). The independent variable was school level, while the dependent variables were SAS data on PBIS and ODR from the Governor's Office of Student Achievement (GOSA) Dashboard. This information will help school districts better implement PBIS by identifying how SAS results and ODR change over time. The researcher used a causal-comparative design in this study to allow for a more comprehensive understanding of school staff perceptions regarding PBIS at different school levels and how these perceptions may influence discipline practices. Additionally, the design allows for examining causal relationships when random assignment is not possible, which is often the case in educational research.

This study also utilized a correlational design to examine the relationship between PBIS

perceptions (independent variable), measured by the SAS, and student behavior management, measured by ODR frequency (dependent variable), at each school level (independent variable) from 2019 to 2022. Using a correlational design, this study provides valuable information on the impact of PBIS perceptions on student behavior management. The correlational analysis was also used to compare the strength of influence between PBIS perceptions on student behavior management by school type. The analysis revealed correlations between the dependent variables, and this can guide decisions on implementing and improving PBIS in schools.

Table 6

Research Design

Characteristics	Description
Causal comparative	Differences between variables
Correlational	Relationships between variables
PBIS SAS	Assessment of behavioral support systems 46-item anonymous online survey
ODR data	Accessed through the public Governor's Office of Student Achievement Dashboard

Role of the Researcher

The role of the researcher in quantitative research should be non-existent, in theory (Simon, 2011). However, the researcher was employed in the school district during the study and completed the annual SAS survey on PBIS. Thus, the researcher used his own SAS survey during data collection and analysis. The SAS survey is anonymous, and the researcher did not know which survey was his own during data collection and analysis. SAS submission by the researcher indicates a minor but active participation role in the current study. The researcher was not in a supervisory or evaluative position within the school district and held a general education

teaching position for the duration of the present study. Qualified to have conducted the study, the researcher had 11 combined years of teaching experience in higher education, high school, and middle school. The researcher had extensive experience with PBIS and served as a member of the PBIS team at previous schools of employment. The researcher sourced research participants in his district of employment because of his familiarity with the community and the potential to use the study results to improve upon the district's efforts with PBIS implementation. The researcher's role included the aggregation and transformation of raw data to prepare it for descriptive and inferential analysis. Lastly, it was the responsibility of the researcher to share valuable findings with the school district.

Participants

Population and Setting

The current study took place in a suburban central Georgia school district. Census.gov (2022) reported the county's population at 166,829 residents, with 51.6% female and 48.4% male residents as of July 2021. Of the counties' population, 53.7% were White, 33.8% were African American, 6.9% were Hispanic, 3.2% were Asian, and 3.3% were mixed race. The median value of owner-occupied houses was $157,200, and the median gross rent was $936. The percentage of persons aged 25 years and older who have a bachelor's degree or higher was 31% of the total population. The percentage of households with a computer was 93.5%, and 87.5% had a broadband internet subscription. The average yearly income in the county was $65,870, and the percentage of the total population living in poverty was 10.8%.

The school district within the county serves both suburban and rural areas. A large military base is geographically proximal to the county's population center. According to the NCES (2022), the school district served approximately 31,200 students. Around 67.5% of the

students served by the school district were from economically disadvantaged families. The racial breakdown of the district's student population is approximately 40.9% White, 39.7% African American, 10.4% Hispanic, 2.5% Asian/Pacific Islander, and 6.5% multi-racial. Students in the district identifying as male were approximately 51.2%, and students identifying as female were about 49.1% of the student body. Most schools within the community had implemented the PBIS framework with expectations of fully implementing the four systems at all schools. According to the NCES, the school district comprises of 37 schools and other non-traditional educational institutions.

The GOSA reports statistics on certified personnel for all districts and school systems in Georgia (*K-12 Public Schools Report Card*, 2022). The researcher used this online database to collect demographic information on certified personnel for the current study.

Table 7

District Certified Personnel Data

Year	Category	Distinction	Administrators	PK-12 Teachers	Support Personnel
2021-22	Certificate Level	4 Yr Bachelor's	0	597	3
		5 Yr Master's	16	746	72
		6 Yr Specialist	81	591	105
		7 Yr Doctoral	64	56	11
		Other *	0	1	0
	Certified Personnel	Provisional	0	19	0
		Professional	161	1,972	191
	Gender	Male	53	388	13
		Female	108	1,603	178
	Personnel	Full-time	161	1,991	191
		Part-time1	0	0	0
	Positions	Number	189	2,013	197
		Average Annual Salary	$94,814.35	$67,108.23	$76,154.12
		Average Contract Days	227	192	197

Year	Category	Distinction	Administrators	PK-12 Teachers	Support Personnel
		Average Daily Salary	$418.27	$350.12	$387.13
	Race/ Ethnicity	Black	47	439	49
		White	111	1,481	140
		Hispanic	2	47	1
		Asian	1	14	1
		Native American	0	1	0
		Multiracial	0	9	0
	Years Experience	< 1	0	70	2
		1-10	3	732	31
		11-20	56	694	73
		21-30	96	453	77
		> 30	6	42	8
		Average	22	14	18

Sampling

A purposeful, criterion-based sampling design was used to select schools from the 37 learning institutions in the study district. Purposeful sampling is a non-probability technique where the researcher selects specific units or elements from a population based on certain criteria relevant to the research question. The purpose is to select a sample that is representative of the population and can best address the research question. There are several types of purposeful sampling techniques, including criterion-based sampling, which selects for elements that meet specific criteria, such as individuals with a particular condition or experience.

All elementary, middle, and high schools within the school district of inquiry were used in the sample. The district's Career Academy and alternative school were excluded from the sample as GOSA did not provide archival disciplinary data. In addition, certain schools were excluded from the study for a lack of complete survey data from the 2019-20 academic year. All certified personnel within the district completed the annual SAS survey on PBIS, which includes teachers, administrators, and support staff. Approximately 2,300 certified employees worked at 33 elementary, middle, and high schools within the district. The quantitative data sample

included all submitted SAS surveys completed by the district's 33 sampled schools annually from 2019 to 2022. Additionally, the Georgia Department of Education's Dashboard allows the retrieval of disciplinary records from elementary, middle, and high schools. Schools not sampled for discipline or SAS data were non-traditional educational settings, primary schools, and schools with incomplete survey data. These sites were not included in participant sampling, data collection, or data analysis. Lastly, eight out of the 33 elementary, middle, and high schools in the district had incomplete SAS data and were excluded from data analysis. The final number of included sites for the present study was 25 schools.

G*power (version 2.1) was used to determine the appropriate sample size for this study (Faul et al., 2009). The initial *a priori* analysis conducted by the researcher utilized a fixed effects ANOVA to assess main effects and three-way interactions, which yielded a suggested minimum sample of $n = 839$. Subsequently, the researcher performed an analysis using a fixed effects ANOVA for main effects and two-way interactions, which indicated a required minimum sample size of $n = 322$. G*power analysis was also conducted for a repeated measures within factors ANOVA and a repeated measures within-between interactions ANOVA which yielded a minimum sample size of 45 and 54 respectively. G*power analysis for correlation test yielded a minimum sample size of 111 participants. Lastly, the researcher carried out a G*power analysis for a fixed model linear multiple regression (R^2 deviation from zero) suggesting a total minimum sample size of $n = 107$.

All the *p*-values for inferential analysis were set to alpha value of .05. A final sample size for this study was $n = 839$ participants to accommodate the various analyses, including two-way and three-way interactions, and ensure adequate statistical power to identify small to moderate effect

sizes. This sample size enabled a more comprehensive and dependable examination of the

research questions, providing valuable insights and clarity for the investigation.

Figure 10

*Three-way Interaction G*power Analysis*
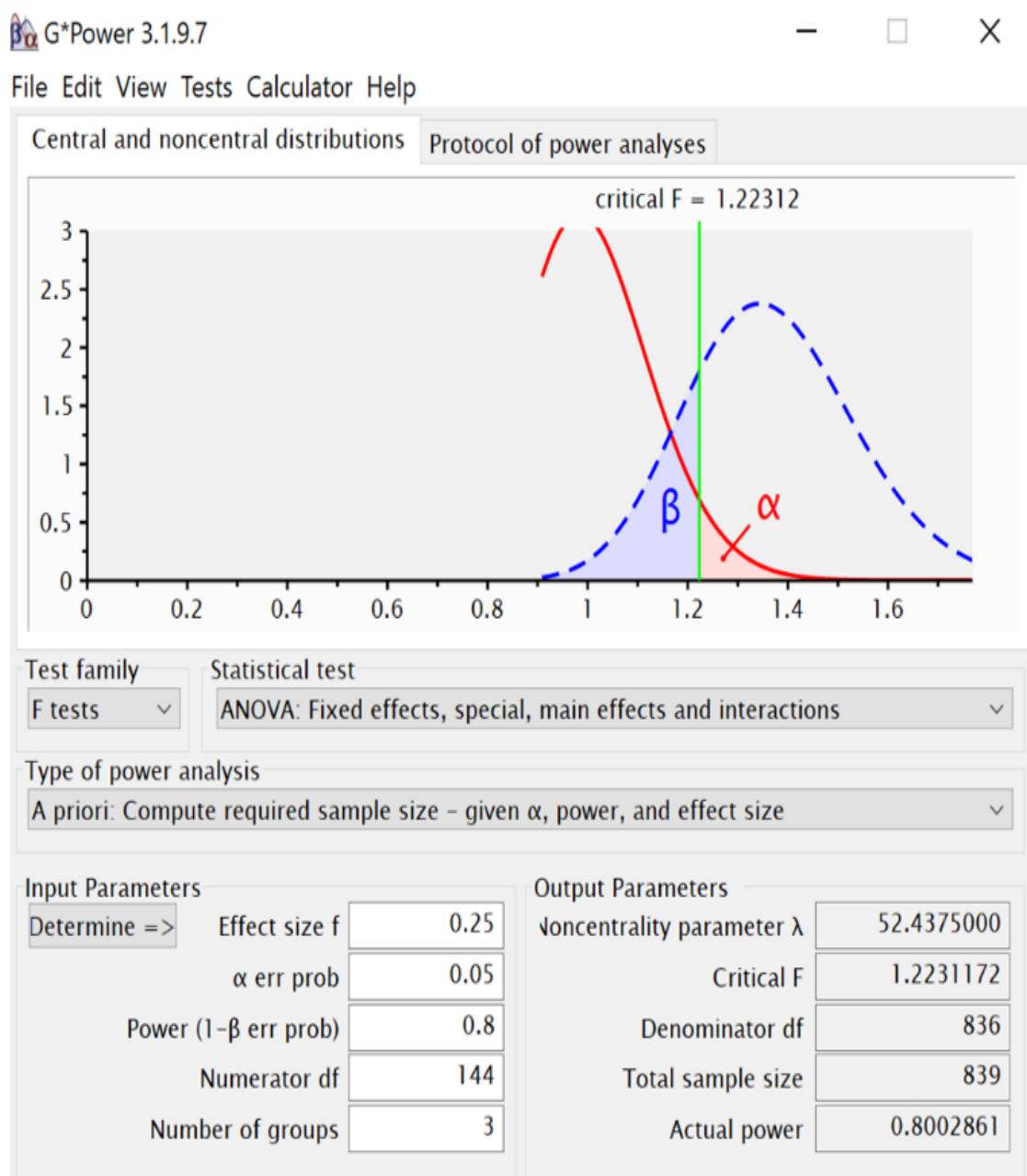
Figure 11

Two-way Interaction G*power Analysis
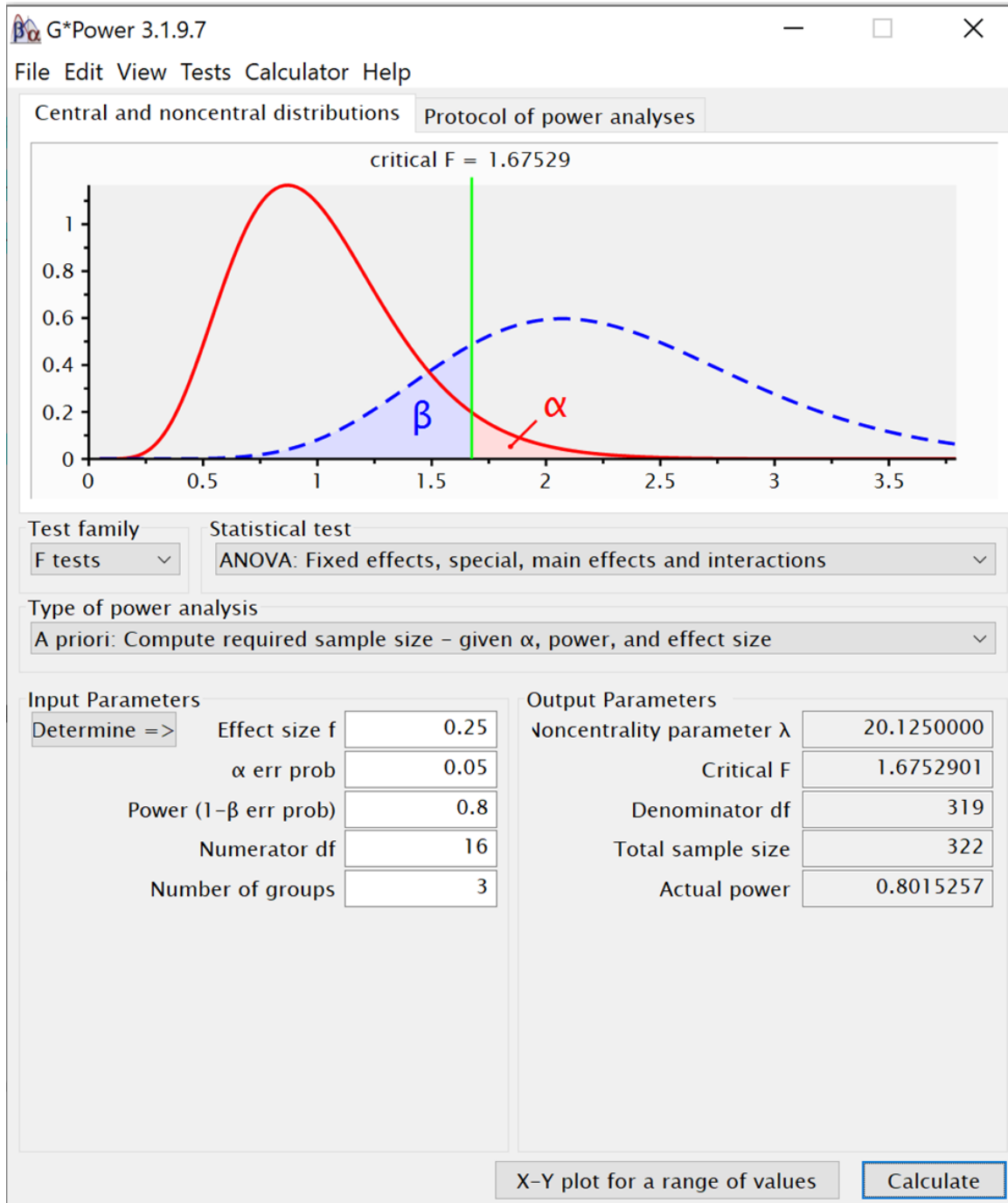
Figure 12

*Repeated Measures Within Subjects G*power Analysis*
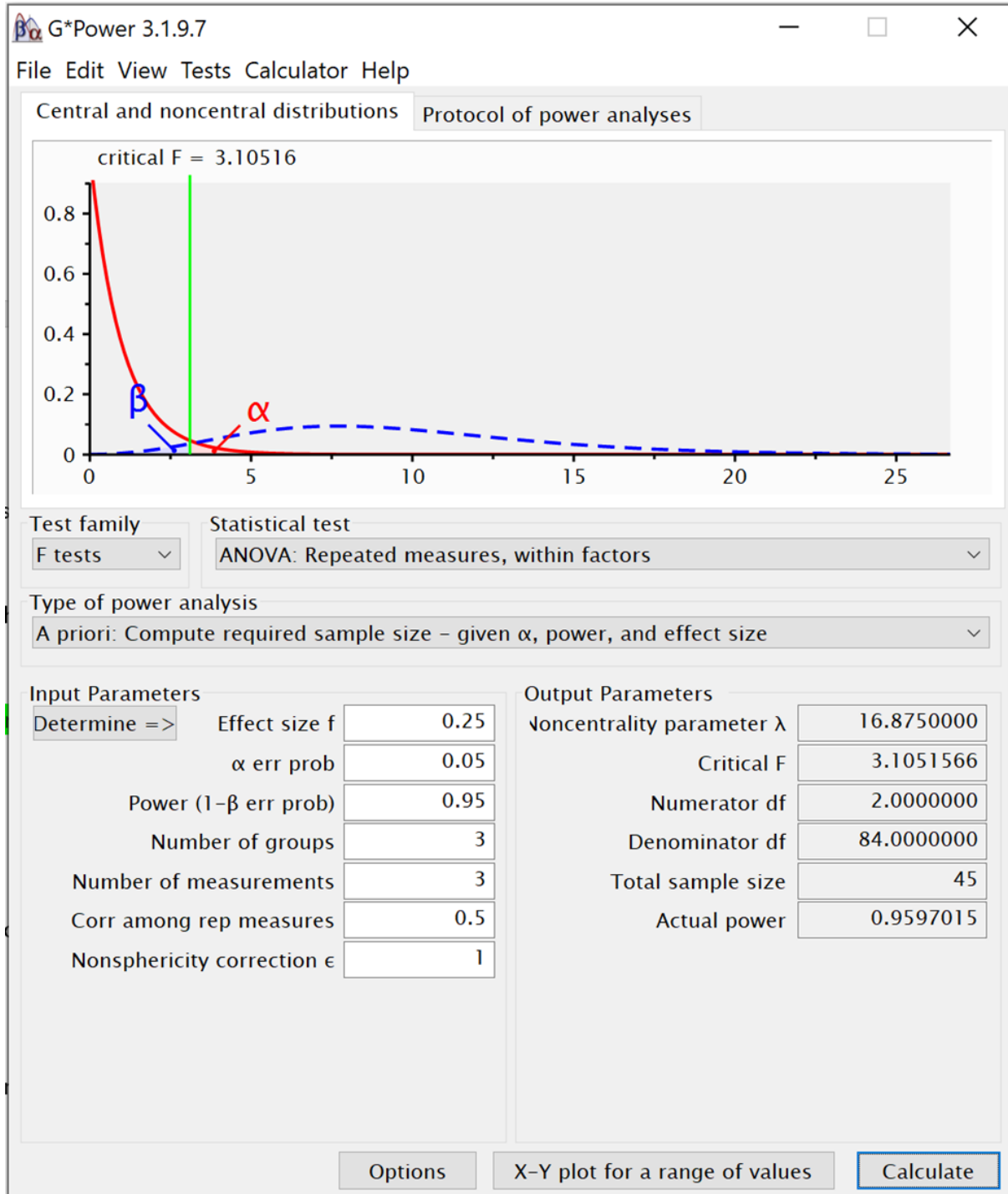
Figure 13

Repeated Measures Within-between Subjects G*power Analysis
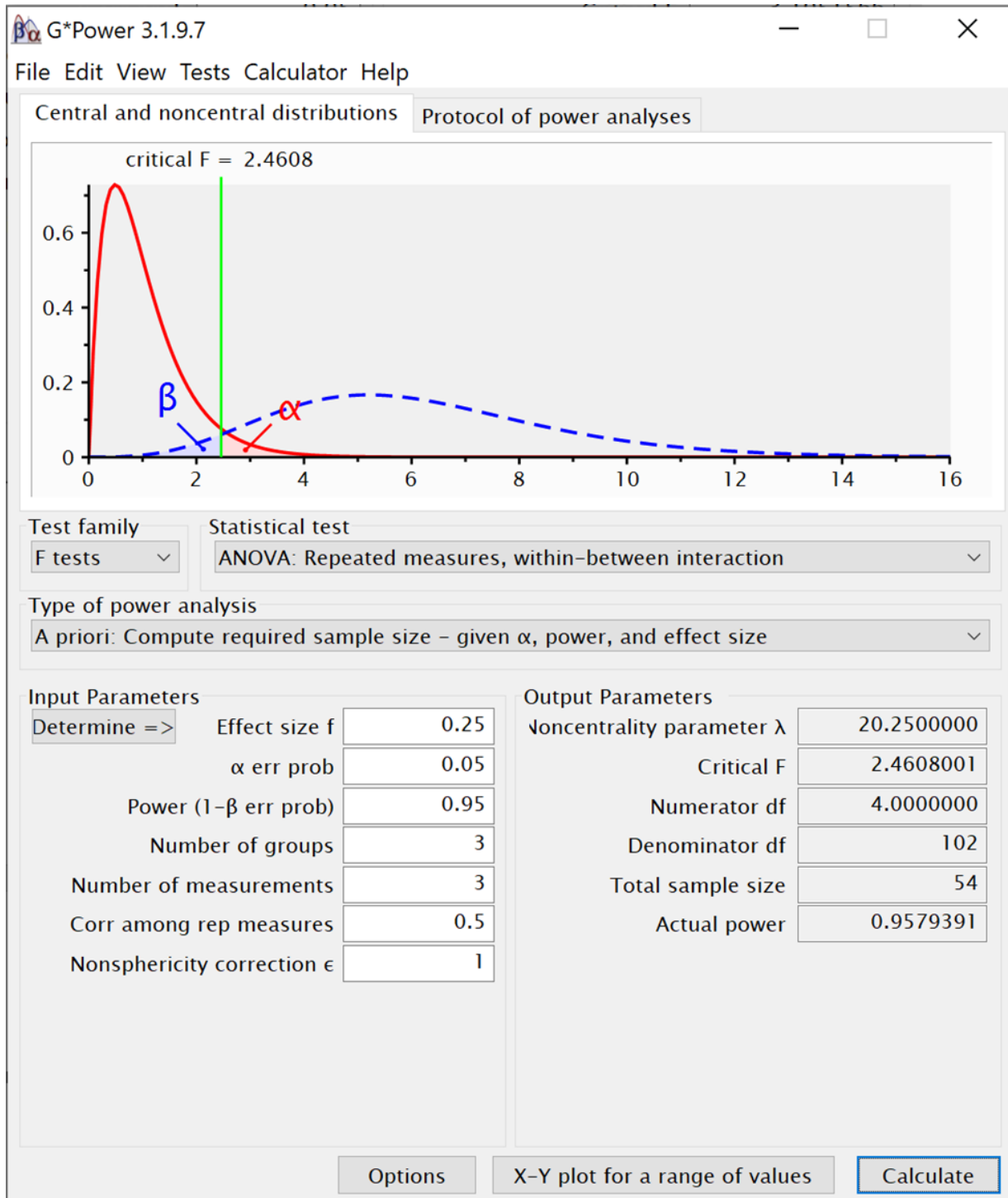
Figure 14

Fixed-model Linear Multiple Regression G*power Analysis
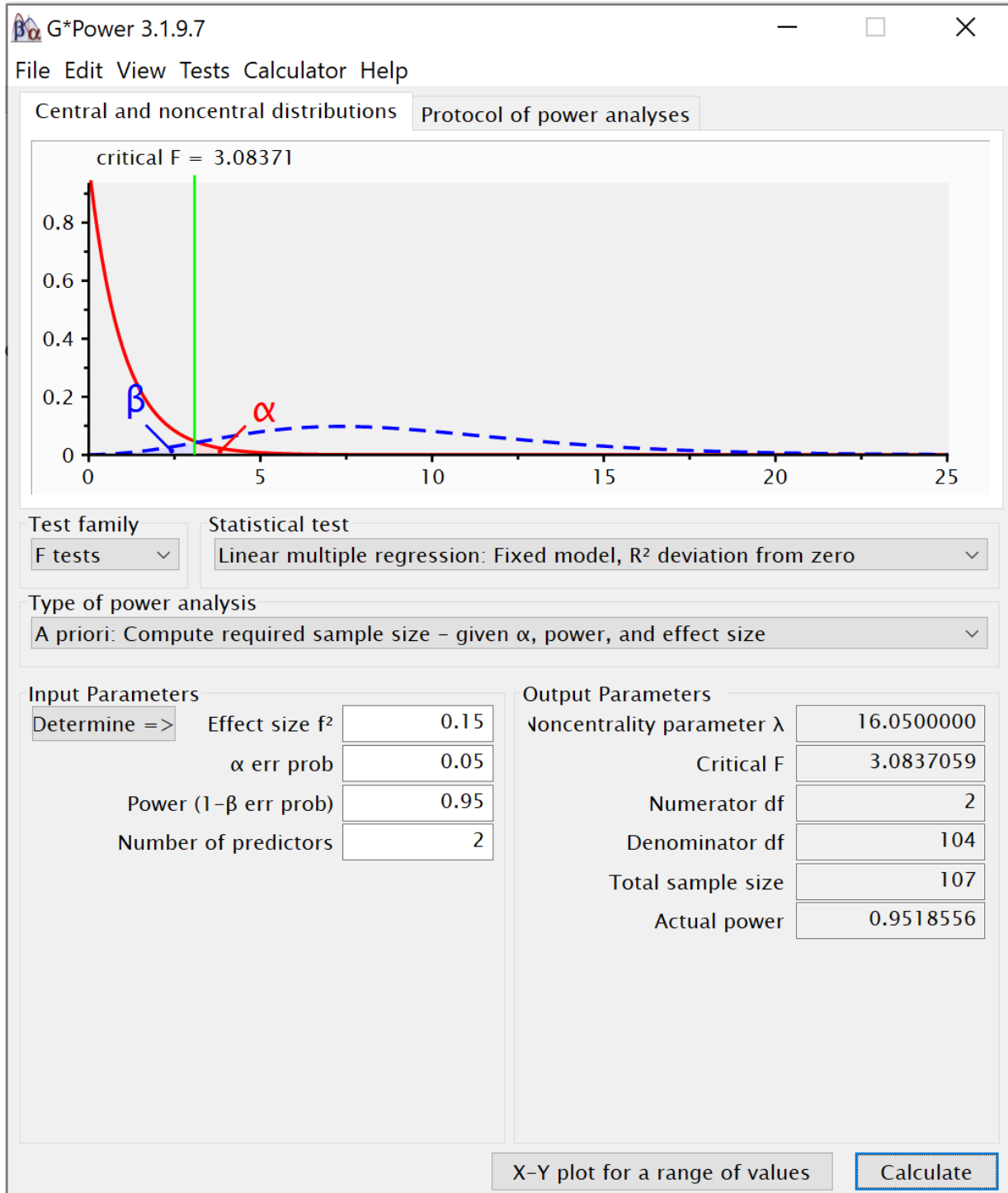
Figure 15

Correlation t-Test G*power Analysis
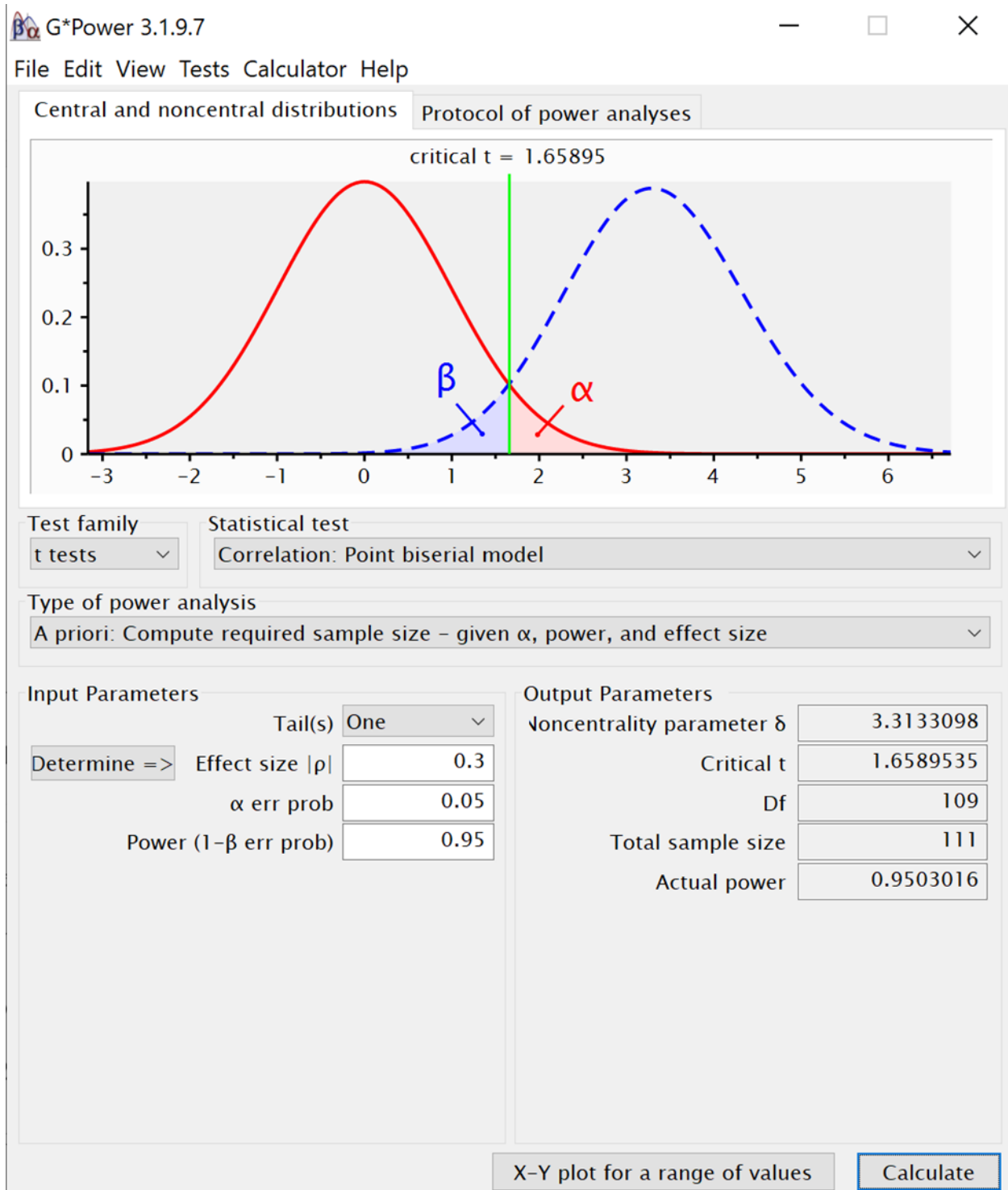
Instrumentation

The quantitative measurement tool is the anonymous, web-based SAS survey developed by researchers at the University of Oregon and accessible through PBISapps.org (Sugai, Horner, & Todd, 2003). The SAS survey assessed perceptions of PBIS fidelity while having participants indicate areas for improvement based on priority level. SAS results are used to develop goals that address areas of improvement regarding PBIS implementation (Solomon, Tobin, & Schutte, 2015). Certified staff completed the SAS survey as an annual assessment of the school's implementation of the PBIS framework. The survey took approximately 20 minutes to complete. The SAS survey was completed individually by participants based on their unique experiences.

The SAS is comprised of 46 items measured on an ordinal scale. The SAS survey measured the status of implementation and assessed four areas of implementation: School-wide Systems (SWS), Classroom Systems (CS), Non-classroom Setting Systems (NCSS), and Individual Student Systems (ISS). SWS are universal behavioral expectations for all students. NCSS are defined as expectations where supervision is emphasized (e.g., hallways, lunchroom). CS are explicitly taught behaviors and expectations where groups of students are being instructed by their teachers. Finally, ISS are designed to address students with chronic behavioral issues (Sugai et al., 2003). The internal consistency of the SAS survey items was validated in a study of school staff from 35 schools in Alabama by Hagan-Burke, Burke, Martin, Boone, and Kirkendoll (2005). The sample consisted of general education teachers (75%) and reported an internal consistency of $\alpha = .88$ for the school-wide systems factor of the SAS. Horner et al. (2004) reported items on the SAS as having acceptable content validity to measure perceptions of PBIS implementation fidelity. Solomon et al. (2015) reported acceptable internal consistency of all SAS factors.

Table 8

Internal Consistency of SAS Constructs

Construct	N	Cronbach's α
SWS	18	.88
NCSS	9	.82
CS	11	.86
ISS	8	.88

SAS survey response scales are ordinal and have participants respond to statements regarding the status of PBIS implementation. Two ordinal scales exist for the SAS; one measures the status of implementation and the other measures the priority level for improvement. Responses for the implementation status include in place, partially in place, and not in place. Responses for the improvement priority scale are high, medium, and low. According to the current version of the PBIS survey at the time of data collection, there was no Likert score system, which made it difficult to determine the level of agreement or disagreement for each item on the survey. In this survey, "In-place" represented a positive perspective of the respondent regarding a survey item, while "Not in Place" represented a less positive perspective. Typically, in Likert scales, a higher score is assigned to a positive perception (e.g., "Agree" or "Strongly agree"). Therefore, a score of three was assigned to "In-place", two to "Partial", and one to "Not in Place for this survey's status of implementation scale". Similarly, a score of three was assigned to "high", two to "medium," and one to "low" for this survey's improvement priority scale. Participants were asked to respond to the status of PBIS implementation in the four areas of implementation (SWS, NCSS, CS, and ISS). They were also asked to assess the priority for improvement in each implementation area (Sugai, Horner, & Todd, 2003).

The internal consistency of the Non-Classroom Setting System scale was measured by assessing Cronbach's alpha, which ranged from .82 to .88. Both ISS (.88) and SCS (.86) had the

highest Cronbach alpha values. The construct validity was assessed through confirmatory factor

analysis. The baseline model yielded a relatively good fit (x^2 (988) = 1467.30, $p <$ .01, Root

Mean Square Error of Approximation [RMSEA] = .050 (90% Confidence Interval [CI]: .045,

.055), Comparative Fit Index [CFI] = .93) based on suggested benchmarks (e.g., Hair, Black,

Babin, & Anderson, 2009; Hu & Bentler, 1999; Kline, 2010). Item loadings ranged from $R^2 =$

.27 to $R^2 =$ .79, with generally lower loadings among the primary factors. The final model was

more parsimonious, with all fit indices having marginal improvement (x^2 (983) = 1400.83, $p <$

.01, RMSEA = .047 [CI: .041, .052], CFI = .94). This four-factor model with all latent factors

was a better fit to the baseline model (Solomon, Tobin & Schutte, 2015, p. 182). Horner et al.

(2004) reported an overall internal consistency of .96 (p. 6). The test-retest reliability total score

for the SET survey from time one to time two averaged 97.3%. The average score on the

interobserver agreement rating for the 28 SET items was 99% (p. 7). Burke et al. (2005)

indicated an internal consistency score of .88 for the SET survey.

Table 9

SAS Factors and Number of Items

Construct	Definition	N
School-wide Systems (SWS)	Involving all students, all staff, & all settings.	18
Non-classroom System Settings (NCS)	Particular times or places where supervision is emphasized (e.g., hallways, cafeteria, playground, bus).	9
Classroom Systems (CS)	Instructional settings in which teacher(s) supervise & teach groups of students.	11
Individual Student Systems (ISS)	Specific supports for students who engage in chronic problem behaviors (1%-7% of enrollment)	8

Note. From "Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved 03, 2022, from https://www.pbis.org/resource/sas"

Data Collection

Research processes and data collection must follow strict guidelines and protocols to answer the research questions and protect the rights of research participants (Prentice & Antonson, 1987). Data collection began in Spring 2023 after receiving approval from Columbus State's IRB and completing the school district's requirements for conducting research studies. In order to conduct research in the district of inquiry, the researcher must have been a full-time employee of the district and received approval from the principal at which the researcher was employed. The researcher must have also completed a district IRB form, a research proposal, provided a class syllabus giving evidence of a research requirement, and a letter stating the intent of the research and the procedures ensuring data confidentiality. The present study collected participant data using two separate archives: the district's archival data of SAS on PBIS and public disciplinary data using the Georgia Department of Education's Dashboard available through http://gosa.georgia.gov.

The researcher used SAS data of PBIS for data collection in this study. The SAS items are designed to measure staff perceptions regarding PBIS fidelity and improvement priorities (Solomon et al., 2015). Following district approval, SAS results for the school district were obtained for the 2019-2020, 2020-2021, and 2021-2022 academic years. The 46-item ordinal-scale SAS measures the status and improvement areas of four behavior support systems: (1) school-wide systems, (2) non-classroom setting systems, (3) classroom systems, and (4) intensive support systems (Sugai et al., 2003). SAS items measure PBIS on an ordinal response scale, and participants responded by selecting whether the PBIS system is in place, partially in place, or not in place. Participants also responded to the improvement priority for each system factor by selecting a high, medium, or low priority for improvement. Participant responses were

totaled for each item and across factors to identify strengths and weaknesses of PBIS

implementation fidelity (Solomon et al., 2015; Sugai et al., 2003). Following approval from

Columbus State University's IRB and the school district, SAS data on PIBS was collected from

the district's Office of Student Services. These data were disaggregated to determine the school

level of the submitted SAS. SAS results were then grouped by school level to answer research

questions one, three, four, and five. Tables 11 through 14 provide a detailed description of each

SAS construct, item number, and prompt.

Table 10

School-wide Systems: Construct Item Description

Construct	*N*	Prompt
	1	A small number (e.g., 3-5) of positively & clearly stated student expectations or rules are defined.
	2	Expected student behaviors are taught directly.
	3	Expected student behaviors are rewarded regularly.
	4	Problem behaviors (failure to meet expected student behaviors) are defined clearly.
	5	Consequences for problem behaviors are defined clearly.
	6	Distinctions between office vs. classroom-managed problem behaviors are clear.
	7	Options exist to allow classroom instruction to continue when problem behavior occurs.
School-wide Systems	8	Procedures are in place to address emergency/dangerous situations.
	9	A team exists for behavior support planning & problem-solving.
	10	School administrator is an active participant on the behavior support team.
	11	Data on problem behavior patterns are collected and summarized within an ongoing system.
	12	Patterns of student problem behavior are reported to teams and faculty for active decision-making on a regular basis (e.g., monthly).
	13	School has formal strategies for informing families about expected student behaviors at school.
	14	Booster training activities for students are developed, modified, & conducted based on school data.
	15	School-wide behavior support team has a budget for (a) teaching students, (b) ongoing rewards, and (c) annual staff planning.

Construct	N	Prompt
	16	All staff are involved directly and/or indirectly in school-wide interventions.
	17	The school team has access to ongoing training and support from district personnel.
	18	The school is required by the district to report on the social climate, discipline level, or student behavior at least annually.

Note. From "Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved 03, 2022, from https://www.pbis.org/resource/sas"

Table 11

Non-classroom Setting Systems: Construct Item Description

Construct	N	Prompt
	1	School-wide expected student behaviors apply to non-classroom settings.
	2	School-wide expected student behaviors are taught in non-classroom settings.
	3	Supervisors actively supervise (move, scan, & interact) students in non-classroom settings.
	4	Rewards exist for meeting expected student behaviors in non-classroom settings.
Non-classroom Setting Systems	5	Physical/architectural features are modified to limit (a) unsupervised settings, (b) unclear traffic patterns, and (c) inappropriate access to & exit from school grounds.
	6	Scheduling of student movement ensures appropriate numbers of students in non-classroom spaces.
	7	Staff receives regular opportunities for developing and improving active supervision skills.
	8	Status of student behavior and management practices are evaluated quarterly from data.
	9	All staff is involved directly or indirectly in management of non-classroom settings.

Note. From "Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved 03, 2022, from https://www.pbis.org/resource/sas"

Table 12

Classroom Systems: Construct Item Description

Construct	*N*	Prompt
	1	Expected student behavior & routines in classrooms are stated positively & defined clearly.
	2	Problem behaviors are defined clearly.
	3	Expected student behavior & routines in classrooms are taught directly.
	4	Expected student behaviors are acknowledged regularly (positively reinforced) (>4 positives to 1 negative).
	5	Problem behaviors receive consistent consequences.
	6	Procedures for expected & problem behaviors are consistent with school-wide procedures.
Classroom Systems	7	Classroom-based options exist to allow classroom instruction to continue when problem behavior occurs.
	8	Instruction & curriculum materials are matched to student ability (math, reading, language).
	9	Students experience high rates of academic success ($\geq 75\%$ correct).
	10	Teachers have regular opportunities for access to assistance & recommendations (observation, instruction, & coaching).
	11	Transitions between instructional & non-instructional activities are efficient & orderly.

Note. From "Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved 03, 2022, from https://www.pbis.org/resource/sas"

Table 13

Individual Student Systems: Construct Item Description

Construct	*N*	Prompt
	1	Assessments are conducted regularly to identify students with chronic problem behaviors.
Individual Student Systems	2	A simple process exists for teachers to request assistance.
	3	A behavior support team responds promptly (within two working days) to students who present chronic problem behaviors.
	4	Behavioral support team includes an individual skilled at conducting functional behavioral assessment.

Construct	N	Prompt
	5	Local resources are used to conduct functional assessment-based behavior support planning (~10 hrs/week/student).
	6	Significant family &/or community members are involved when appropriate & possible.
	7	School includes formal opportunities for families to receive training on behavioral support/positive parenting strategies.
	8	Behavior is monitored & feedback provided regularly to the behavior support team & relevant staff.

Note. From "Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved 03, 2022, from https://www.pbis.org/resource/sas"

The researcher also utilized the GOSA data dashboard to access archival disciplinary data for separate schools within the district. The K-12 Student Discipline Dashboard through the GOSA is available at http://gosa.georgia.gov. The dashboard summarizes school-level data for all public schools in Georgia. The dashboard allows for data on the number of disciplinary incidents, the number of students receiving disciplinary action, in-school suspensions, and expulsions. These data are received from the Georgia Department of Education. The dashboard reported these discipline data from 2014 to the end of 2021 academic year. Data from the dashboard can be sub-grouped by grade level, economic status, race/ethnicity, and gender. The researcher gathered discipline data from the dashboard by selecting the school year, district, and school. The researcher then grouped these data by school level to answer research questions two, three, four, and five.

The SAS survey responses are anonymous to ensure the confidentiality of the participant's responses. No participant was discriminated against or restrained based on age, gender, race, ethnicity, years of education experience, or certification level. The researcher was not in an administrative role in the study's school district during the duration of the study and had no familial relationships with any participants. Pseudonyms were used for the school district and any other name which might have indicated the setting. No identifying information was used

that would disrupt the confidentiality of the study or violate IRB protocol. Columbus State University's IRB policies were not violated, and the school district's IRB protocols were followed during the current study. Table 14 organizes the current study's research questions by the data sources used to answer the research questions.

Table 14

Research Question Data Source(s)

Research Questions	Data Sources
RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021-2022 school year?	PBIS SAS Results (2019-2022)
RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?	GOSA K-12 Discipline Data Dashboard (2019-2022)
RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?	PBIS SAS Results (2019-2022)
	GOSA K-12 Discipline Data Dashboard (2019-2022)
RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?	PBIS SAS Results (2019-2022)
	GOSA K-12 Discipline Data Dashboard (2019-2022)

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

PBIS SAS Results (2019-2022)

GOSA K-12 Discipline Data Dashboard (2019-2022)

Methodological Assumptions

Assumptions are essential facts considered true and accurate, though not necessarily verifiable (Gay et al., 2005). Assumptions also provide a framework for research designs (Creswell, 2014). From an ontological view, the researcher assumed an objective truth about the relationship between school level and the variance of PBIS perceptions and student behavior management. Additionally, the researcher assumed these relationships were somewhat generalizable. Epistemologically, the researcher of the current study believed the school level is a discrete category that can be described by a small number of variables (Hathaway, 1995). The researcher assumed that the non-experimental causal-comparative design was appropriate to investigate relationships in educational settings that make true experimental designs difficult (Gall et al., 2007). Additionally, the researcher assumed that the data was normally distributed and that the statistical procedures selected met other requirements for analysis.

Regarding instrumentation, the researcher assumed the SAS was a valid and reliable instrument to measure school staff perceptions of PBIS (Solomon et al., 2015). The researcher assumed that participants provided honest, accurate, and relevant responses to the SAS questions regarding PBIS perceptions. Merriam and Tisdell (2016) reported that safeguarding against dishonest or inaccurate participant responses to questions or prompts is achievable if participants feel the confidentiality of their responses is assured and they are in a comfortable environment.

The SAS is an anonymous, web-based instrument measuring PBIS perceptions of the school staff. No personal identifying information is recorded on the SAS that would make the participant hesitant to answer truthfully for fear of repercussion.

While the researcher had experience with PBIS and was employed in the study's school district, the researcher was not affiliated with any PBIS team in the school district, nor was the researcher in any administrative position, which may have made participants feel as if a supervisor was evaluating them. The inclusion criteria for participation in the present study required the schools sampled within the district to have three consecutive years of annual SAS data from 2019 to 2022. Based on these inclusion criteria, the researcher assumed participants were knowledgeable enough about PBIS to provide relevant data. Finally, the researcher believed that the sample size of participants who completed the SAS represented the district population and was sufficient to achieve enough statistical power to answer the research questions (Andrade, 2020).

Methodological Limitations

Creswell et al. (2007) describes limitations as the features of a study that may affect the validity of a study's conclusions. Limitations of any study underscore weaknesses in a study's design or extraneous variables beyond the researcher's ability to control (Theofanidis & Fountouki, 2018). Limitations in causal-comparative designs include the inability of the researcher to have strictly controlled conditions to attenuate the effect of confounding variables on the relationship between independent variable and dependent variable scores (Fraenkel et al., 2012). This lack of control over variables can threaten the internal and external validity of the study as extraneous variables may affect the results and interpretation of the study's findings. Thus, a possible limitation was the alternative explanations for any change in the dependent

variables. Therefore, the researcher remained cautious when interpreting the results of a causal-comparative study (Fraenkel et al., 2012).

A second possible limitation of the study was the non-random assignments of participants into groups as the groups were pre-formed. This lack of random assignment may have threatened the study's external validity. The researcher used a large sample size to account for this limitation. A third possible limitation of a causal-comparative design is that the researcher can only make inferences about relationships between variables, and speculations about causality are not recommended (Gall et al., 2007).

A fourth possible limitation was the researcher's prior experience with PBIS, which may have resulted in unintentional bias while interpreting the study's results. While the researcher used data from participants at all school levels, previous experience with PBIS could have affected the researcher's perceptions during data analysis. Consideration of these biases when interpreting the current study's results was necessary to address this possible limitation. A fifth potential limitation may have been the staff's knowledge about PBIS and the honesty of responses from participants when completing the SAS. The researcher assumed that the participants were knowledgeable about PBIS and that the survey instruments were anonymous which allowed for honest responses.

Ethical Assurances

Before data collection, steps were taken to ensure the research was conducted ethically. Standards set forth by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) were observed to respect the participant's self, beneficence, and justice. District consent was requested through a written application, including a description of the present study, measures that were utilized to safeguard the protection of

sensitive information, and steps implemented to shield the identity of the district's employees. Permissions from the district (Appendix A) were included in the study's approval application to Columbus State University's Institutional Review Board (Appendix B) before the study was conducted.

Data collection was performed by respectfully treating the participants, and the school district was assured that their employees personal information and responses were collected safely and securely. Before completing the study's informed consent document (Appendix C), the school district was provided with an explanation of the study's purpose, potential benefits, and risks (Gay et al., 2005). The researcher completed the informed consent process before collecting any data. The school district's participation in the study was voluntary (Creswell et al., 2007). At any time, the school district reserved the right to withdraw from the present study up to the study's conclusion. Additionally, no individual employed by the school district was coerced to participate. No incentives were provided to any school district employee for their involvement in the present study. Incentives to participate in a research study include but are not limited to money, gifts, tokens, or rewards (Gay et al., 2005).

Confidentiality was sustained at all stages of the study through data coding during collection and the use of pseudonyms to protect the school district's identity (Creswell et al., 2007, Merriam & Tisdell, 2016). Electronic data was encrypted and stored on the researcher's data drive, which was kept in a safe at the researcher's home when not being used. Physical documents were stored in a safe at the researcher's home. Three years after the study's publication, all electronic files will be destroyed using Eraser software, which overwrites sensitive data several times using carefully selected patterns. All physical documents will be destroyed using a physical paper shredder three years post-publication of the present study.

Trustworthiness

Validity and reliability are essential aspects of any research study (Cypress, 2017). Validity represents the degree to which the collected data accurately measures what the researcher intends to measure (Gay et al., 2005). Reliability refers to the instrument's ability to reproduce similar results over time (Heale & Twycross, 2015). Lincoln and Guba (1985) stated that the trustworthiness of a quantitative study could be achieved by addressing four criteria: internal validity, external validity, reliability, and objectivity.

Internal Validity

Campbell and Stanley (1963) identified threats to internal validity, including history, maturation, testing, instrumentation, statistical regression, and experimental mortality. History refers to events occurring as time passes during a study that influences the study's outcomes (Creswell, 2014). The present study used archival data from 2019 to 2022 during the mandatory school closures due to Covid-19. The researcher expects this occurrence to influence the dependent variables. Maturation is the change in participant's biological and physical characteristics during an experiment (Creswell, 2014). This threat is anticipated to have minimum influence on SAS survey results. Testing refers to the participants becoming familiar with the outcome measure and remembering their responses for later testing (Creswell, 2014). The researcher believed that this threat is controlled by the time between each SAS survey administration (Appendix D), which was only given once per year. Instrumentation can threaten internal validity if the instrument changes from test to test. However, the SAS instrument was the same from 2019 to 2022. Statistical regression refers to the tendency of scores to regress toward the mean over time when extreme scores are used in the study. The researcher removed extreme scores before data analysis to control this threat. Finally, mortality is the loss of participants from

a study for various reasons (Creswell, 2014). The researcher included a large enough number of participants to create a sample size that accounted for any attrition.

External Validity

External validity is the degree to which research findings can be used in different contexts and thus may be referred to as generalizability (Coghlan & Brydon-Miller, 2014). Threats to external validity occur when researchers incorrectly use sample data to make inferences about different groups (Creswell, 2014). One example of this threat occurs when the participants may have specific characteristics not possessed by other groups. To control this threat to external validity, the researcher restricted claims about generalizability to school districts of similar demographics and context.

Reliability

Simply put, dependability refers to the stability of the data collected (Gay et al., 2005). From the positivist perspective, Yin (2018) states that with good experimental design, quantitative reliability enables the replication of a study's results among different researchers. Lincoln and Guba (1985, p. 292) state that reliability is usually achieved by replication and can be threatened by "any careless act in the measurement or assessment process, by instrumental decay, by various sorts, and a host of other factors." The instrument's internal consistency can assess reliability, and the most common measure of internal consistency is Cronbach's alpha. Solomon et al. (2015) confirmed acceptable internal consistency for all SAS factors measuring PBIS perceptions.

Objectivity

Objectivity refers to the researcher's neutrality regarding collected data (Gay et al., 2005; Guba, 1981). Lincoln and Guba (1985) suggest that objectivity can be established using methods

that do not contaminate the study through human error. The researcher used archival SAS and discipline data after the events had occurred and the data recorded. The researcher did not influence the participants other than having completed the SAS himself during the years used for data collection from 2019 to 2022. The researcher included participants without bias by using a convenience sample of all SAS submissions from the district's traditional elementary, middle, and high schools. The researcher did not know any identifiable information about the respondents during data collection, analysis, or interpretation of the results because the SAS survey is anonymous.

Data Analysis

In the present study, quantitative SAS data (dependent variable) and ODR data (dependent variable) was employed to determine trends in PBIS and student discipline across three years from 2019 to 2022 based on school level (independent variable) and to see if staff PBIS perceptions influenced ODR at each school level. The SAS is a 46-item instrument that measures the PBIS status of implementation. It assesses four areas of performance: School-wide Systems, Classroom Systems, Non-classroom Setting Systems, and Individual Student Systems. Following district approval, extant SAS data was retrieved from the school district's PBIS coordinator and uploaded to SPSS (v. 28) software for Windows for coding and analysis following the partial transformation of categorical variables into numerical codes. Additionally, discipline data was retrieved from the GOSA and added into SPSS (v. 28) software for Windows for an analysis.

SAS survey results were reported as a percentage score based on the total number of responses of in-place, partial, or not in-place per item for the status of implementation scale divided by the total number of participants who took the survey and multiplying this value by

100. So, for each item in each dimension of the survey, there was a percentage score for in-place, partial, and not in-place. The SAS survey results for the improvement priority scale were also reported as a percentage score found by taking the total number responses made for high, medium, or low priority and dividing this number by the number of participants who completed the survey and multiplying this value by 100. The decimal equivalent for the percentage scores for the status of implementation scale for each selection option (3=in-place, 2=partial, and 1=not in-place) were multiplied by the numbers assigned by the researcher to weight the responses. Similarly, the decimal equivalent for the percentage scores for the priority of improvement scale for each selection option (3=high, 2=medium, and 1=low) were multiplied by the numbers assigned by the researcher to weight the responses.

Composite scores were calculated by summing the selection option scores of the items representing each construct (SWS, NCS, CS, and ISS) in the SAS survey. For example, if 59% of respondents from a school selected the "In-Place" survey option for SWS status of implementation the researcher converted the percentage score to the decimal equivalent and then multiplied the decimal equivalent of the percentage score by the assigned weight (3=in place). The same calculation was performed for the other selection options for SWS (partial and not in place). The composite score for SWS status of implementation was calculated by summing the calculated scores for each selection option for status of implementation (in place, partially in place, and not in place). Composite scores for other dimensions were calculated in the same way (i.e. NCSS, CS, and ISS). Final composite scores for each survey dimension by school level (elementary, middle, and high) were calculated by summing the calculated score for each survey dimension by school level. Descriptive statistics, including mean values, standard deviations, skewness, and kurtosis, were reported for each construct by the research question. These

statistics provided a summary of the central tendency and dispersion of the data, as well as the degree of skewness and kurtosis of the distribution.

A factorial ANOVA was utilized to assess differences in SAS data, and a repeated measures ANOVA was used to assess ODR data. Both analyses were based on school type to answer research questions one and two. ANOVA is the appropriate statistical test when comparing one or more independent variables to determine group differences in the dependent variable (Creswell, 2014). The significant level for these tests was set at the .05 level. Research question one investigated differences in SAS data by school type. The school type was the independent variable, and PBIS perceptions, assessed by the SAS, was the dependent variable. Research question two examined the differences in ODR data by school type. School type was the categorical variable, and ODR was the continuous dependent variable.

The assumptions of ANOVA model were validated in SPSS. The first assumption is that the dependent variable scores are normally distributed, which was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. If the p-value is $\geq$ .05, it can be concluded that the normality assumption was met. The second assumption is the homogeneity of variance, which refers to the similarity in the differences between mean values of the dependent variable scores across groups of the independent variable. This assumption was assessed using Levene's test. If the p-value is $\geq$ .05, it can be concluded that the variance assumption was satisfied. The third assumption of the ANOVA model is the absence of outliers, which was examined by inspecting histograms and checking skewness and kurtosis values. According to Tabachinick and Fidell (2019), skewness and kurtosis values below 2.1 and 7.1, respectively, suggest that the dependent variable scores are approximating normal distribution, while West et al. (1995) consider skewness and kurtosis values below these thresholds to indicate a normal distribution.

In the second line of quantitative data analysis, the Pearson Product Moment was used to examine the impact of SAS results on ODR at each school level. The school level was the independent variable for research questions three, four, and five. Research question three assessed the impact of SAS results on ODR data in elementary schools. Research question four analyzed this impact in middle schools, and research question five assessed this impact in high schools. The Pearson Product Moment correlation coefficient is the appropriate statistical measure to determine an association between two continuous scale-level variables (Armitage & Berry, 1994). Pearson correlation coefficients range from a negative one to positive one representing a clear correlation between the two variables. A Pearson Product Moment coefficient of +1 indicates a positive relationship between two variables, such that an increase in scores on the other variable accompanies an increase in scores on one variable. A Pearson Product Moment coefficient of -1 indicates a negative relationship, where an increase in scores on one variable is associated with a decrease in scores on the other. No association is represented by a correlation coefficient of zero. The assumptions of the correlation model were verified in SPSS. The first assumption is a linear relationship between the two variables, which can be assessed using scatter plots to determine the presence of any curvature or peaks. The second assumption is the independence of observations, meaning that the value of one observation does not influence the value of another observation in dependent variable scores. The third assumption is the absence of outliers, which was evaluated using scatter plots to identify points not located near the straight slope line. The fourth assumption is normality in the data points of both variables, which were tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality.

Regression equations summarize the association between variables and shows the change in dependent variable scores based on the unit change in independent variable scores (Armitage & Berry, 1994). It is helpful for district-level employees to understand how ODR changes in response to SAS results at each school level. School levels differ in size, complexity, and student maturity. An understanding of the influence of PBIS implementation perception scores on ODR scores at each level through quantitative measure would provide a better indication of the effectiveness of PBIS at reducing ODR. Linear regression models were used to assess research questions three, four, and five. A regression model was used to test the influence of staff perceptions in elementary (research question 3), middle (research question 4), and high school (research question 5) on ODR rates (dependent variable). The independent variable was the composite scores of SWS, NCS, CS, and ISS in the SAS survey. Standardized beta coefficients were used to interpret each independent variable's individual influence on the dependent variable scores. A positive regression coefficient indicated that a one-unit change in the independent variable's composite score increased the dependent variable's scores by a particular value. A negative regression coefficient indicated that a one-unit change in the composite score of an independent variable led to a decrease in the dependent variable scores by a particular value. A regression equation predicted the dependent variable score based on the intercept value, beta coefficient, and independent variable values. Each independent variable had its own regression coefficient.

The regression model assumptions were tested in SPSS (v. 28) software for Windows. The first assumption is normality. The second assumption is a linear relationship between the independent and dependent variable scores. The third assumption is the independence of observations which were assessed through the Durbin-Watson test. The range of the Durbin-

Watson statistic should be between 1.5 to 2.5, which indicates the independence of observations. The fourth assumption is multicollinearity, which is a condition where there is a high correlation between the independent variables. A high value of multicollinearity biases or masks the unique influence of each independent variable scores on the dependent variable scores. It is a problematic condition, leading to biased model estimates and increased chances of Type II error. Multicollinearity was assessed through the variance inflation factor (VIF). The VIF value should not be close to or exceed 10.0. The fifth assumption is homoscedasticity, which is similar to the homogeneity of variance assumption. The Q-Q plot was used to assess homoscedasticity. Essentially, the distribution of data points should look similar to a straight line, but usually, the ends of the line deviate from the straight line.

Analysis by Research Questions

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021- 2022 school year?

$H1_O$: There was no significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

$H1_A$: There was a significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

Data Source: District archival PBIS SAS data was used to answer research question one. SAS survey items measured certified school staff's perceptions of PBIS effectiveness.

Method of Analysis: The data were used to compare the certified school staff's perceptions of the effectiveness of the PBIS framework by school type from 2019 to 2022. Factorial ANOVAs were performed to determine differences in SAS scores based on school type, and alpha was set at a .05 significance level.

RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?

$H1_O$: There was no significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

$H1_A$: There was a significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

Data Source: The GOSA ODR data were used to answer research question two. ODR data determined the effectiveness of the school's student behavior management systems.

Method of Analysis: The data were used to compare the ODR frequency based on school type from 2019 to 2022. Repeated measures ANOVA were performed to determine the difference in ODR frequency based on school type. Alpha will be set at a .05 level of significance.

RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There was no significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There was a significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source: District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness. GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question three.

Method of Analysis: The data sets examined the relationship between SAS results and ODR data for elementary schools. Pearson product moment correlations were performed to determine the impact of SAS scores on ODR frequency for elementary schools from 2019 to 2022. Alpha was set at a .05 level of significance.

RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

H1$_O$: There was no significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There was a significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source: District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness. GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question four.

Method of Analysis: The data sets were used to examine the relationship between SAS results and ODR data for middle schools. Pearson product moment correlations were performed to determine the impact of SAS scores on ODR frequency for middle schools from 2019 to 2022. Alpha will be set at a .05 level of significance.

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

$H1_O$: There was no significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

$H1_A$: There was a significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source: District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness. GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question five.

Method of Analysis: The data sets examined the relationship between SAS results and ODR data for high schools. Pearson Product Moment correlations were performed to determine

the impact of SAS scores on ODR frequency for high schools from 2019 to 2022. Alpha was set at a .05 level of significance.

Reporting Data

The present study aimed to reveal the participants' perceptions of PBIS effectiveness, ODR frequency, and the relationship between these variables based on school type. The results of the current study were presented by order of the research question and in a way that was informative and beneficial to the consumer. Quantitative data output was generated in SPSS, and reports included descriptive statistics, factorial and repeated measures ANOVAs, and Pearson correlation models. The results of the current study highlighted trends in SAS and discipline data at different school levels. The study also underscored the extent of the PBIS perceptions to reduce ODR at elementary, middle, and high schools. Emergent trends that differ by school level can be used by educational leaders to better implement PBIS in the current study's district of inquiry and other contextually similar school districts. Evaluating the differences in perceptions of PBIS, discipline trends, and how these two variables interact at each school level is valuable when considering PBIS implementation strategies and what school levels may need additional support to achieve implementation with fidelity.

Summary

Managing student behavior through discipline to curb misbehavior and increase positive student outcomes in schools is an ongoing struggle for school personnel that dates back centuries (Aries & Baldick, 1962; Midlarsky & Klain, 2005). Student management improves school safety and provides an environment conducive to learning (Eckes & Russo, 2012; Sugai & Horner, 2002). PBIS is a behavioral intervention framework based on many years of educational and

behavioral research. The framework has been shown to reduce problem behaviors, improve social skills, and improve academic results (Bohanon & Wu, 2014; Simonsen et al., 2012).

The current study aimed to examine staff PBIS perceptions and discipline trends across all school levels, and over a consecutive three-year period, from 2019 to 2022, in a single middle Georgia school district. Quantitative data were collected using the SAS survey on PBIS and the Georgia Department of Education discipline data. This study revealed important information essential to implementing PBIS that district-level employees, school leaders, and teachers would find helpful regarding PBIS perceptions, student behavior management, and PBIS implementation fidelity.

Chapter IV: Results

Positive Behavior Interventions and Supports (PBIS) was initially designed to create evidence-based practices that focused on prevention strategies for students with behavioral disorders, which included emphasizing school-wide behavioral expectations, teaching exemplary behaviors, and prioritizing student outcomes (Gresham, 1991; Sugai & Simonsen, 2012; Walker et al., 1996). Over the last 25 years, research has assessed PBIS as a constructive framework for school improvement. To bridge the gaps in existing literature, this study aimed to assess how school staff's perceptions of PBIS influence office discipline referrals (ODR) at all levels of a single school district for three years, beginning in 2019 and ending in 2022. To the best of the researcher's knowledge, this study was the first of its kind to investigate the association between staff PBIS perceptions and student behavior management across all schools in a single district over three years, within the limitations of a single study conducted in the Southeastern US.

This causal-comparative, correlational study compared PBIS and ODR rates over a consecutive three-year period from 2019 to 2022 in a middle Georgia school district. The PBIS and ODR data were first compared across years to identify trends or changes in their respective rates. In a second line of quantitative analysis, the present study analyzed the correlation between PBIS and ODR rates to determine if staff perceptions of PBIS had impacted rates based on the school level. Causal-comparative research does not involve random assignment to groups by the researcher. Still, it examines participants in their natural group setting and assesses differences between the groups that account for the variation in the dependent variable scores (Goertzen, 2017). On the other hand, a correlational study investigates the connection between variables to ascertain if they are statistically related and the degree of their association. However, correlational studies do not establish causation (Babbie, 2017). In this study, the researcher

employed a causal-comparative design to gain a more comprehensive understanding of the perceptions of school staff towards PBIS across different school levels. The method also helped in exploring how these perceptions can impact discipline practices. Moreover, this design helped investigate causal relationships when experimental manipulation is not feasible, which is frequently the case in educational research.

The SAS survey instrument was utilized to evaluate staff perceptions of PBIS, and the study included all school levels within the district (elementary, middle, and high school). In a study conducted by Solomon and colleagues (2015), the internal consistency of survey items was examined by evaluating four factors, namely School-wide Systems (SWS), Non-classroom Settings Systems (NCSS), Classroom Systems (CS), and Individual Student Systems (ISS). The researchers reported that all the factors had a satisfactory level of internal consistency, with a value of alpha (α) equal to or greater than 0.82. The quantitative research questions aimed to determine variances in district archival SAS data on PBIS (dependent variable) as a measure of perceptions of PBIS effectiveness and ODR data (dependent variable) based on school type (independent variable). Additionally, the researcher analyzed how PBIS perceptions (dependent variable) affected the number of ODRs (dependent variable) based on school type (independent variable). Data from the Georgia Department of Education's online database for archival school discipline records spanning 2019 to 2022 was retrieved to answer the study's research questions.

Research Design

According to McDaniel, Kim, and Guyotte (2017), there needs to be more in understanding the perceptions of PBIS and how they impact the fidelity of implementation and behavior management of students. Researchers, including Gage et al. (2016), Gagnon et al. (2016), and Nese et al. (2021), have called for further investigation into stakeholder perceptions

of alternative approaches to exclusionary discipline practices and proactive behavior management systems. To address these gaps, the present study examined the perceptions of PBIS among school staff and their impact on ODR across school district levels over three years (2019-2022).

The present study employed causal-comparative and correlational research methodologies to investigate the perceptions of PBIS among school staff in elementary, middle, and high school settings. This study also examined corresponding school disciplinary data in a central Georgia school district spanning consecutive years (2019-2022). Through this quantitative approach, this study aimed to identify any differences, over three years, between the PBIS Self-Assessment Survey (SAS) outcomes (dependent variable) and office discipline referrals (ODR) frequencies (dependent variable) based on school type (independent variable), utilizing the causal-comparative research design. Furthermore, this study employed a correlational design to determine if there is a relationship between the SAS results (dependent variable) and ODR frequencies (dependent variable) based on school type (independent variable) during the academic years from 2019-20 to 2021-22.

The SAS survey, developed by the University of Oregon researchers, is a PBIS tool that measures implementation status through 46 items on an ordinal scale. It assesses four areas: School-wide Systems (SWS), Classroom Systems (CS), Non-classroom Setting Systems (NCSS), and Individual Student Systems (ISS). SWS sets expectations for all students, NCSS defines expectations in supervised areas, CS defines explicit expectations for groups, and ISS addresses chronic behavioral issues (Sugai et al., 2003). The SAS survey results were reported as percentage scores for each item in each dimension based on the total number of participant responses. The results for the improvement priority scale were also reported as a percentage

score. Decimal equivalents of the percentage scores were multiplied by weights assigned by the researcher. Composite scores were calculated for each construct, and descriptive statistics were reported for each research question, including mean values, standard deviations, skewness, and kurtosis. These statistics summarized central tendency, dispersion, asymmetry, and peakedness.

Participants

At the time of the study, approximately 2,300 certified employees worked at 33 elementary, middle, and high schools within the district. The quantitative data sample included all submitted SAS surveys completed by the district's 33 sampled schools annually from 2019 to 2022. Additionally, the Georgia Department of Education's Dashboard allowed for the retrieval of public discipline records from elementary, middle, and high schools. Schools not sampled for discipline or SAS data were non-traditional educational settings, primary schools, and schools with incomplete survey data. These sites were excluded from participant sampling, data collection, or analysis.

Of the district's 33 elementary, middle, and high schools, four out of twenty elementary schools still needed SAS survey results for the 2019-20 school year and were excluded from the study. Three of eight middle schools still needed SAS survey results for the 2019-20 school year and were excluded from the study. Finally, one out of five high schools required data for the 2019-20 school year and were excluded from the study. All other schools in the district had SAS data on PBIS for all three academic years bringing the final sample to 16 elementary schools, five middle schools, and four high schools for a total of 25 sampled schools.

A total of 846 elementary school staff participants submitted a SAS survey in the 2019-20 school year, 760 in the 2020-21 school year, and 833 in the 2021-22 school year. For middle school, there were a total of 309 staff participants who submitted a SAS survey in the 2019-20

school year, 324 in the 2020-21 school year, and 281 in the 2021-22 school year. For high school, there were a total of 417 staff participants who submitted a SAS survey in the 2019-20 school year, 311 in the 2020-21 school year, and 343 in the 2021-22 school year.

Table 15

Number of Participants Who Submitted SAS by School Level and Academic Year

	2019-20	2020-21	2021-22
Elementary School	846	760	833
Middle School	309	324	281
High School	417	311	343

Research Question One Status of Implementation Findings

Restatement of the Research Question

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021-2022 school year?

Restatement of the Hypotheses

$H1_O$: There was no significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

$H1_A$: There was a significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

Data Source

District archival PBIS SAS data were used to answer research question one. SAS survey items measured certified school staff's perceptions of PBIS effectiveness.

Method of Analysis

The data were used to compare the certified school staff's perceptions of the effectiveness of the PBIS framework by school type from 2019 to 2022. Factorial ANOVAs were performed to determine differences in SAS scores based on school type, and alpha was set at a .05 significance level.

Findings

Based on the data obtained in this study, there were significant differences in the status perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years. Therefore, the null hypothesis was rejected. The dependent variables in this study were the outcomes of the PBIS Self-Assessment Survey (SAS) and the frequencies of office discipline referrals (ODR). The independent variable was the school type. The SAS survey dimensions for status are rated on an ordinal scale as in-place, partially in-place, or not in-place. The researcher assigned a number rating of three for in-place, a two for partially in-place, and a one for not in-place. For improvement priority, an original ordinal rating scale for low was given a number rating of one, the number two was assigned a rating of medium, and a three was assigned to a rating of high priority. A factorial ANOVA assessed differences in status scores by year, school, and dimension. Year was a nominal-level variable, coded: 1 = 2019-2020, 2 = 2020-2021, and 3 = 2021-2022. School was a nominal-level variable, coded: 1 = elementary school, 2 = middle school, and 3 = high school. Dimension was a

nominal-level variable, coded: 1 = school-wide systems, 2 = non-classroom setting, 3 = classroom setting, and 4 = individual student systems.

ANOVA Model Assumptions

The normality assumption was first verified with Shapiro-Wilk tests for overall status composite scores for the collective sample and subgroups. The findings of the Shapiro-Wilk tests were statistically significant ($p < .05$) for the joint sample and the individual subgroups, indicating that the data for status may not follow a normal distribution. Table 16 presents the findings of the Shapiro-Wilk tests.

Table 16

Shapiro-Wilk Tests for Status Composite Scores

Variable	Shapiro-Wilk Test Statistic	p
Status composite scores		
Overall sample	0.92	<.001
2019-2020	0.96	.005
2020-2021	0.92	<.001
2021-2022	0.87	<.001
Elementary schools	0.88	<.001
Middle schools	0.89	<.001
High schools	0.93	.009
School-wide systems	0.92	<.001
Non-classroom settings	0.90	<.001
Classroom settings	0.93	<.001
Individual student systems	0.95	.003

Note. The *p*-value notes the level of significance.

The skewness and kurtosis statistics were examined for composite status scores to examine the normality assumption further. According to Kline (2010), skewness and kurtosis statistics should fall between ± 2.00 and ± 7.00 for the data to support univariate normality. All the skewness and kurtosis statistics fell within the acceptable ranges, supporting univariate

normality. Table 17 presents the findings of the skewness and kurtosis statistics for composite status scores in addition to means and standard deviations.

Table 17

Descriptive Statistics for Status Composite Scores

Variable	n	$\overline{x}$	SD	Skewness	Kurtosis
Status composite scores					
Overall sample	300	2.70	0.21	-1.10	0.95
2019-2020	100	2.61	0.24	-0.48	-0.43
2020-2021	100	2.76	0.15	-1.33	3.94
2021-2022	100	2.74	0.19	-1.44	1.93
Elementary schools	192	2.73	0.21	-1.34	1.58
Middle schools	60	2.71	0.15	-1.32	2.12
High schools	48	2.57	0.19	-0.73	-0.30
School-wide systems	75	2.75	0.18	-1.10	1.03
Non-classroom settings	75	2.73	0.19	-1.27	1.63
Classroom settings	75	2.74	0.16	-0.90	0.22
Individual student systems	75	2.59	0.24	-0.67	-0.23

Note. The $\overline{x}$ symbol notes the mean, and SD notes the standard deviation.

In 2019-2020, the mean for status composite scores was 2.61. In 2020-2021, the mean for status composite scores was 2.76. In 2021-2022, the mean for status composite scores was 2.74. The mean for status composite scores for elementary, middle, and high schools were 2.73, 2.71, and 2.57 respectively. The mean for composite status scores for the dimension of the school-wide system was 2.75. The mean for status composite scores for the non-classroom settings dimension was 2.73. For the classroom settings dimension, the mean for status composite scores was 2.74. The mean for status composite scores for the individual student systems dimension was 2.59.

The following results describe the status of implementation composite scores for the PBIS SAS by year, school, and survey dimension. In the 2019/2020 academic year, the school-wide systems (SWS) dimension showed a status score of 2.67 for elementary schools, 2.7 for middle schools, and 2.64 for high schools. In the non-classroom systems (NCS) dimension, the status scores were 2.65 for elementary schools, 2.67 for middle schools, and 2.57 for high schools. In the classroom systems (CS) dimension, the status scores were 2.67 for elementary schools, 2.68 for middle schools, and 2.63 for high schools. Lastly, in the individual student systems (ISS) dimension, the status scores were 2.48 for both elementary and middle schools, and 2.43 for high schools.

During the 2020/2021 academic year, there was an increase in status scores across all dimensions and school types. Specifically, in the SWS dimension, the status scores were 2.81 for both elementary and middle schools, and 2.68 for high schools. For the NCS dimension, the status scores were 2.82 for elementary schools, 2.79 for middle schools, and 2.7 for high schools. The CS dimension status scores were 2.81 for elementary schools, 2.8 for middle schools, and 2.72 for high schools. In the ISS dimension, the status scores were 2.67 for elementary schools, 2.7 for middle schools, and 2.58 for high schools.

This improvement trend continued into the 2021/2022 academic year. The SWS dimension status scores were 2.85 for elementary schools, 2.8 for middle schools, and 2.54 for high schools. For the NCS dimension, the status scores were 2.84 for elementary schools, 2.77 for middle schools, and 2.48 for high schools. The CS dimension status scores were 2.82 for elementary schools, 2.75 for middle schools, and 2.52 for high schools. Finally, in the ISS dimension, the status scores were 2.72 for elementary schools, 2.6 for middle schools, and 2.36 for high schools. Across the three academic years, the data demonstrated a consistent pattern of

gradual improvement in the status of implementation for PBIS across all school types. However, high schools consistently displayed lower status scores compared to elementary and middle schools.

Homogeneity of Variance

Homogeneity of variance refers to the condition where the variances of the dependent variable scores are similar across independent variable groups. Levene's test was used to evaluate this assumption. If the p-value is greater than or equal to .05, it indicates that the assumption of homogeneity of variance is met. The homogeneity of variance was evaluated with Levene's test. The findings of Levene's test were statistically significant for status scores (Levene's test statistic = 4.00, $p < .001$), indicating that the assumption for homogeneity of variance was not supported.

Main Effects

The results of the ANOVA for status composite scores by year were statistically significant, $F(2, 264) = 10.13$, $p < .001$, $\eta_p^2 = .07$, indicating that there were significant differences in status composite scores by year. The effect size of .07 indicates that seven percent of the variance in composite scores can be accounted for by the academic year. The results of the ANOVA for status composite scores by the school were statistically significant, $F(2, 264) = 16.18$, $p < .001$, $\eta_p^2 = .11$, indicating that there were significant differences in status composite scores by school. The effect size of .11 indicates that eleven percent of the variance in composite scores can be accounted for by the school level. The results of the ANOVA for status composite scores by dimension were statistically significant, $F(3, 264) = 9.72$, $p < .001$, $\eta_p^2 = .10$, indicating that there were significant differences in status composite scores by dimension. An

effect size of .10 indicates that ten percent of the variance in composite scores can be accounted

for by the composite dimension.

Interaction Effects

The results of the ANOVA for status composite scores for the two-way interaction by

year*school were statistically significant, $F(4, 264) = 4.78$, $p < .001$, $\eta_p^2 = .07$, indicating that

there were significant differences in status composite scores by the two-way interaction,

year*school. The two-way interaction effects for year*dimension, school*dimension, and the

three-way interaction effect of year*school*dimension were not statistically significant. Post hoc

analyses were conducted further to examine the significant main effects and significant

interaction effects. Table 18 presents the findings of the ANOVA.

Table 18

Analysis of Variance Table for Status Composite Scores by Year, School, and Survey Dimension

Term	Sum of Squares	F	Observed Power	p	η_p^2
Year	0.64	10.13	0.99	< .001	.07
School	1.02	16.18	1.00	< .001	.11
Dimension	0.92	9.72	0.99	< .001	.10
Year*School	0.60	4.78	0.95	< .001	.07
Year*Dimension	0.50	0.26	0.12	.954	.01
School*Dimension	0.02	0.08	0.07	.998	.00
Year*School*Dimension	0.02	0.06	0.07	1.000	.00
Corrected Total	12.63				

Note. The level of significance is noted by the *p* value. The effect size is noted by the η_p^2 value.

Post-hoc Analyses for Year

The post-hoc analyses indicated that two pairwise comparisons for status composite

scores by year were statistically significant. The mean status composite scores in 2019-2020 (*M*

= 2.61) were significantly lower than in 2020-2021 (*M* = 2.76). The mean status composite

scores in 2019-2020 (M = 2.61) were significantly lower than in 2021-2022 (M = 2.74). Table

19 presents the pairwise comparisons.

Table 19

Post-Hoc Pairwise Comparisons for Status Composite Scores by Year

Year Comparison	*Mean Difference*	*p*
2019-2020 vs. 2020-2021	-0.15	<.001
2019-2020 vs. 2021-2022	-0.13	<.001
2020-2021 vs. 2021-2022	0.02	.682

Note. The level of significance is noted by the *p*-value.

Post-hoc Analyses for School

The post-hoc analyses indicated that two pairwise comparisons for status composite

scores by the school were statistically significant. The mean status composite scores for

elementary schools (M = 2.73) were significantly higher than high schools (M = 2.57). Middle

schools' mean status composite scores (M = 2.71) were significantly higher than high schools (M

= 2.57). Table 20 presents the pairwise comparisons.

Table 20

Post-Hoc Pairwise Comparisons for Status Composite Scores by School

School Comparison	*Mean Difference*	*p*
Elementary school vs. Middle school	0.02	.732
Elementary school vs. High school	0.16	<.001
Middle school vs. High school	0.14	<.001

Note. The level of significance is noted by the *p*-value.

Post-hoc Analyses for Survey Dimension

The post-hoc analyses indicated that three pairwise comparisons for status composite

scores by survey dimension were statistically significant. The mean status composite scores for

the school-wide systems dimension (M = 2.75) were significantly higher than the individual

systems dimension ($M = 2.59$). The mean status composite scores for the non-classroom settings dimension ($M = 2.73$) were significantly higher than the individual systems dimension ($M = 2.59$). The mean status composite scores for the classroom settings dimension ($M = 2.74$) were significantly higher than the individual systems dimension ($M = 2.59$). Table 21 presents the pairwise comparisons.

Table 21

Post-Hoc Pairwise Comparisons for Status Composite Scores by Survey Dimension

Survey dimension comparison	*Mean Difference*	*p*
School-wide systems vs Non-classroom settings	0.02	.975
School-wide systems vs Classroom settings	0.01	.992
School-wide systems vs Individual systems	0.16	<.001
Non-classroom settings vs Classroom settings	-0.01	.999
Non-classroom settings vs Individual systems	0.14	<.001
Classroom settings vs Individual systems	0.15	<.001

Note. The level of significance is noted by the *p* value.

Post-hoc Analyses for Year*School.

The means for status composite scores by the interaction, year*school, are presented in Table 22.

Table 22

*Means for Status Composite Scores by Year*School*

Year*School	*n*	*M*	*SD*
2019-2020 – Elementary school	64	2.61	0.26
2019-2020 – Middle school	64	2.78	0.17
2019-2020 – High school	64	2.81	0.12
2020-2021 – Elementary school	20	2.63	0.19
2020-2021 – Middle school	20	2.78	0.10
2020-2021 – High school	20	2.73	0.12
2021-2022 – Elementary school	16	2.57	0.18
2021-2022 – Middle school	16	2.67	0.09

Year*School	n	M	SD
2021-2022 – High school	16	2.47	0.23

The post-hoc analyses indicated that 11 pairwise comparisons of year and school were statistically significant. Due to the large number of combinations for the post-hoc comparisons, only the significant pairwise comparisons are reported below. Table 23 presents the pairwise comparisons.

Table 23

*Post-Hoc Pairwise Comparisons for Status Composite Scores by Year*School*

Year*School Comparison	Mean Difference	p
2019-2020 Elementary school vs 2019-2020 Middle school	-0.16	<.001
2019-2020 Elementary school vs 2019-2020 High school	-0.19	<.001
2019-2020 Elementary school vs 2020-2021 Middle school	-0.16	.017
2019-2020 Middle school vs 2021-2022 Elementary school	0.21	.002
2019-2020 Middle school vs 2021-2022 High school	0.30	<.001
2019-2020 High school vs 2020-2021 Elementary school	0.17	.008
2019-2020 High school vs 2021-2022 Elementary school	0.24	<.001
2019-2020 High school vs 2021-2022 High school	0.33	<.001
2020-2021 Middle school vs 2021-2022 Elementary school	0.21	.022
2020-2021 Middle school vs 2021-2022 High school	0.30	<.001
2020-2021 High school vs 2021-2022 High school	0.25	.001

The table presents several significant findings concerning the mean status composite score differences across various school types and years. Firstly, during the 2019-20 school year, there were significant differences between the mean scores of elementary schools compared to both middle schools ($M = -0.16$, $p < .001$) and high schools ($M = -0.19$, $p < .001$), indicating that the mean scores for elementary schools were lower than those of middle and high schools in this period. Secondly, there was a significant mean difference of 0.30 ($p < .001$) when comparing 2019-2020 middle schools to 2021-2022 high schools, suggesting that middle schools had higher mean scores than high schools in 2021-2022.

Moreover, the mean scores of high schools decreased significantly from the 2019-2020 to 2021-2022 academic years, as demonstrated by a mean difference of 0.33 (p < .001). Lastly, a comparison of the 2020-2021 and 2021-2022 school years revealed a significant mean difference of 0.30 (p < .001) between middle schools and high schools, indicating a decrease in mean scores for high schools during this period. Together, these findings highlight the significant differences in mean scores across different school types and years.

Research Question One Improvement Priority Findings

Restatement of the Research Question

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021- 2022 school year?

Restatement of the Hypotheses

$H1_O$: There was no significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

$H1_A$: There was a significant difference in the perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years.

Data Source

District archival PBIS SAS data were used to answer research question one. SAS survey items measured certified school staff's perceptions of PBIS effectiveness.

Method of Analysis

The data were used to compare the certified school staff's perceptions of the effectiveness of the PBIS framework by school type from 2019 to 2022. Factorial ANOVAs were performed to determine differences in SAS scores based on school type. Alpha was set at a $\leq .05$ level of significance.

Findings

Based on the data obtained in this study, there were significant differences in the improvement priority perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from the 2019-2020 to 2021-2022 school years. Therefore, the null hypothesis was rejected.

The independent variable is the type of school. The SAS survey dimensions for status are evaluated on an ordinal scale, where in-place is assigned a rating of three, partially in-place is assigned a rating of two, and not in-place is assigned a rating of one. Similarly, for improvement priority, low is assigned a rating of one, medium is assigned a rating of two, and high is assigned a rating of three. A factorial ANOVA was conducted to assess the differences in improvement priority scores by year, school, and dimension. Year was a nominal-level variable, coded: 1 = 2019-2020, 2 = 2020-2021, and 3 = 2021-2022. School was a nominal-level variable, coded: 1 = elementary school, 2 = middle school, and 3 = high school. Dimension was a nominal-level

variable, coded: 1 = school-wide systems, 2 = non-classroom setting, 3 = classroom setting, and 4 = individual student systems.

ANOVA Model Assumptions

The assumption of normality was first verified with Shapiro-Wilk tests for overall improvement priority composite scores for the collective sample and for the subgroups. The findings of the Shapiro-Wilk tests were not statistically significant ($p > .05$) for the overall sample and several of the subgroups, indicating that the assumption of normality was predominantly supported. The Shapiro-Wilk tests were statistically significant for improvement priority for the 2019-2020 data and for elementary schools, indicating that normality was not supported for these subgroups. Table 24 presents the findings of the Shapiro-Wilk tests.

Table 24

Shapiro-Wilk Tests for Improvement Priority Composite Scores

Variable	Shapiro-Wilk Test Statistic	*p*
Improvement priority composite scores		
Overall sample	0.99	.172
2019-2020	0.96	.002
2020-2021	0.98	.094
2021-2022	0.98	.203
Elementary schools	0.98	.028
Middle schools	0.96	.059
High schools	0.99	.936
School-wide systems	0.99	.584
Non-classroom settings	0.98	.462
Classroom settings	0.99	.875
Individual student systems	0.99	.729

To further examine the normality assumption, the skewness and kurtosis statistics were examined. According to Kline (2010), skewness and kurtosis statistics should fall between $\pm$ 2.00 and $\pm$ 7.00, respectively for the data to support univariate normality. All the skewness and

kurtosis statistics fell within the acceptable ranges, providing support for univariate normality. Table 25 presents the findings of the skewness and kurtosis statistics for improvement priority composite scores in addition to means and standard deviations.

Table 25

Descriptive Statistics for Improvement Priority Composite Scores

Variable	n	$\overline{x}$	SD	Skewness	Kurtosis
Improvement priority composite scores					
Overall sample	300	1.77	0.30	0.03	-0.55
2019-2020	100	1.91	0.35	-0.63	-0.16
2020-2021	100	1.71	0.23	-0.08	-0.73
2021-2022	100	1.70	0.28	0.26	-0.55
Elementary schools	192	1.70	0.32	0.33	-0.43
Middle schools	60	1.83	0.26	0.35	-0.58
High schools	48	1.98	0.17	0.06	0.12
School-wide systems	75	1.75	0.29	-0.01	-0.58
Non-classroom settings	75	1.70	0.28	-0.02	-0.67
Classroom settings	75	1.78	0.30	0.04	-0.46
Individual student systems	75	1.86	0.33	-0.14	-0.54

The mean improvement priority composite scores in 2019-2020 was 1.91, 1.71 in the 2020-2021 academic year, and 1.70 in 2021-22 academic year The mean for improvement priority composite scores was 1.70, 1.83 and 1.98 for elementary, middle and high schools respectively. For the school-wide systems dimension, the mean for improvement priority composite scores was 1.75. For the non-classroom settings dimension, the mean for improvement priority composite scores was 1.70. For the classroom settings dimension, the mean for improvement priority composite scores was 1.78. For the individual student systems dimension, the mean for improvement priority composite scores was 1.86.

The following results report the improvement priority composite scores from the PBIS SAS by year, school type, and survey dimension. In the 2019/2020 academic year, the school-

wide systems (SWS) dimension showed an improvement priority score of 1.83 for elementary schools, 1.91 for middle schools, and 2.00 for high schools. In the non-classroom systems (NCS) dimension, the improvement priority scores were 1.75 for elementary schools, 1.91 for middle schools, and 1.98 for high schools. For the classroom systems (CS) dimension, the improvement priority scores were 1.86 for elementary schools, 1.97 for middle schools, and 2.02 for high schools. The individual student systems (ISS) dimension showed improvement priority scores of 1.98 for elementary schools, 2.05 for middle schools, and 2.17 for high schools.

During the 2020/2021 academic year, there was a general decrease in improvement priority scores across all dimensions and school types, reflecting overall improvements in PBIS. Specifically, in the SWS dimension, the scores were 1.65 for elementary schools, 1.73 for middle schools, and 1.86 for high schools. In the NCS dimension, the scores were 1.56 for elementary schools, 1.68 for middle schools, and 1.83 for high schools. The CS dimension showed scores of 1.68 for elementary schools, 1.73 for middle schools, and 1.85 for high schools. In the ISS dimension, the scores were 1.73 for elementary schools, 1.80 for middle schools, and 2.05 for high schools.

The trend of decreasing improvement priority scores continued into the 2021/2022 academic year. For the SWS dimension, the scores were 1.58 for elementary schools, 1.80 for middle schools, and 1.96 for high schools. In the NCS dimension, the scores were 1.53 for elementary schools, 1.80 for middle schools, and 1.94 for high schools. The CS dimension showed scores of 1.62 for elementary schools, 1.82 for middle schools, and 1.96 for high schools. In the ISS dimension, the scores were 1.68 for elementary schools, 1.77 for middle schools, and 2.14 for high schools. Over the three academic years, the data showed a consistent pattern of decreasing improvement priority scores across all school types, indicating the positive

progress in PBIS implementation. However, high schools consistently displayed higher improvement priority scores compared to elementary and middle schools, indicating a greater need for improvements in these settings.

Homogeneity of Variance

Levene's test is a statistical test used to assess whether the variances of two or more groups or samples are equal. It is commonly used in analysis of variance (ANOVA) to test the assumption of homogeneity of variance, which is an important assumption for many statistical tests. If the variances are found to be significantly different, it may affect the accuracy and reliability of the statistical analysis and conclusions drawn from it. Homogeneity of variance was evaluated with a Levene's test. The findings of Levene's test were statistically significant for improvement priority scores (Levene's test statistic = 2.32, $p < .001$), indicating that the assumption for homogeneity of variance was not supported.

Main Effects

The results of the ANOVA for improvement priority composite scores by year were statistically significant, $F(2, 264) = 9.33$, $p < .001$, $\eta_p^2 = .07$, indicating that there were significant differences in improvement priority composite scores by year. The effect size of .07 is relatively small, indicating that only seven percent of the variance in improvement priority composite scores is accounted for by the academic year. The results of the ANOVA for improvement priority composite scores by school were statistically significant, $F(2, 264) = 20.53$, $p < .001$, $\eta_p^2 = .14$, indicating that there were significant differences in improvement priority composite scores by school. The effect size of .14 indicates that 14% of the variance in improvement priority composite scores can be accounted for by school type. The results of the ANOVA for improvement priority composite scores by dimension were statistically significant,

$F(3, 264) = 2.92$, $p = .035$, $\eta_p^2 = .03$, indicating that there were significant differences in improvement priority composite scores by dimension. The effect size of .03 indicates that a relatively low percent (3%) of the improvement priority composite scores can be accounted for by dimension. Post hoc analyses were conducted to further examine the significant main effects.

Interaction Effects

The two-way interaction effects for year*school, year*dimension, school*dimension, and the three-way interaction effect for year*school*dimension were not statistically significant. The results of the ANOVA for the two-way interaction by year*school were not statistically significant, $F(4, 264) = 1.16$, $p = .327$, $\eta_p^2 = .02$, indicating that there were not statistically significant joint effects when both variables are combined. The results of the ANOVA for the two-way interaction by year*dimension was not statistically significant, $F(6, 264) = 0.10$, $p = .997$, $\eta_p^2 = .00$, indicating that there were not statistically significant joint effects when both variables are combined. The results of the ANOVA for the two-way interaction by school*dimension was not statistically significant, $F(6, 264) = 0.28$, $p = .945$, $\eta_p^2 = .01$, indicating that there were not statistically significant joint effects when both variables are combined. The results of the ANOVA for the three-way interaction by year*school*dimension was not statistically significant, $F(12, 264) = 0.05$, $p = 1.00$, $\eta_p^2 = .00$, indicating that there were not statistically significant joint effects when these variables are combined. Table 26 presents the findings of the ANOVA.

Table 26

Analysis of Variance Table for Improvement Priority Composite Scores by Year, School, and

Survey Dimension

Term	Sum of Squares	F	*Observed Power*	*p*	η_p^2
Year	1.43	9.33	0.98	<.001	.07
School	3.14	20.53	1.00	<.001	.14
Dimension	0.67	2.92	0.69	.035	.03
Year*School	0.36	1.16	0.36	.327	.02
Year*Dimension	0.05	0.10	0.07	.997	.00
School*Dimension	0.13	0.28	0.13	.945	.01
Year*School*Dimension	0.05	0.05	0.07	1.00	.00
Corrected Total	27.61				

Note. The level of significance is noted by the *p* value. The effect size is noted by the η_p^2 value.

Post-hoc Analyses for Year

The post-hoc analyses indicated that two pairwise comparisons for improvement priority composite scores by year were statistically significant. The mean improvement priority composite scores in 2019-2020 (*M* = 1.91) were significantly higher than 2020-2021 (*M* = 1.71). The mean improvement priority composite scores in 2019-2020 (*M* = 1.91) were significantly higher than 2021-2022 (*M* = 1.70). Table 27 presents the pairwise comparisons.

Table 27

Post-Hoc Pairwise Comparisons for Improvement Priority Composite Scores by Year

Year comparison	*Mean Difference*	*p*
2019-2020 vs 2020-2021	0.20	<.001
2019-2020 vs 2021-2022	0.21	<.001
2020-2021 vs 2021-2022	0.01	.984

Note. The level of significance is noted by the *p* value.

Post-hoc Analyses for School

The post-hoc analyses indicated that all three pairwise comparisons for improvement priority composite scores by school were statistically significant. The mean improvement priority composite scores for elementary schools (M = 1.70) were significantly lower than middle schools (M = 1.83). The mean improvement priority composite scores for elementary schools (M = 1.70) were significantly lower than high schools (M = 1.98). The mean improvement priority composite scores for middle schools (M = 1.83) were significantly lower than high schools (M = 1.98). Table 28 presents the pairwise comparisons.

Table 28

Post-Hoc Pairwise Comparisons for Improvement Priority Composite Scores by School

School comparison	*Mean Difference*	*p*
Elementary school vs Middle school	-0.13	.007
Elementary school vs High school	-0.27	<.001
Middle school vs High school	-0.15	.016

Note. The level of significance is noted by the *p* value.

Post-hoc Analyses for Survey Dimension

The post-hoc analyses indicated that one pairwise comparison for improvement priority composite scores by survey dimension were statistically significant. The mean improvement priority composite scores for the non-classroom settings dimension (M = 1.70) were significantly lower than the individual systems dimension (M = 1.86). Table 29 presents the pairwise comparisons.

Table 29

Post-Hoc Pairwise Comparisons for Improvement Priority Composite Scores by Survey

Dimension

Survey dimension comparison	*Mean Difference*	*p*
School-wide systems vs Non-classroom settings	0.05	.672
School-wide systems vs Classroom settings	-0.03	.917
School-wide systems vs Individual systems	-0.11	.068
Non-classroom settings vs Classroom settings	-0.08	.288
Non-classroom settings vs Individual systems	-0.16	.002
Classroom settings vs Individual systems	-0.08	.268

Research Question Two Findings

Restatement of the Research Question

RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?

Restatement of the Hypotheses

H1$_O$: There was no significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

H1$_A$: There was a significant difference in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022.

Data Source

The GOSA ODR data were used to answer research question two. ODR data determined the effectiveness of the school's student behavior management systems.

Method of Analysis

The data were used to compare the ODR frequency based on school type from 2019 to 2022. Repeated measures ANOVA were performed to determine the difference in ODR frequency based on school type. Alpha was set at a $\leq$ .05 level of significance.

Findings

Based on the data obtained in this study, there were significant differences in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022. Therefore, the null hypothesis was rejected.

To address research question two, a repeated measures ANOVA was conducted to analyze for differences in the rates of office discipline referrals over time and based on school type. School type is the independent variable and ODS is the continuous dependent variable. The within-subjects factor corresponded to year: 2019-2020, 2020-2021, and 2021-2022. School was a nominal-level variable, coded: 1 = elementary school, 2 = middle school, and 3 = high school. The dependent variable corresponded to office discipline referrals. Prior to analysis, the assumptions of the ANOVA were verified – normality, homogeneity of variance, homogeneity of covariance, and sphericity.

Assumptions of ANOVA Model

The assumption of normality was first verified with Shapiro-Wilk tests for office discipline referrals collective sample and for the subgroups. The findings of the Shapiro-Wilk tests were not statistically significant ($p > .05$) for a majority of the tests, indicating that the assumption of normality was supported. The findings of the Shapiro-Wilk tests were statistically significant ($p < .05$) for the office discipline referrals for each year and for high schools in 2021-

2022, indicating that the data for office discipline referrals may not follow a normal distribution

for these subgroups. Table 30 presents the findings of the Shapiro-Wilk tests.

Table 30

Shapiro-Wilk Tests for Office Discipline Referrals

Variable	Shapiro-Wilk Test Statistic	p
Office discipline referrals		
2019-2020	0.78	<.001
Elementary	0.94	.261
Middle	0.93	.488
High	0.92	.548
2019-2020	0.76	<.001
Elementary	0.92	.095
Middle	0.87	.152
High	0.83	.131
2019-2020	0.76	<.001
Elementary	0.92	.126
Middle	0.92	.403
High	0.74	.023

Note. The level of significance is noted by the *p* value.

To further examine the normality assumption, the skewness and kurtosis statistics were

examined for office discipline referrals. According to Kline (2010), skewness and kurtosis

statistics should fall between $\pm$ 2.00 and $\pm$ 7.00, respectively for the data to support univariate

normality. All the skewness and kurtosis statistics fell within the acceptable ranges, providing

support for univariate normality. Table 31 presents the findings of the skewness and kurtosis

statistics for office discipline referrals in addition to means and standard deviations.

Table 31

Descriptive Statistics for Office Discipline Referrals

Variable	$\overline{x}$	Standard Deviation	Skewness	Kurtosis
Office discipline referrals				
2019-2020	494.78	442.15	2.20	6.32
Elementary	243.84	123.58	0.67	-0.32

Variable	$\bar{x}$	Standard Deviation	Skewness	Kurtosis
Middle	650.13	214.84	0.82	0.19
High	1199.80	630.02	1.14	1.68
2020-2021	324.97	300.38	2.23	6.49
Elementary	151.84	66.60	0.71	-0.21
Middle	467.38	186.80	-0.14	-2.09
High	755.00	451.84	1.44	2.26
2021-2022	225.44	203.58	2.21	5.85
Elementary	109.32	44.49	0.09	-1.20
Middle	356.63	169.71	0.68	-0.79
High	456.80	310.65	1.92	3.70

Note. The mean is noted by the $\bar{x}$ symbol.

The overall mean for the 2019-20 academic year was 494.78, 324.97 for the 2020-21 academic year, and 225.44 for the 2021-22 academic year. For the 2019-20 academic year, the elementary, middle, and high subgroups had a mean value of 243.84, 650.13, and 1199.80 respectively. For the 2020-21 academic year, the elementary, middle, and high subgroups had a mean value of 151.84, 467.38, and 755 respectively. For the 2021-22 academic year, the elementary, middle, and high subgroups had a mean value of 109.32, 356.63, and 456.8 respectively.

Homogeneity of Variance

Homogeneity of variance was evaluated with a Levene's test. The findings of Levene's test were statistically significant for office discipline referrals for the 2019-20 academic year (Levene's test statistic = 7.75, p = .002), for the 2020-21 academic year (Levene's test statistic = 8.93, p < .001), and for the 2021-22 academic year (Levene's test statistic = 9.19, p < .001), indicating that the assumption for homogeneity of variance was not supported. Table 32 presents the findings of Levene's test.

Table 32

Levene's Test for Office Discipline Referrals

Office discipline referrals	Levene's Test Statistic	p
2019-20	7.75	.002
2020-21	8.93	<.001
2021-22	9.19	<.001

Homogeneity of Covariance

Homogeneity of covariance was evaluated with a Box's M test. The findings of Box's M test were statistically significant for office discipline referrals (Box's M test statistic = 52.42, $p <$ .001), indicating that the assumption for homogeneity of covariance was not supported. Therefore, the Pillai's Trace statistic will be interpreted for the ANOVA.

Sphericity

Sphericity was evaluated with Mauchly's test of sphericity. The findings of Mauchly's test were statistically significant for office discipline referrals (Mauchly's test statistic = 0.51, p < .001), indicating that the assumption for sphericity was not supported. Therefore, the Greenhouse-Geisser test statistics are reported for the within-subjects effects of the ANOVA.

Multivariate Tests

The results of the multivariate tests for office discipline referrals by year were statistically significant, Pillai's Trace = 0.82, $F(2, 28) = 62.67$, $p < .001$, $\eta_p^2 = .817$, indicating that there were significant differences in office discipline referrals by year. The effect size of .817 indicates that 81.7% of the variance in discipline referrals can be accounted for by academic year. The results of the multivariate tests for office discipline referrals by year*school were statistically significant, Pillai's Trace = 0.64, $F(4, 58) = 6.82$, $p < .001$, $\eta_p^2 = .320$, indicating that there were significant differences in office discipline referrals by year*school. An effect size of

156

.32 indicates that 32% of the variance in discipline referrals can be accounted for by the interaction effect of year and school (year*school). Table 33 presents the findings of the multivariate tests.

Table 33

*Multivariate Tests for Office Discipline Referrals by Year and Year*School*

Term	Pillai's Trace	F	p	η_p^2	Observed Power
Year	0.82	62.67	<.001	.817	1.00
Year*School	0.64	6.82	<.001	.320	0.99

Note. The level of significance is noted by the p value. The effect size is noted by the η_p^2 value.

Within-Subjects Tests for Year and Year*School

The results of the within-subjects tests for office discipline referrals by year were statistically significant, Greenhouse-Geisser $F(1.34, 38.79) = 108.97$, $p < .001$, $\eta_p^2 = .790$, indicating that there were significant differences in office discipline referrals by year. According to this test, the effect size was .79 which indicated that 79% of the variance in discipline referrals can be accounted for by academic year. The results of the within-subjects tests for office discipline referrals by year*school were statistically significant, Greenhouse-Geisser $F(2.68, 38.79) = 21.88$, $p < .001$, $\eta_p^2 = .602$, indicating that there were significant differences in office discipline referrals by year*school. Additionally, the effect size was .602 which indicated that 60.2% of the variance in discipline referrals can be accounted for when these two variables are combined (year*school). Table 34 presents the findings of the within-subjects tests.

Table 34

Within-Subjects Tests for Office Discipline Referrals by Year and Year*School

Term	Greenhouse-Geisser Test Statistics			
	F	p	η_p^2	Observed Power
Year	108.97	<.001	.790	1.00
Year*School	21.88	<.001	.602	1.00

Between-Subjects Tests for Office Discipline Referrals by School

The results of the between-subjects tests for office discipline referrals by school were statistically significant, $F(2, 29) = 22.86$, $p < .001$, $\eta_p^2 = .612$, indicating that there were significant differences in office discipline referrals by school. This test reported an effect size of .612 indicating that 61.2% of the variance in discipline referrals can be accounted for by school type.

Post-hoc Analyses for Year

The estimated marginal means for office discipline referrals by year are presented in Table 35. The estimated marginal mean for office discipline referrals was 697.92, 458.07, and 307.58 for 2019-2020, 2020-2021, and 2021-2022 academic years respectively.

Table 35

Estimated Marginal Means for Office Discipline Referrals by Year

Year	*Estimated Marginal Mean*	*SE*
2019-2020	697.92	56.23
2020-2021	458.07	40.63
2021-2022	307.58	30.03

The post-hoc analyses indicated that all three of the pairwise comparisons for office discipline referrals by year were statistically significant. The estimated marginal means for office discipline referrals in 2019-2020 (Estimated Marginal $M = 697.92$) were significantly higher

than 2020-2021 (Estimated Marginal M = 458.07). The estimated marginal means for office

discipline referrals in 2019-2020 (Estimated Marginal M = 697.92) were significantly higher

than 2021-2022 (Estimated Marginal M = 307.58). The estimated marginal means for office

discipline referrals in 2020-2021 (Estimated Marginal M = 458.07) were significantly higher

than 2021-2022 (Estimated Marginal M = 307.58). Table 36 presents the pairwise comparisons.

Table 36

Post-Hoc Pairwise Comparisons for Office Discipline Referrals by Year

Year comparison	*Estimated Marginal Mean Difference*	*p*
2019-2020 vs 2020-2021	239.85	<.001
2019-2020 vs 2021-2022	390.34	<.001
2020-2021 vs 2021-2022	150.49	<.001

Post-hoc Analyses for School

The estimated marginal means for office discipline referrals by school are presented in

Table 37. The estimated marginal mean for office discipline referrals was 168.33, 491.28, and

803.87 for elementary, middle and high schools respectively.

Table 37

Means for Office Discipline Referrals by School

School	*Estimated Marginal Mean*	*SE*
Elementary school	168.33	45.74
Middle school	491.38	70.49
High school	803.87	89.16

The post-hoc analyses indicated that all three of the pairwise comparisons for office

discipline referrals by school were statistically significant. The estimated marginal means for

office discipline referrals in elementary schools (Estimated Marginal M = 168.33) were

significantly lower than middle schools (Estimated Marginal M = 491.38). The estimated

marginal means for office discipline referrals in elementary schools (Estimated Marginal M = 168.33) were significantly lower than high schools (Estimated Marginal M = 803.87). The estimated marginal means for office discipline referrals in middle schools (Estimated Marginal M = 491.38) were significantly lower than high schools (Estimated Marginal M = 803.87). Table 38 presents the pairwise comparisons.

Table 38

Post-Hoc Pairwise Comparisons for Office Discipline Referrals by School

School comparison	*Estimated Marginal Mean Difference*	*p*
Elementary school vs Middle school	-323.04	<.001
Elementary school vs High school	-635.53	<.001
Middle school vs High school	-312.49	.010

Post-hoc Analyses for Year*School.

The estimated marginal mean scores for elementary, middle, and high schools showed a consistent decline over the three-year period from 2019-2020 to 2021-2022. For elementary schools, the estimated marginal mean score dropped from 243.84 to 109.32. For middle schools, the estimated marginal mean score decreased from 650.13 to 356.63. And for high schools, the estimated marginal mean score decreased from 1199.80 to 456.80. The estimated marginal means for office discipline referrals by year*school are presented in Table 39.

Table 39

Means for Office Discipline Referrals Year*School

School	Year	*Estimated Marginal Mean*	*SE*
Elementary	2019-2020	243.84	62.98
	2020-2021	151.84	45.50
	2021-2022	109.32	33.63
Middle	2019-2020	650.13	97.06
	2020-2021	467.38	70.12
	2021-2022	356.63	51.83

School	Year	*Estimated Marginal Mean*	*SE*
High	2019-2020	1199.80	122.77
	2020-2021	755.00	88.70
	2021-2022	456.80	65.56

Research Question Three Findings

Restatement of the Research Question

RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

Restatement of the Hypotheses

H1$_O$: There was no significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1$_A$: There was a significant relationship between elementary school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source

District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness, and GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question three.

Method of Analysis

The data sets examined the relationship between SAS results and ODR data for elementary schools. Pearson product moment correlations were performed to determine the

impact of SAS scores on ODR frequency for elementary schools from 2019 to 2022. Alpha was set at a $\leq$ .05 level of significance.

Findings

Based on the data obtained in this study, there were no statistically significant correlations between status composite scores or improvement priority scores with office discipline referrals in elementary schools during the 2019-20, 2020-21, or 2021-22 academic years. Due to non-significance of the correlations, the null hypothesis for research question three was not rejected. Consequently, given the non-significance of those correlations, regression analysis was deemed unnecessary and was not conducted. As a result, the null hypothesis for research question three remained unchallenged and could not be rejected.

To address research question three, a series of Pearson correlations were conducted to examine the strength of the relationships between elementary school staff perceptions of the effectiveness of the PBIS framework and office discipline referrals (ODR) from 2019 to 2021. A Pearson correlation is appropriate when assessing the strength of the relationship between continuous-level variables (Pallant, 2020). Data were examined independently for the 2019-2020, 2020-2021, and 2021-2022 school years. Table 40 presents the Pearson correlations for elementary schools. All the correlation coefficients were statistically not significant.

Table 40

Pearson Correlations for Elementary Schools (2019-2021)

	2019 Elementary School			2020 Elementary School			2021 Elementary School		
	ODR			ODR			ODR		
	$r(14)$	R^2	p	$r(14)$	R^2	p	$r(14)$	R^2	p
SWS Status Composite	-.14	.020	.601	-.22	.048	.414	-.31	.096	.244
SWS Improvement Priority Composite	.23	.053	.383	.31	.096	.247	-.01	.000	.966
NCS Status Composite	-.07	.005	.795	-.32	.102	.226	-.36	.130	.166
NCS Improvement Priority Composite	.26	.068	.328	.33	.109	.220	.22	.048	.420
CS Status Composite	-.20	.040	.457	-.28	.078	.292	-.28	.078	.298
CS Improvement Priority Composite	.30	.090	.258	.42	.176	.110	.19	.036	.492

	2019 Elementary School			2020 Elementary School			2021 Elementary School		
	ODR			ODR			ODR		
	$r(14)$	R^2	p	$r(14)$	R^2	p	$r(14)$	R^2	p
ISS Status Composite	-.11	.012	.698	-.23	.053	.385	-.23	.053	.385
ISS Improvement Priority Composite	.23	.053	.403	.46	.212	.073	.34	.116	.201

Note. Denotes correlation is significant at α = .05 level.

Research Question Four Findings

Restatement of the Research Question

RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

Restatement of the Hypotheses

$H1_O$: There was no significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

$H1_A$: There was a significant relationship between middle school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source

District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness, and GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question four.

Method of Analysis

The data sets examined the relationship between SAS results and ODR data for middle schools. Pearson product moment correlations were performed to determine the impact of SAS

scores on ODR frequency for middle schools from 2019 to 2022. Alpha was set at a ≤ .05 level

of significance.

Findings

Based on the data obtained in this study, there were eight statistically significant

correlations between status composite scores or improvement priority scores with office

discipline referrals in middle schools during the 2019-20, 2020-21, or 2021-22 academic years.

Therefore, the null hypothesis for research question four was rejected.

To address research question four, a series of Pearson correlations were conducted to

examine the strength of the relationships between middle school staff perceptions of the

effectiveness of the PBIS framework and office discipline referrals (ODR) from 2019 to 2021.

Data were examined independently for the 2019-2020, 2020-2021, and 2021-2022 school years.

Table 41 presents the Pearson correlations for middle schools.

Table 41

Pearson Correlations for Middle Schools (2019-2021)

	2019 Middle School ODR			2020 Middle School ODR			2021 Middle School ODR		
	$r(3)$	R^2	p	$r(3)$	R^2	p	$r(3)$	R^2	p
SWS Status Composite	-.72	.518	.174	-.05	.003	.940	-.75	.563	.149
SWS Improvement Priority Composite	.92*	.846	.027	.37	.137	.543	.87	.757	.058
NCS Status Composite	-.93*	.865	.022	.37	.137	.536	-.67	.449	.212
NCS Improvement Priority Composite	.85	.723	.067	.17	.029	.789	.94*	.884	.019
CS Status Composite	-.90*	.810	.035	-.60	.360	.287	-.57	.325	.320
CS Improvement Priority Composite	.89*	.792	.045	.36	.130	.554	.94*	.884	.017
ISS Status Composite	-.83	.689	.085	.12	.014	.852	-.56	.314	.327
ISS Improvement Priority Composite	.90*	.810	.038	-.03	.001	.968	.92*	.846	.027

Note. Denotes correlation is significant at α = .05 level.

For the 2019-20 academic year, office discipline referrals were significantly associated

with SWS improvement priority composite scores (r^2 = .92, p = .027), NCS status composite

scores (r^2 = -.93, p = .022), CS status composite scores (r^2 = -.90, p = .035), CS improvement

priority scores (r^2 = .89, p = .045), and ISS improvement priority scores (r^2 = .90, p = .038) in

2019-2020 middle schools. For the 2020-21 academic year there were no statistically significant correlations between status composite scores or improvement priority scores with office discipline referrals. For the 2021-22 academic year, office discipline referrals were significantly associated with NCS improvement priority composite scores ($r^2 = .94$, $p = .019$), CS improvement priority composite scores ($r^2 = .94$, $p = .017$), and ISS improvement priority scores ($r^2 = .92$, $p = .027$) in 2021-2022 middle schools.

The statistical findings indicate fluctuating relationships between office discipline referrals and various school composite scores in middle schools across three academic years. In the 2019-2020 and 2021-2022 years, there were significant associations between discipline referrals and both improvement priority and status scores. Positive correlations were observed with improvement priority scores, indicating that as these scores increased, so did the number of office discipline referrals. On the other hand, negative correlations were found with status scores, suggesting that higher status scores were associated with fewer office discipline referrals. However, in the 2020-2021 academic year, the data showed no significant correlations between office discipline referrals and any of the composite scores.

A simultaneous multiple linear regression was conducted to predict middle school ODR frequency from school type and School-wide Systems (SWS) SAS survey dimensions (status and improvement priority) for year three of data collection. The assumption of multicollinearity was met through examination of the variance inflation factor (1.14). Normality assumption was met for SWS for year one with nonsignificant Shapiro-Wilk tests for status ($p = .189$) and improvement priority ($p = .143$). ODR data for year one did not meet the assumption of normality. Examination of the Durbin-Watson statistic (2.62), P-P plots, q-q plots, and scatterplots reveal that the assumptions of independence of observations, linearity, and

homoscedasticity were met. A significant regression equation was found (F (2, 2) = 32.06, $p <$ .05), with an adjusted R^2 of .940 indicating that 94% of the variance in ODR can be accounted for by PBIS SAS School-wide Systems status and improvement priority composite scores for the third year of data collection. Participants predicted weight on ODR is equal to 5363.21 - 0.502*(SWS_Status) + 0.688*(SWS_improvement priority) when IV's are measured in scale points. For every 1 scale point increase in SWS_Status and SWS_improvement priority composite scores the ODR changes by 0.502 and 0.688 units, respectively. Improvement priority was a significant predictor of ODR, while status was not a significant predictor. The statistical power of this regression model is 0.95 ~ 1.000. Table 42 presents the regressions for middle schools.

Table 42

Linear Multiple Regression Results: Middle School

Year One (2019-2020)					
Model	**Adjusted R^2**	**F-Value**	**Independent Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
1st Regression	.846	12.03	SWS_Status	.650	-2313.09, 4567.33
			SWS_Imp. Priority	1.51	-470.62, 3462.20
2nd Regression	.732	6.46	NCS_Status	-.976	-6232.80, 3100.01
			NCS_Imp. Priority	-.049	-2502.57, 2418.80
3rd Regression	.643	4.61	CS_Status	-.687	-9793.19, 7259.13
			CS_Imp. Priority	.226	-4343.47, 4789.01
4th Regression	.622	4.30	ISS_Status	-.138	-3053.20, 2771.24
			ISS_Imp. Priority	.776	-1825.75, 3193.99

Year Two (2020-2021)					
Model	**Adjusted R^2**	**F-Value**	**Independent Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
1st Regression	-.730	.156	SWS_Status	0.10	-5652.19, 5691.68
			SWS_Imp. Priority	.369	-3231.53, 4187.83
2nd Regression	.154	.182	NCS_Status	.358	-5113.90, 6600.52
			NCS_Imp. Priority	.121	-3670.98, 4000.54
3rd Regression	-.268	.577	CS_Status	-.550	-9221.91, 6131.31
			CS_Imp. Priority	.103	-2836.31, 3059.32
4th Regression	-.972	.014	ISS_Status	.125	-5288.44, 5708.59
			ISS_Imp. Priority	.023	-4208.31, 4267.89

Year Three (2021-2022)					
Model	**Adjusted R^2**	**F-Value**	**Independent Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**

Model	Adjusted R^2	F-Value	Independent Variable	Std. β-Coefficient	Confidence Interval (LB, UB)
1st Regression	.940	32.06*	SWS_Status	-.502	-4497.13, 264.83
			SWS_Imp. Priority	.688	91.05, 927.83
2nd Regression	.848	12.19	NCS_Status	-.254	-2535.41, 1494.50
			NCS_Imp. Priority	.804	-127.71, 1280.87
3rd Regression	.824	10.38	CS_Status	-.180	-1890.29, 1317.52
			CS_Imp. Priority	.860	-93.58, 1175.49
4th Regression	.871	14.53	ISS_Status	-.314	-3474.59, 1529.31
			ISS_Imp. Priority	.826	12.83, 1185.14

*Note. Under the heading "Model," the numbered regression headings indicate the separate models used to analyze each dimension of the SAS survey; SWS = School-wide Systems; NCS = Non-classroom Settings; CS = Classroom Settings; ISS = Individual Student Systems; Std = Standard; LB = Lower Bound; UB = Upper Bound; * = $p \leq .05$*

Excluding SWS for year three, the non-significance of School-wide Systems (SWS), Classroom Systems (CS), Non-classroom Systems (NCS), and Individual Student Systems (ISS) as predictor variables for Office Discipline Referrals (ODR) in this analysis indicated that there is insufficient evidence to support the claim that these factors are related to ODR frequency across the three years of data collection. This finding suggests that these SAS survey dimensions may not play a substantial role in explaining variations in ODR across middle schools.

Research Question Five Findings

Restatement of the Research Question

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

Restatement of the Hypotheses

$H1_O$: There was no significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

H1_A: There was a significant relationship between high school staff perceptions of PBIS and the frequency of office discipline referrals (ODR) during the school years from 2019-2020 to 2021-2022.

Data Source

District archival PBIS SAS data were used to measure certified school staff perceptions of PBIS effectiveness, and GOSA ODR data were used to determine the effectiveness of the school's student behavior management systems. These data sources were used to answer research question five.

Method of Analysis

The data sets examined the relationship between SAS results and ODR data for high schools. Pearson product moment correlations were performed to determine the impact of SAS scores on ODR frequency for high schools from 2019 to 2022. Alpha was set at a $\leq .05$ level of significance.

Findings

Based on the data obtained in this study, there were two statistically significant correlations between status composite scores or improvement priority scores with office discipline referrals in middle schools during the 2019-20, 2020-21, or 2021-22 academic years. Therefore, the null hypothesis for research question five was rejected.

To address research question five, a series of Pearson correlations were conducted to examine the strength of the relationships between high school staff perceptions of the effectiveness of the PBIS framework and office discipline referrals (ODR) from 2019 to 2021. Data were examined independently for the 2019-2020, 2020-2021, and 2021-2022 school years. Table 43 presents the Pearson correlations for high schools.

For the 2019-20 school year, office discipline referrals were significantly associated with SWS improvement priority composite scores ($r^2 = .95$, $p = .046$) and NCS improvement priority composite scores ($r^2 = .96$, $p = .036$) in 2019-2020 high schools. For the 2020-21 school year, there were no statistically significant correlations between status composite scores or improvement priority scores with office discipline referrals. For the 2021-22 school year, there were no statistically significant correlations between status composite scores or improvement priority scores with office discipline referrals.

Table 43

Pearson Correlations for High Schools (2019-2021)

| | 2019 High School | | | 2020 High School | | | 2021 High School | | |
| | ODR | | | ODR | | | ODR | | |
	$r(2)$	R^2	p	$r(2)$	R^2	p	$r(2)$	R^2	p
SWS Status Composite	-.25	.063	.749	.05	.003	.950	-.69	.476	.315
SWS Improvement Priority Composite	.95*	.903	.046	-.14	.020	.864	.39	.152	.614
NCS Status Composite	-.49	.240	.510	.29	.084	.708	-.64	.410	.356
NCS Improvement Priority Composite	.96*	.922	.036	.15	.023	.855	.39	.152	.607
CS Status Composite	-.66	.436	.338	-.21	.044	.790	-.51	.260	.487
CS Improvement Priority Composite	.95	.903	.052	.76	.578	.245	.35	.123	.648
ISS Status Composite	-.34	.116	.663	.55	.303	.452	-.48	.230	.520
ISS Improvement Priority Composite	.50	.250	.499	.32	.102	.678	.58	.336	.421

Note. Denotes correlation is significant at $\alpha = .05$ level.

The statistical findings indicate varying relationships between office discipline referrals and school performance composite scores in high schools over three academic years. In the 2019-2020 school year, significant positive correlations were observed between discipline referrals and both SWS and NCS improvement priority scores. This suggests that as these improvement priority scores increased, so did the number of office discipline referrals. However, for the 2020-2021 and 2021-2022 school years, no significant correlations were found between office discipline referrals and either status composite scores or improvement priority scores.

A simultaneous multiple linear regression was conducted to predict high school ODR frequency from school type and Classroom Settings (CS) SAS survey dimensions (status and

improvement priority) for year one of data collection. The assumptions of multicollinearity was met through examination of the variance inflation factor (1.18). Normality assumption was met for CS for year one with nonsignificant Shapiro-Wilk tests for status ($p = .162$) and improvement priority ($p = .458$). ODR data for year one did not meet the assumption of normality. Examination of the Durbin-Watson statistic (2.63), P-P plots, q-q plots, and scatterplots reveal that the assumptions of independence of observations, linearity, and homoscedasticity were met. A significant regression equation was found ($F (2, 1) = 1251.28, p < .05$), with an adjusted R^2 of .999 indicating that 99.9% of the variance in ODR can be accounted for by PBIS SAS Classroom Settings status and improvement priority composite scores for the first year of data collection. Participants predicted weight on ODR is equal to -2870.93 - 0.346*(CS_Status) + 0.813*(CS_improvement priority) when IVs are measured in scale points. For every 1 scale point increase in CS_Status and CS_improvement priority composite scores the ODR changes by 0.346 and 0.813 units, respectively. Status and improvement priority were significant predictors of ODR. The statistical power of this regression model is 0.95 ~ 1.000. Table 44 presents the regressions for high schools. Excluding CS for year one, the non-significance of School-wide Systems (SWS), Classroom Systems (CS), Non-classroom Systems (NCS), and Individual Student Systems (ISS) as predictor variables for Office Discipline Referrals (ODR) in this analysis indicated that there is insufficient evidence to support the claim that these factors are related to ODR frequency across the three years of data collection. This finding suggests that SAS survey dimensions may play a minor role in variations in ODR across high schools.

Table 44

Linear Multiple Regression Results: High School

			Year One (2019-2020)		
Model	**Adjusted R^2**	**F-Value**	**Independent Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
1st Regression	.820	7.81	SWS_Status	-.173	-12193.86, 10915.91
			SWS_Imp. Priority	.940	-15046.13, 27971.34
2nd Regression	.856	9.90	NCS_Status	-.163	-10268.07, 9203.66
			NCS_Imp. Priority	.905	14452.88, 27011.13
3rd Regression	.999	1251.28*	CS_Status	-.346	-2250.45, -254.20
			CS_Imp. Priority	.813	2467.06, 4997.06
4th Regression	-1.25	.167	ISS_Status	-.008	-46883.94, 46836.20
			ISS_Imp. Priority	.496	-91965.84, 98372.17
			Year Two (2020-2021)		
Model	**Adjusted R^2**	**F-Value**	**Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
1st Regression	-1.94	.011	SWS_Status	-.065	-112996.08, 112110.04
			SWS_Imp. Priority	-.178	-125999.35, 123308.05
2nd Regression	-1.73	.049	NCS_Status	.272	-92133.42, 96214.82
			NCS_Imp. Priority	.073	-70483.99, 71309.54
3rd Regression	-.288	.665	CS_Status	.024	-48865.44, 49137.81
			CS_Imp. Priority	.763	-65323.39, 77796.70
			Year Two (2020-2021)		
Model	**Adjusted R^2**	**F-Value**	**Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
4th Regression	-1.01	.246	ISS_Status	.768	-93086, 102017.24
			ISS_Imp. Priority	-.281	-66237.77, 64055.41
			Year Three (2021-2022)		
Model	**Adjusted R^2**	**F-Value**	**Variable**	**Std. β-Coefficient**	**Confidence Interval (LB, UB)**
1st Regression	-.584	.447	SWS_Status	-.727	-18769.11, 16593.20
			SWS_Imp. Priority	-.067	-19134.92, 18919.40
2nd Regression	-.755	.355	NCS_Status	-.666	-18790.07, 16913.68
			NCS_Imp. Priority	-.034	-20799.08, 20687.11
3rd Regression	-1.21	.178	CS_Status	-.508	-23076.63, 21550.38
			CS_Imp. Priority	.006	-22266.81, 22286.28
4th Regression	-.970	.261	ISS_Status	.199	-31478.88, 32022.77
			ISS_Imp. Priority	.757	-31107.17, 33205.73

*Note. Under the heading "Model," the numbered regression headings indicate the separate models used to analyze each dimension of the SAS survey; SWS = School-wide Systems; NCS = Non-classroom Settings; CS = Classroom Settings; ISS = Individual Student Systems; Std = Standard; LB = Lower Bound; UB = Upper Bound; * = $p \leq .05$*

Summary of Findings

This study aimed to examine how school staff's perceptions of Positive Behavioral

Interventions and Supports (PBIS) influenced Office Discipline Referrals (ODR) in a middle

Georgia school district over three years (2019-2022). The research employed a causal-

comparative, correlational design and utilized the PBIS Self-Assessment Survey (SAS) to evaluate staff perceptions at all school levels (elementary, middle, and high). The study compared PBIS and ODR rates and investigated the correlation between them. Additionally, it sought to identify differences between SAS outcomes and ODR frequencies based on school type. The data sample included all submitted SAS surveys completed by the district's 33 sampled schools annually, and public discipline records retrieved from the Georgia Department of Education's Dashboard. The final sample consisted of 16 elementary schools, five middle schools, and four high schools.

Research question one focused on determining the differences in the status of implementation perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from 2019-2020 to 2021-2022 academic years. The study found significant differences in the perception scores over the three years, leading to rejecting the null hypothesis. The data were analyzed using factorial ANOVAs to determine differences in SAS scores based on school type, with an alpha set at a $\leq .05$ significance level. Research question one also aimed to identify the differences in improvement priority perception scores of school staff on the effectiveness of the PBIS framework, as measured by the PBIS Self-Assessment Survey (SAS), from 2019-2020 to 2021-2022 academic years. The study found significant differences in the improvement priority perception scores over the three years, leading to the rejection of the null hypothesis. The data were analyzed using factorial ANOVAs to determine differences in SAS scores based on school type, with an alpha set at a $\leq .05$ significance level.

Research question two aimed to determine the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to

172

2021-2022. The study found significant differences in ODR frequency across school levels over the years, leading to the rejection of the null hypothesis. The data were analyzed using repeated measures ANOVA to determine the difference in ODR frequency based on school type, with an alpha set at a .05 significance level.

Research question three aimed to determine the relationship between elementary school staff perceptions of PBIS and ODR frequency from 2019-2020 to 2021-2022 academic years. The analysis used Pearson Product Moment correlation coefficients to examine the relationship between SAS results and ODR data for elementary schools. The findings showed no statistically significant correlations between composite status scores or improvement priority scores with office discipline referrals in elementary schools during the studied academic years. Thus, the null hypothesis for research question three was not rejected.

Research question four focused on the relationship between middle school staff perceptions of PBIS and ODR frequency from 2019-2020 to 2021-2022 academic years. The relationship between SAS results and ODR data for middle schools was analyzed using Pearson Product Moment correlation coefficients. The findings revealed eight statistically significant correlations between composite status scores or improvement priority scores with office discipline referrals in middle schools during the studied academic years. The findings also revealed one statistically significant regression model for SWS and ODR in year three. As a result, the null hypothesis for research question four was rejected, indicating a significant relationship between middle school staff perceptions of PBIS and ODR frequency.

Research question five investigated the relationship between high school staff perceptions of PBIS and ODR frequency from the 2019-2020 to 2021-2022 academic years. The analysis used Pearson Product Moment correlation coefficients to examine the relationship between SAS

results and ODR data for high schools. The findings revealed two statistically significant

correlations between composite status scores or improvement priority scores with office

discipline referrals in high schools during the studied academic years. The results also revealed

one statistically significant regression model for CS and ODR in year one. Consequently, the null

hypothesis for research question five was rejected, indicating a significant relationship between

high school staff perceptions of PBIS and ODR frequency.

Chapter V: Discussion

Past studies demonstrated that the Positive Behavioral Interventions and Supports (PBIS) framework has significantly improved student outcomes (Bradshaw et al., 2015; Bradshaw, Waasdorp, & Leaf, 2015; Flannery et al., 2014; Kelm et al., 2014; Lane & Menzies, 2003; Luiselli et al., 2005; Simonsen, Eber, et al., 2012) and highlighted the importance of implementing PBIS with fidelity (Bradshaw et al., 2009; Burk et al., 2012; Childs et al., 2010; Cohen et al., 2007; Irvin et al., 2006; Spaulding et al., 2010). The current study examined potential differences in PBIS School Assessment Survey (SAS) results and office disciplinary referrals (ODR) rates in elementary, middle, and high schools over three years, from 2019 to 2022. The study was designed to examine the relationship between SAS results and ODR rates and how contextual factors such as school level and fidelity of implementation impacted PBIS outcomes and ODR frequencies over time. This study examined staff perceptions of PBIS and ODR frequencies over three years (2019-2022) using the SAS survey and data from the Governor's Office of Student Achievement. Additionally, this study aimed to determine the impact of these perceptions on ODR rates in a single central Georgia school district from 2019 to 2022.

Chapter One provided a brief history of problematic behaviors in schools and how managing student behavior through discipline has been an ongoing obligation of administrative personnel (Eckes & Russo, 2012; Irwin et al., 2021). The chapter also discussed the current state of problem behaviors in schools, as well as the adoption of the PBIS framework by many schools to improve student educational outcomes, reduce problem behaviors, and improve school climate (Baer et al., 1968; Coffey & Horner, 2012; Cooper et al., 2020; Dunlap et al., 2008; Simonsen et al., 2012). The chapter also presented the research questions and hypotheses for the study, which

aimed to identify differences in school staff's perceptions of PBIS over time, determine the differences in the frequency of ODR based on school levels over time, and examine the relationship between school staff's perceptions of PBIS and ODR frequency over time at elementary, middle, and high school levels.

Chapter Two reviewed research on student misbehavior and violence in public schools and the various strategies implemented to address these issues. The literature review examined school discipline domains, behaviorism, and student behavior management. Under the discipline in schools domain, the topics of corporal punishment, exclusionary discipline, and zero-tolerance policies were assessed. Behaviorism domains include human behavior, respondent and operant conditioning, token economies, and applied behavior analysis. Lastly, the student behavior management domain explores the different multi-tiered systems of support and positive behavioral interventions and supports (PBIS). PBIS was examined in detail, including an analysis of the three tiers of support, the importance of implementation fidelity, staff perception regarding PBIS implementation, and research reporting negative results of PBIS implementation. Throughout the literature review, it was evident that PBIS implementation is highly context-specific, and factors such as school level, implementation fidelity, school operation areas of change, and teacher buy-in are all critical for positive outcomes of PBIS implementation (Flannery et al., 2013; Furjanic et al., 2022 McDaniel et al., 2017).

Chapter Three detailed the methodology used in the present study, explained the causal-comparative and correlational designs employed to address the research questions. The purpose was to examine the potential differences between school staff perceptions of PBIS and student behavior management across all schools in a single district over three years. Another goal was to determine the relationship between PBIS perception scores and ODR frequencies based on

school type. The study's five research questions were formulated to test the hypotheses developed based on a literature review. The participants' section described the inclusion criteria, demographics, and process for accessing participant data. The instrumentation section detailed the PBIS SAS and its validity, and the data collection section explained the retrieval process and data transformations. The study followed IRB regulations to ensure data protection and confidentiality. Chapter Three provided a comprehensive overview of the study's methodology.

Chapter Four reported results on the differences and relationships of the perceptions of PBIS among school staff and ODR frequencies across all school district levels over three years (2019-2022). Chapter Four also detailed the research design and methodologies, including causal-comparative and correlational research. The PBIS Self-Assessment Survey (SAS) was utilized to evaluate staff perceptions of PBIS, and the researcher utilized discipline data from the Governor's Office of Student Achievement. The chapter also discussed the participants and schools involved in the study. Finally, Chapter Four reported the total number of participants who submitted the SAS survey in each academic year across elementary, middle, and high school levels.

Analysis and Discussion of Research Findings

The researcher conducted statistical analyses to answer the research questions using the PBIS Self-Assessment Survey (SAS) data and office discipline referral (ODR) data from 2019 to 2022. The researcher used various statistical tests, including factorial and repeated measures ANOVAs and Pearson correlations, to analyze the data and determine any relationships between school staff perceptions of PBIS and the frequency of ODRs based on the school level. The quantitative data sample included all submitted SAS surveys completed by the district's 33 sampled schools annually from 2019 to 2022. The Georgia Department of Education's Dashboard

was used to retrieve public discipline records from elementary, middle, and high schools, with non-traditional educational settings, primary schools, and schools with incomplete survey data excluded from the study. The final sample included 16 elementary schools, five middle schools, and four high schools for an overall sample of 25 schools. During the 2019-20 academic year, 846 elementary, 309 middle, and 417 high school participants completed a SAS survey. In the subsequent year, 2020-21, the participation included 760 elementary, 324 middle, and 311 high school participants. Lastly, in the 2021-22 school year, the figures were 833 for elementary, 281 for middle, and 343 for high school participants.

RQ1: What are the differences in perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) beginning with the 2019-2020 school year and ending in the 2021- 2022 school year?

The data obtained in this study revealed significant differences in both the status perception scores and the improvement priority perception scores of school staff on the effectiveness of the Positive Behavior Interventions and Supports (PBIS) framework as measured by the PBIS Self-Assessment Survey (SAS) from 2019-2020 to 2021-2022 school years. As a result, the null hypothesis was rejected for both sets of perception scores. The study's ANOVA analysis of the main effects revealed significant differences in the composite status scores by year, school, and dimension. The effect sizes indicated that seven percent of the variance in composite status scores was accounted for by the academic year, eleven percent by the school level, and ten percent by the composite status dimension. The interaction effects for the status composite score analysis showed that the two-way interaction effect of year*school was statistically significant, indicating significant differences in the composite status scores based on

the year and school interaction. However, the two-way interaction effects for year*dimension and school*dimension and the three-way interaction effect of year*school*dimension were not statistically significant. Post hoc analyses were conducted to further explore the significant main and interaction effects. Overall, these findings suggest that the school year, school level, and composite dimension are significant factors in school staff perceptions of the status of PBIS implementation. The significant interaction effect of year*school highlights the importance of examining these factors together to understand better the differences in PBIS perceptions across time and school levels.

The findings also suggest that the implementation status of PBIS in schools is perceived differently by staff members based on factors such as academic year, school level, and composite dimension. The ANOVA analyses exposed significant differences in the composite status scores by year, school, and dimension, indicating that these factors play a role in how PBIS is perceived by school staff. The effect sizes reported for each factor show that academic year, school level, and composite dimension all have a relatively small but significant impact on the composite status scores. The significant two-way interaction effect of year*school indicates that the interaction between these factors is essential when examining PBIS implementation. This finding highlights the importance of examining the data across time and school levels to better understand how these factors affect staff perceptions of PBIS. The post hoc analyses conducted in this study can provide valuable insights into the differences in PBIS perceptions across different factors. By understanding these differences, school administrators can work to address any issues that may be negatively impacting PBIS implementation and improve overall staff perceptions of the program.

The findings for research question one provided concrete evidence that elementary schools experienced relatively stable average scores, with a slight decrease in 2021-2022. On the other hand, middle schools maintained their scores between 2019-2020 and 2020-2021 but saw a decline in 2021-2022. High school data showed a consistent decrease in average scores across all three years, with the most significant drop occurring in 2021-2022. Data indicates that the status of implementation scores was best for middle schools in the 2019-2020 and 2020-2021 academic years, which had the highest mean scores of 2.78 across all school levels. Regarding standard deviations, there was a general decrease from 2019-2020 to 2020-2021 for all school levels, signifying less variability in scores. However, in 2021-2022, the standard deviations increased for elementary and high schools while continuing to decrease for middle schools. This finding suggests that the focus on improving consistency in student performance may have diminished or been impacted by extraneous factors.

The study also examined improvement priority composite scores by year, school, and dimension. The results showed significant differences in improvement priority composite scores based on the year (7% of the variance), school type (14% of the variance), and dimension (3% of the variance). Average improvement priority composite scores were highest for high schools (M = 1.98), and the most significant mean difference occurred between elementary and high schools (M = -0.27). Comparatively, the mean difference in improvement priority composite scores between elementary and middle schools was -0.13, and -0.15 between middle and high schools. This finding implies that high schools are either in greater need of improvement or are prioritizing improvement more than other school levels.

Furthermore, the results highlight notable score differences between the different school levels. The most significant discrepancy was observed between elementary and high schools,

where high schools scored an average of 0.27 points higher. These findings further underscore need for emphasis on improvement in high schools compared to other school levels. However, no statistically significant interaction effects were found among these variables. This finding suggests that the relationship between improvement priority composite scores and the year, school type, and dimension does not change depending on the presence of the other variables. Consequently, the influence of each variable is independent of the others. The main effects analysis indicated significant differences in improvement priority composite scores when considering year, school type, and dimension separately. The effect sizes for each factor were relatively small, suggesting that the impact of these factors on the composite scores was not extensive.

Still, the results highlight differences in SAS dimension scores depending on the academic year, school type, and dimension. These findings are consistent with the extant literature. For example, one study by Horner, Sugai, and Anderson (2010) emphasized the importance of considering various factors, such as school type and resources, when implementing PBIS. McIntosh et al. (2010) also cited the need to consider the influence of factors such as school size, academic year, and school culture when implementing PBIS. Another study by Eiraldi et al. (2016) highlighted the importance of considering the school context and available resources during the PBIS implementation process. These studies collectively demonstrate the complexity of the PBIS implementation process and the need to consider various factors when developing effective strategies. By considering the impact of these factors, school administrators can work to develop more effective PBIS implementation strategies and improve staff perceptions of the program.

RQ2: What are the differences in the frequency of office discipline referrals (ODR) based on school levels during the school years beginning with the 2019-2020 school year and ending in 2021-2022?

The data obtained in this study revealed significant differences in the frequency of office discipline referrals (ODR) based on school levels during the school years from 2019-2020 to 2021-2022. Therefore, the null hypothesis was rejected. Univariate tests found significant differences in office discipline referrals by academic year, with an effect size of .817, indicating that 81.7% of the variance in discipline referrals can be attributed to the academic year. There were also significant differences in discipline referrals by year*school, with an effect size of .32, indicating that this interaction can account for 32% of the variance in referrals. Within-subjects tests showed that 79% of the variance in discipline referrals could be attributed to the academic year, while the interaction effect of year*school accounted for 60.2%. Between-subjects tests found significant differences in office discipline referrals by school, with an effect size of .612, indicating that 61.2% of the variance in referrals can be accounted for by school type. The findings suggest significant differences in the frequency of ODRs across different academic years, school types, and the interaction between year and school. These results suggest that factors such as school context and the academic year may influence the frequency of ODRs, and these factors should be considered when implementing PBIS interventions to reduce student problem behaviors.

The estimated marginal mean scores for office discipline referrals were lowest in elementary schools and highest in high schools, with middle schools falling in between elementary and high schools. The estimated marginal mean scores for office discipline referrals also showed a consistent decline over the three years from 2019-2020 to 2021-2022 for all three

types of schools. This finding suggests that efforts to reduce discipline referrals may have been influential across all levels of schools. However, it is essential to note that the degree of the decline varied across the three types of schools. These findings suggest that school type and year are important factors when examining office discipline referrals. It may be helpful for schools to continuously monitor and address discipline referrals and implement strategies to reduce them. This is particularly true for middle and high schools, where the number of referrals tends to be higher.

These findings are consistent with existing literature on PBIS and discipline. Irvin et al. (2004) found that schools implementing PBIS significantly reduced ODR compared to non-PBIS schools. All school levels in the present study showed significant reductions in ODR across the three years. Several other landmark studies have reported significant reductions in ODR when the PBIS framework was implemented. Scott and Barrett (2004) assessed the impact of PBIS implementation on ODRs and the time spent by staff and students in disciplinary procedures. The authors found that schools implementing PBIS experienced a significant reduction in ODRs and time spent on disciplinary procedures. Another study examined the impact of PBIS implementation on the organizational health of elementary schools and the relationship between PBIS implementation and ODRs. The authors found that PBIS implementation was associated with improved organizational health and reduced ODRs (Bradshaw et al., 2008). Bradshaw, Waasdorp, and Leaf (2012) assessed the impact of PBIS implementation on child behavior problems, including ODRs. The authors found that schools implementing PBIS experienced a significant reduction in ODRs and improved student behavior.

RQ3: What is the relationship between elementary school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

The data obtained in this study revealed no statistically significant correlations between composite status scores or improvement priority scores with office discipline referrals in elementary schools during the 2019-20, 2020-21, or 2021-22 academic years. Therefore, the null hypothesis for research question three was not rejected. These findings might suggest that elementary schools have an adequate implementation of PBIS. Elementary schools had the lowest average improvement priority rating (1.70) and the highest status of implementation rating (2.73) compared to the high school status score (2.57) and improvement priority score (1.98). The status score for middle school was 2.71, and the improvement priority score was 1.83. The low score for improvement priority in elementary schools implies that staff may not perceive the necessity to enhance how PBIS is implemented in their schools. Additionally, a high score for implementation status suggests that staff approve of the implementation efforts and perceive the implementation of PBIS as adequate and effective. These results could indicate that staff do not need to change aspects of PBIS to such a level that would influence ODR to a statistically significant degree.

RQ4: What is the relationship between middle school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

The data obtained in this study revealed eight statistically significant correlations between composite status scores or improvement priority scores with ODR in middle schools during the 2019-20, 2020-21, or 2021-22 academic years. Due to the significance of these

correlations, the null hypothesis for research question four was rejected. The analysis used Pearson product-moment correlations to examine the relationship between middle school staff perceptions of PBIS effectiveness (measured by status composite and improvement priority composite scores) and the frequency of ODRs.

The findings revealed significant correlations between some composite scores and ODR frequency in the 2019-2020 and 2021-2022 academic years. Specifically, during the 2019-2020 academic year, ODRs were significantly associated with SWS improvement priority, NCS status, CS status, CS improvement priority, and ISS improvement priority scores. In the 2021-2022 academic year, ODRs were significantly associated with NCS improvement priority, CS improvement priority, and ISS improvement priority scores. However, in the 2020-2021 academic year, no statistically significant correlations were found between ODR frequency and any composite scores. The positive correlations between improvement priority scores and ODR frequency suggest that office discipline referrals increased when staff identified a need for improvement in the PBIS framework. The negative correlations between composite status scores and ODR frequency indicate that higher perceived effectiveness of the PBIS framework was associated with a decrease in the number of office discipline referrals. The lack of significant correlations in the 2020-2021 academic year may be attributed to extraneous factors, such as Covid-19 or changes in the implementation of PBIS.

The Covid-19 pandemic significantly disrupted school operations, forcing adaptations in implementing Positive Behavioral Interventions and Supports (PBIS) for remote and hybrid learning environments. Key areas included clear communication, collaboration among stakeholders, and prioritizing mental health and well-being (Johnson & Jones, 2020). Students with attention-deficit/hyperactivity disorder (ADHD) face more significant challenges in

accessing services and adjusting to remote learning, emphasizing the importance of adapted support for these students (Anderson & Graham, 2020). The increased prevalence of mental health issues during the pandemic emphasized the need for integrating mental health services within schools (Briesch et al., 2020). Adapting PBIS strategies to remote and hybrid learning environments requires maintaining consistency and addressing the unique needs of students and families (Gaias et al., 2021). The use of technology for data collection and proactive, positive strategies were essential for supporting student behavior (Maggin & Johnson, 2020). A proactive and responsive approach was also crucial for supporting students with high behavioral needs in remote learning (McCart et al., 2020). In summary, the Covid-19 pandemic emphasized the need for clear communication, collaboration, flexibility, and prioritization of mental health in PBIS implementation. Schools had to adapt their strategies and leverage technology to address students' diverse behavioral and social-emotional needs effectively.

The current study's findings provide evidence for a significant relationship between middle school staff perceptions of PBIS effectiveness and ODR frequency, supporting the alternative hypothesis for research question four. The results highlight the importance of understanding staff perceptions of PBIS, as their perceptions may impact the effectiveness of the school's behavior management systems. Several studies have focused on the effectiveness of PBIS in reducing problem behaviors and the role of teacher perceptions in implementing PBIS successfully in middle schools. For example, Ross, Romer, and Horner (2012) investigated the relationship between teacher perceptions of PBIS and using ODRs in middle schools. The researchers found that positive teacher perceptions of PBIS were associated with lower rates of ODRs, suggesting that teacher buy-in and support for the PBIS framework can contribute to more effective behavior management.

Another study by Lassen, Steele, and Sailor (2006) examined the effects of school-wide positive behavior support (SWPBS) on the rates of ODRs in three urban middle schools. The authors reported a significant decrease in ODRs following the implementation of SWPBS, indicating the effectiveness of the PBIS framework in reducing problem behaviors in middle schools. Research by Reinke, Herman, and Stormont (2013) focused on understanding teacher perceptions of classroom management and their influence on implementing PBIS. The study findings revealed that teacher perceptions play a critical role in the success of PBIS, as teachers who believed in the effectiveness of the PBIS framework were more likely to implement it consistently and with fidelity. These studies highlight the importance of teacher perceptions in successfully implementing PBIS in middle schools and demonstrate the potential for PBIS to positively impact behavior management and reduce ODRs. Further research could investigate the reasons behind the lack of significant correlations in the 2020-2021 academic year and explore potential strategies to improve PBIS implementation and reduce ODR frequency in middle schools.

RQ5: What is the relationship between high school staff perceptions of PBIS and ODR frequency beginning with the 2019-2020 school year and ending with the 2021-2022 school year?

The data obtained in this study revealed two statistically significant correlations between composite status scores or improvement priority scores with ODR in high schools during the 2019-20, 2020-21, or 2021-22 academic years. Due to the significance of these correlations, the null hypothesis for research question five was rejected. Pearson Product Moment correlations were conducted for each school year from 2019 to 2021. In the 2019 academic year, two significant correlations were found: (1) SWS improvement priority composite score with $r =$

0.95, $R^2 = 0.903$, and $p = 0.046$, and (2) NCS improvement priority composite score with $r = 0.96$, $R^2 = 0.922$, and $p = 0.036$. These significant correlations suggest a relationship between staff perceptions of PBIS effectiveness and the frequency of ODR in the 2019 high school academic year, particularly concerning improvement priority scores. However, no statistically significant correlations were identified in the 2020 or 2021 academic year.

The significant correlations in the 2019 academic year suggest a strong positive relationship between staff perceptions of PBIS (specifically, the SWS and NCS improvement priority composite scores) and ODR frequency. The significant R^2 values in the 2019 high school academic year (0.903 for SWS improvement priority composite score and 0.922 for NCS improvement priority composite score) indicate that a large proportion of the variance in ODR frequency can be explained by the staff perceptions of PBIS effectiveness, specifically in the improvement priority scores. However, it is important to note that these significant relationships were only observed in the 2019 data and not in the 2020 and 2021 data.

Limitations of the Study

Ross and Bibler-Zaidi (2019) stated that limitations could threaten a study's validity and the reliability of the findings. Theofanidis and Fountouki (2018) noted that limitations are weaknesses in a study and can be present in theory, design, analysis, participants, and many other aspects of research. Proper vetting of a study's limitations helps contextually frame the results to give the reader more meaningful conclusions about a study (Ross & Bibler-Zaidi, 2019). There are several limitations to the present study, and the results should be interpreted with these limitations in mind.

First, self-report bias may influence the accuracy of the data, as staff perceptions are susceptible to social desirability bias, inaccurate recall, or other reporting biases. Self-report bias

refs to potential inaccuracies in data collected through self-report measures, such as surveys or interviews, due to factors influencing participants' responses (Podsakoff et al., 2003). Two common types of self-report biases are social desirability bias and inaccurate recall. Social desirability bias occurs when participants provide responses they believe will be considered socially acceptable, rather than providing honest answers, leading to an over-reporting of positive behaviors or under-reporting of negative behaviors (Paulhus, 1991). Inaccurate recall refers to the inability of participants to accurately remember past events or experiences when responding to self-report measures, which may result in distorted or incomplete recall of information (Schwarz, 2007). These biases can impact the accuracy of data from self-report measures, such as staff perceptions in a study, and may limit the validity and reliability of the findings.

Second, the repeated cross-sectional design of the study limits the understanding of the relationships between PBIS implementation and ODR reduction. The lack of randomization inherent in a causal-comparative study, as the groups are pre-formed, further complicates the establishment of causality between the variables of interest. Third, the study may need to account for confounding variables such as school culture, socioeconomic factors, the advent of Covid-19 and subsequent school closures, student-teacher ratios, or other school-specific variables. These unmeasured variables may impact the observed relationships between the variables of interest, making it difficult to determine the actual effects of PBIS implementation.

Fourth, the study was conducted within a single central Georgia school district, and the findings may not represent broader trends in PBIS implementation and ODR reduction across other school districts or geographic regions, limiting the generalizability of the findings. Recognizing this limitation helps the reader avoid overgeneralizing the study's findings. Fifth,

potential selection bias may lead to skewed results if the schools included in the study do not represent the entire population of schools implementing PBIS. This limitation could affect the study's external validity and the applicability of the results to other contexts. Sixth, the instrument reliability and validity of the SAS survey and ODR data may impact the study's findings. The arbitrary application of a scale to ordinal data could affect the accuracy and consistency of the survey instrument, which should be considered when interpreting the results. By evaluating these limitations, the reader can better understand the context of the study's findings and draw more meaningful conclusions about the relationships between PBIS implementation, staff perceptions, and ODR reduction.

Implications for Practice

First, the significant role of school type (elementary, middle, or high school) in composite scores and office discipline referrals suggests that educators and administrators should modify their approaches to each school type's specific needs and contexts when creating and implementing school improvement plans or discipline policies. This process may involve conducting thorough needs assessments for each school level and designing targeted interventions to address students' and staff's unique challenges in each context. For example, elementary schools may require a more intense focus on early intervention and social-emotional learning. In contrast, middle and high schools might need to focus on issues related to peer pressure, academic expectations, and transitioning between educational stages. Second, the variations observed in the relationships between office discipline referrals and various school composite scores across the three academic years indicate that it is important for decision-makers not to rely solely on a single year's data but to consider trends over time and identify potential factors contributing to these fluctuations. This process could involve analyzing longitudinal data,

conducting qualitative interviews with staff and students to gain insights into potential causes for changes in performance, and engaging in ongoing data-driven decision-making to continually refine and adapt educational practices.

Moreover, the significant correlations between improvement priority scores and office discipline referrals in high schools highlight that these schools may require additional attention and resources to address these issues. Targeted interventions focusing on the factors contributing to high discipline referrals and low status scores could be beneficial in improving the overall school environment. This process might include implementing evidence-based programs to promote positive behavior, investing in professional development for staff to address classroom management challenges, and exploring alternatives to traditional disciplinary measures.

Furthermore, the relatively small effect size for the dimension factor implies that different dimensions may contribute differently to PBIS implementation. Consequently, educators and administrators should examine each dimension individually to pinpoint areas requiring improvement or targeted intervention. This process could involve disaggregating data by dimension and conducting in-depth analyses to identify trends, strengths, and weaknesses within each dimension. By doing so, schools can develop targeted action plans that address the unique needs of each dimension, leading to more effective improvement efforts. Additionally, the lack of significant interaction effects between year, school, and dimension indicates that the relationships between these factors may be more complex than initially assumed. Further research may be necessary to explore and understand these relationships more comprehensively. This research could involve conducting qualitative case studies or employing mixed methods approaches to investigate the nuances and complexities of these relationships, providing a more

detailed understanding of how various factors interact to impact improvement priority composite scores and office discipline referrals.

Lastly, given the observed fluctuations and relationships between various factors, it is important for educators and administrators to regularly monitor and evaluate their schools' progress in improving composite scores and reducing office discipline referrals. This progress monitoring will enable them to make data-driven decisions and adjust their strategies as needed, ultimately leading to more effective educational practices and improved student outcomes. Schools should establish ongoing data collection and analysis systems, including regular progress monitoring, benchmark assessments, and formative evaluations. By continuously evaluating the impact of their efforts, schools can make informed decisions about program implementation, resource allocation, and professional development, ensuring the best possible outcomes for students.

Implications for Research

The findings of this study have several implications for future research. One area of interest is further investigating the factors influencing improvement priority perceptions reported by certified staff. As the effect sizes were relatively small for the academic year, school type, and dimension, exploring other factors that may account for the variance in these improvement priority perception scores would be worthwhile. Additionally, examining the differences in office discipline referrals across school types is important. This is especially true considering the study revealed significant differences by school type with high schools having the highest number of referrals. Future research could focus on the reasons behind these differences and possible interventions to reduce referrals, especially in high schools.

Another key area of focus is the longitudinal analysis of the relationship between office discipline referrals and PBIS perception scores. Since the correlations between these variables fluctuated across the three academic years, a longitudinal analysis could help uncover trends and better understand the nature of these relationships. Moreover, researchers could investigate additional factors that may influence the differences in office discipline referrals, such as school climate, disciplinary policies, and student demographics. It is also important to examine the impact of office discipline referrals on individual student academic outcomes, such as test scores or graduation rates, as the present study focused on the relationship between referrals and school PBIS perception scores. Comparing the research findings with those from different educational settings, such as urban or rural schools, will help determine if the results are generalizable and identify context-specific factors that may influence the relationships between office discipline referrals, PBIS perception scores, and school types. This study provides valuable insights into the relationships between improvement priority composite scores, office discipline referrals, and status composite scores. The findings have important implications for future research, which could contribute to developing targeted interventions to improve school performance and reduce office discipline referrals.

Recommendations

Based on the findings from this study, district leaders, school administrators, and teachers should consider the following recommendations:

Focus on targeted interventions to address improvement priority areas: Since the study revealed significant differences in improvement priority composite scores by academic year, school type, and dimension, it is crucial to identify and address specific areas of improvement in

each school context. School leaders should develop targeted interventions that consider the unique needs of each school and its students.

Foster a positive school climate to reduce office discipline referrals: The study found significant differences in office discipline referrals across school types and years, with high schools having the highest number of referrals. School leaders and teachers should work together to create a positive school climate that promotes student engagement, supports social-emotional learning, and encourages positive behavior. This change could involve implementing school-wide Positive Behavior Interventions and Supports, offering staff training on classroom management strategies, and promoting open communication among students, teachers, and parents.

Monitor and analyze office discipline referral data regularly: School administrators should regularly analyze office discipline referral data to identify trends, monitor the effectiveness of disciplinary policies, and evaluate the impact of targeted interventions. School leaders can make data-informed decisions to improve student behavior and overall school climate by understanding the factors contributing to discipline referrals.

Provide professional development opportunities for teachers and staff: Since the data showed fluctuating relationships between office discipline referrals and school performance composite scores, it is essential to equip teachers and staff with the necessary skills and knowledge to address challenging behaviors effectively. District leaders should provide ongoing professional development opportunities focusing on classroom management, restorative practices, and trauma-informed approaches to promote a safe and supportive learning environment.

Engage parents and the community in school improvement efforts: The involvement of parents and the community is critical in addressing improvement priority areas and reducing office discipline referrals. Schools should consider hosting parent workshops and community meetings to discuss school performance data, share information on targeted interventions, and encourage collaboration in supporting student success.

Evaluate the impact of disciplinary policies on student academic outcomes: To understand the relationship between office discipline referrals and student academic outcomes better, school leaders should regularly evaluate the impact of disciplinary policies on individual student performance. This evaluation could involve tracking student progress in test scores, attendance, and graduation rates and adjusting disciplinary policies to support student success.

By considering these recommendations, district leaders, school administrators, and teachers can work together to address improvement priority areas, reduce office discipline referrals, and improve overall school performance.

Dissemination

This causal-comparative, correlational study aimed to identify differences in PBIS perceptions and ODR frequencies by school type over three years from 2019 to 2022 in a Central Georgia school district. The researcher intended to clarify the trends regarding PBIS implementation fidelity and ODR frequencies by school type. Additionally, the researcher intended to understand the relationship between PBIS perceptions and ODR frequencies by school type. The researcher plans to disseminate the present study's findings to various stakeholders through multiple channels. The primary recipients of this information will include the district superintendent, who oversees the educational policies and practices within the region, and the PBIS (Positive Behavioral Interventions and Supports) Director, who is responsible for

implementing and managing PBIS programs within the schools. Additionally, the researcher intends to present the study's results at various PBIS conferences, where educators, administrators, and other professionals can benefit from the insights and learn about potential applications for their schools and programs.

To further contribute to the body of knowledge on this topic, the researcher will endeavor to publish the study findings in reputable, peer-reviewed academic journals and specialized PBIS publications. This dissemination will ensure that the research reaches a broader audience, including scholars, practitioners, and policymakers in the field of education. Moreover, the present study will be accessible to the public through the Columbus State University library system. This accessibility will allow interested individuals to explore the study, its methodology, and its findings in detail. By making the study widely available, the researcher aims to promote transparency, facilitate further research, and contribute to the ongoing dialogue surrounding PBIS and its effectiveness in educational settings.

Conclusion

This causal-comparative, correlational study was designed to examine the relationships between staff perceptions of Positive Behavioral Interventions and Supports (PBIS) implementation, measured using the School Assessment Survey (SAS), and the number of office discipline referrals (ODRs) in a central Georgia school district. Findings revealed significant differences in improvement priority composite scores by academic year, school type, and dimension. Additionally, the analysis revealed significant differences in office discipline referrals across school types and years, with high schools having the highest number of referrals.

The findings of this study provide valuable insights for educators, administrators, and policymakers seeking to improve overall school performance, reduce office discipline referrals,

and support the implementation of effective PBIS programs. By understanding the factors influencing improvement priority perceptions and office discipline referrals, educational stakeholders can better target their efforts and resources, leading to more successful interventions and improved student outcomes. However, it is crucial to recognize the limitations of this study, including the potential for self-report bias, the repeated cross-sectional design, unaccounted confounding variables, limited generalizability, and potential selection bias. Future researchers should address these limitations and continue to explore the relationships between PBIS implementation, staff perceptions, and ODR reduction in different educational contexts.

The recommendations provided in this study offer a starting point for district leaders, school administrators, and teachers to address improvement priority areas and reduce office discipline referrals collaboratively. By disseminating the findings of this study through various channels, including presentations at conferences, publications in academic journals, and specialized PBIS publications, and making the study accessible through the Columbus State University library system, the researcher aims to contribute to the ongoing dialogue on PBIS and its effectiveness in educational settings. This research can serve as a foundation for further investigation and ultimately lead to developing more effective PBIS programs and strategies that promote positive behavior, foster a supportive learning environment, and improve overall school performance.

Concluding Thoughts

Through this dissertation, the researcher thoroughly explored Positive Behavioral Interventions and Supports, also known as PBIS, examining its impact on school culture and behavior management. PBIS serves as a holistic framework, combining various evidence-based behavioral interventions to create an environment conducive to the academic and social success

of all students. Analysis of the literature suggests that PBIS can usher in numerous positive changes. It can help foster a healthier and more positive school climate, boost feelings of safety among students, reduce the frequency of problematic behaviors, and ensure more effective use of instructional time, all of which can collectively contribute to improved academic outcomes. However, it's essential to bear in mind that PBIS isn't a universal solution. Its effectiveness can greatly vary depending on several factors. For instance, the success of PBIS is closely tied to how comprehensively it's implemented. If schools don't fully adopt all components of PBIS, they may not achieve the desired results. Similarly, staff commitment and training are instrumental in shaping the effectiveness of the program. Without a well-trained and committed staff, the effectiveness of PBIS could be undermined.

Furthermore, the demographic makeup and characteristics of the student population can also affect the performance of PBIS. While its effectiveness is quite evident in elementary schools, the results appear less consistent in middle and high schools. In addition to these factors, the cultural relevance of PBIS and its alignment with the larger community context are also critical considerations. For PBIS to be truly effective, its strategies need to resonate with students' cultural experiences and be in sync with the broader community context. Ultimately, the body of research on PBIS offers a promising yet complex narrative. It holds great potential for nurturing a positive school culture and managing behavior effectively, but the extent of its success largely hinges on how it's implemented. This underscores the importance of detailed planning, committed execution, and rigorous evaluation when implementing PBIS. Looking ahead, it becomes clear that continued research on these influencing factors is crucial to maximize the benefits of PBIS across diverse school environments and student populations.

References

AACAP. (1988). Corporal punishment in schools. Retrieved November 15, 2021, from

    https://www.aacap.org/aacap/Policy_Statements/1988/Corporal_Punishment_in_Schools.

    aspx

Airasian, P., & Gay, L. (2005). *Educational research, competencies for analysis and*

    applications and study guide package. Pearson Education.

Altman, J., & Ziporyn, M. (1967). *Born to raise hell*. Grove Press.

Amd, M., Machado, A., de Oliveira, M. A., Passarelli, D. A., & De Rose, J. C. (2019). Effects of

    nodal distance on conditioned stimulus valences across time. *Frontiers in Psychology*, *10*.

    https://doi.org/10.3389/fpsyg.2019.00742

Anderson, C. M., & Borgmeier, C. (2010). Tier II interventions within the framework of school-

    wide positive behavior support: Essential features for design, implementation, and

    maintenance. *Behavior Analysis in Practice, 3*(1), 33-45.

Anderson, C. M., & Freeman, K. A. (2000). Positive behavior support: Expanding the

    application of applied behavior analysis. *The Behavior Analyst, 23*(1), 85-94.

    doi:10.1007/BF03392001

Anderson, R. M., & Graham, A. P. (2020). Remote learning during COVID-19: Examining

    school practices, service continuation, and difficulties for adolescents with and without

    attention-deficit/hyperactivity disorder. *School Psychology Review, 49*(3), 251-266.

Anderson, C. M., & Kincaid, D. (2005). Applying behavior analysis to school violence and

    discipline problems. *The Behavior Analyst, 28*(1), 49–63. doi:10.1007/BF03392103

Andrade C. (2020). Sample size and its importance in research. *Indian Journal of Psychological Medicine*, *42*(1), 102–103. https://doi.org/10.4103/IJPSYM.IJPSYM_504_19

Aries, P., & Baldick, R. (1962) *Centuries of childhood.* Penguin.

Armitage, P., & Berry, G. (1994). *Statistical methods in medical research* (3rd ed). Blackwell Scientific Publications.

Ashley-Cooper, A. (1847). The ragged schools. *Quarterly Review, 79,* 127-141.

August, G. J., Piehler, T. F., & Miller, F. G. (2018). Getting "smart" about implementing multi-tiered systems of support to promote school mental health. *Journal of School Psychology, 66*, 85–96. https://doi.org/10.1016/j.jsp.2017.10.001

Ayllon, T., & Azrin, N. H. (1965). The measurement and reinforcement of behavior of psychotics. *Journal of the Experimental Analysis of Behavior, 8*(6), 357-383. doi:10.1901/jeab.1965.8-357

Ayllon, T., & Azrin, N. (1968). *The token economy: A motivational system for therapy and rehabilitation*. Meredith.

Ayllon, T., & Michael, J. (1959). The psychiatric nurse as a behavioral engineer. *Journal of the Experimental Analysis of Behavior*, *2*(4), 323–334. https://doi.org/10.1901/jeab.1959.2-323

Babbie, E. (2017). *The basics of social research* (7th ed.). Cengage Learning.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*(1), 91-97. doi:10.1901/jaba.1968.1-91

Baker, K. & Rubel, R. J. (1980). *Violence and crime in the schools*. Lexington Books.

Balfanz, R., Herzog, L., & MacIver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early

identification and effective interventions. *Educational Psychologist, 42*(4), 223-235. doi:10.1080/00461520701621079

Barrett, S. B., Bradshaw, C. P., & Lewis-Palmer, T. (2008). Maryland statewide PBIS initiative: Systems, evaluation, and next steps. *Journal of Positive Behavior Interventions, 10*(2), 105-114.

Baskin-Downs, T. J. (2020). *A mixed methods study of middle school teachers' perceptions of schoolwide positive behavior interventions and supports and its influence on effective implementation.* (dissertation). Columbus State University. https://csuepress.columbusstate.edu/theses_dissertations/408

Baum, W. M. (1995). B. F. Skinner Memorial Address: 1995: Radical behaviorism and the concept of agency. *Behaviorology, 3*, 93-106.

Baum W. M. (2011). What is radical behaviorism? A review of Jay Moore's conceptual foundations of radical behaviorism. *Journal of the Experimental Analysis of Behavior, 95*(1), 119–126. https://doi.org/10.1901/jeab.2011.95-119

Baum, W.M. (2017). *Understanding behaviorism: Behavior, culture, and evolution*. John Wiley & Sons.

Bear, G. G. (2012). Both suspension and alternatives work, depending on one's aim. *Journal of School Violence, 11*, 174–186. doi:10.1080/15388220.2012.652914

Beavan, K. (1970). *School violence on the increase*. New York Times Educational Supplement.

Benner, G. J., Nelson, J. R., Sanders, E. A., & Ralston, N. C. (2012). Behavior intervention for students with externalizing behavior problems: Primary-level standard protocol. *Exceptional Children, 78*(2), 181-198.

Biglan, A. (1995). Translating what we know about the context of antisocial behavior into a

lower prevalence of such behavior. *Journal of Applied Behavior Analysis, 28*, 479–492.

doi:10.1901/jaba.1995.28-479

Birnbaum, P. (1962). *A treasury of Judaism*. Hebrew Publications.

Blyth, D. A., Smith Thiel, K., Mitsch Bush, D., & Simmons, R. G. (1980). Another look at

school crime: Student as victim. *Youth & Society, 11*(3), 369–388.

https://doi.org/10.1177/0044118X8001100305

Boegli, R. G., & Wasik, B. H. (1978). Use of the token economy system to intervene on a

school-wide level. *Psychology in the Schools, 15*, 72-78.

Boerke, K., Reitman, D. (2011). Using token economies and response cost. *Handbook of Applied

Behavior Analysis*, 370-384. https://nsuworks.nova.edu/cps_facbooks/231

Bohanon, H., Gilman, C., Parker, B., Amell, C., & Sortino, G. (2016). Using school

improvement and implementation science to integrate multi-tiered systems of support in

secondary schools. *Australasian Journal of Special Education*, *40*(2), 99-116.

Bohanon, H., & Wu, M. J. (2014). Developing buy-in for positive behavior support in secondary

settings. *Preventing School Failure, 58*, 223-229.

Borsuk, A. J., & Murphy, M. B. (1999, April 30). Idle or otherwise, threats bring severe

discipline: Where area students once faced a principal, now they face the police.

Milwaukee Journal Sentinel.

Bowling, C. G. (2018). *Teachers and administrators' perceptions of PBIS as a school-wide

discipline approach.* (dissertation). Appalachian State University.

https://libres.uncg.edu/ir/asu/f/Bowling_Cheryl_2018_Dissertation.pdf

Bradshaw, C. P., Koth, C. W., Bevans, K. B., Ialongo, N., & Leaf, P. J. (2008). The impact of

    school-wide positive behavioral interventions and supports (PBIS) on the organizational

    health of elementary schools. *School Psychology Quarterly, 23*(4), 462-473.

Bradshaw, C., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate

    through school-wide positive behavioral interventions and supports: Findings from a

    group-randomized effectiveness trial. *Prevention Science, 10*(2), 100–115.

https://doi.org/10.1007/s11121-008- 0114-9

Bradshaw, C., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide

    positive behavioral interventions and supports on student outcomes: Results from a

    randomized controlled effectiveness trial in elementary schools. *Journal of Positive*

    Behavior Interventions, 12(3), 133-148. doi: 10.1177/1098300709334798

Bradshaw, C., & Pas, E. T. (2011). A statewide scale up of positive behavioral interventions

    and supports: A description of the development of systems of support and analysis of

    adoption and implementation. *School Psychology Review, 40*(4), 530-548.

Bradshaw, C., Pas, E. T., Debnam, K. J., & Johnson, S. L. (2015). A focus on implementation of

    positive behavioral interventions and supports (PBIS) in high schools: Associations with

    bullying and other indicators of school disorder. *School Psychology Review, 44*, 480–498.

Bradshaw, C., Waasdorp, T. E., & Leaf, P. J. (2012). Effects of school-wide positive behavioral

    interventions and supports on child behavior problems. *Pediatrics, 130*(5), 1136–1145.

    https://doi.org/10.1542/peds.2012-0243

Bradshaw, C., Waasdorp, T., & Leaf, P. J. (2015). Examining the effects of schoolwide positive

    behavioral interventions and supports on student outcomes: Results from a randomized

controlled effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions, 12*, 546-557.

Braun, G., Kumm, S., Brown, C., Walte, S., Hughes, M. T., & Maggin, D. M. (2018). Living in tier 2: Educators' perceptions of MTSS in urban schools. *International Journal of Inclusive Education, 24*(10), 1114–1128. https://doi.org/10.1080/13603116.2018.1511758

Brenan, M. (2021). Parents' concern about school safety remains elevated. Retrieved November 15, 2021, from https://news.gallup.com/poll/265868/parents-concern-school-safety-remains-elevated.aspx

Brewer, E., & Kubn, J. (2010). Causal-comparative design. In N. J. Salkind (Ed.), *Encyclopedia of Research Design* (pp. 125-131). SAGE Publications, Inc., https://dx.doi.org/10.4135/9781412961288.n42

Briesch, A. M., Chafouleas, S. M., & Chaffee, R. K. (2020). Reflections on the future of school psychology practice: The need for a continued emphasis on promoting school mental health. *School Psychology Review, 49(*3), 267-273.

Brooks-Gunn, J., Ô£., & Duncan, G. J. (1997). The effects of poverty on children. *Future Child, 7*, 55-71. doi:10.2307/1602387

Bruhn, A., Gorsh, J., Hannan, C., & Hirsch, S. E. (2014). Simple strategies for reflecting on and responding to common criticisms of PBIS. *Journal of Special Education Leadership, 27*(1), 13–26.

Burk, M., Davis, J., Lee, Y., Hagan-Burke, S., Kwok, O., & Sugai, G. (2012). Universal screening for behavioral risk in elementary schools using SWPBIS expectations. *Journal of Emotional and Behavioral Disorders, 20*(1), 38-54.

Bybee, R. W., & Gee, E. G. (1982). *Violence, values, and justice in the schools*. Allyn and

    Bacon.

Caldarella, P., Shatzer, R. H., Gray, K. M., Young, K. R., & Young, E. L. (2011). The effects of

    school-wide positive behavior support on middle school climate and student outcomes.

    Research in Middle Level Education Online, 35(4), 1-14.

Caldas, S. J., & Bankston, C. L. (1997). The effect of school population socioeconomic status on

    individual student academic achievement. *Journal of Educational Research, 90*, 269-277.

Callaghan, A. R. (2021). *Understanding how teacher perceptions of PBIS influence use towards*

    students: A qualitative descriptive study. (dissertation). Grand Canyon University.

Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for

    research on teaching. In N. L. Gage (es.), *Handbook of research on teaching.* Rand

    McNally.

Cambiaghi, M., & Sacchetti, B. (2015). Ivan Petrovich Pavlov (1849–1936). *Journal of*

    Neurology, 262, 1599–1600. https://doi.org/10.1007/s00415-015-7743-2

Cameron, J., Banko, K., & Pierce, W. D. (2001). Pervasive negative effects of rewards on

    intrinsic motivation: The myth continues. *The Behavior Analyst, 24*, 1–44.

Capaldi, E. D., Sheffer, J. D., Viveiros, D. M., Davidson, T., & Campbell, D. H. (1985). Shock

    preexposure and the reduced effectiveness of shock. *Learning and Motivation, 16*(4),

    357-380. doi:10.1016/0023-9690(85)90021-9

Carroll, T., Lawlor, R., & Phee, J. (2012). Response to intervention and positive behavior

    intervention and supports. In N. M. Haynes (Ed.), *Behavior management: Traditional*

    and expanded approaches (pp. 79–90). University Press of America.

Catania, A. C. (1999). Thorndike's legacy: Learning, selection, and the law of effect. *Journal of the Experimental Analysis of Behavior*, *72*(3), 425-428.

Center on PBIS: School Climate Survey (SCS) Suite Manual. (2022). Retrieved November 21, 2022, from https://www.pbis.org/resource/school-climate-survey-suite

Center on PBIS: Resource: Self-assessment survey (SAS). (2022). Retrieved February 03, 2022, from https://www.pbis.org/resource/sas

Center on PBIS: Resource: School-wide evaluation tool (SET). (2022). Retrieved February 02, 2022, from https://www.pbis.org/resource/school-wide-evaluation-tool-set

Cerrone, K. M. (1999). *The Gun-Free Schools Act of 1994: Zero tolerance takes aim at procedural due process*, 20 Pace L. Rev. 131

https://digitalcommons.pace.edu/plr/vol20/iss1/7

Chance, P. (1999). Thorndike's puzzle boxes and the origins of the experimental analysis of behavior. *Journal of the Experimental Analysis of Behavior, 72*(3), 433-440.

Childs, K., Kincaid, D., & George, H. (2010). A model for statewide evaluation of a universal positive behavior support initiative. *Journal of Positive Behavior Interventions, 12*(4), 195-197.

Chitiyo, J., & May, M. (2018). Factors predicting sustainability of the schoolwide positive behavior intervention support model. *Preventing School Failure, 62*(2), 94-104.

Choi, J. H., McCart, A. B., Hicks, T. A., & Sailor, W. (2019). An analysis of mediating effects of school leadership on MTSS implementation. *The Journal of Special Education*, *53*(1), 15-27.

Coghlan, D., & Brydon-Miller, M. (2014). Transferability. In *The SAGE encyclopedia of action research* (pp. 786-788). SAGE Publications Ltd. https://dx.doi.org/10.4135/9781446294406.n347

Coffey, J., & Horner, R. H. (2012). The sustainability of schoolwide positive behavior interventions and supports. *Exceptional Children, 78*, 407–422. doi:10.1177 /001440291207800402

Cohen, R., Kincaid, D., & Childs, K. (2007). Measuring school-wide positive behavior support implementation: Development and validation of the "benchmarks of quality." *Journal of Positive Behavior Interventions, 9*(4), 203-213.

Coleman, J. (1968). The concept of equality of educational opportunity. *Harvard Educational Review, 38*(1), 7-22. doi:10.17763/haer.38.1.m3770776577415m2

Coleman, J. S. (1990). *Foundations of social theory*. Harvard University Press.

Coyne, M. D., Oldham, A., Leonard, K., Burns, D., & Gage, N. (2016). Delving into the details: Implementing multitiered K–3 reading supports in high-priority schools. In B. Foorman (Ed.), *Challenges to implementing effective reading intervention in schools. New Directions for Child and Adolescent Development, 154*, 67–85.

Cooper, J. O., Heron, T. E., Heward, W. L. (2020). *Applied behavior analysis*. Pearson.

Cornwallis, C. F. (1851). *The philosophy of ragged schools*. W. Pickering.

Cottrill, K. R. (2022). *Positive behavior interventions and supports effectiveness in southeastern Ohio.* Digital Commons at ACU, Electronic Theses and Dissertations. Paper 477.

Craig, A. R. (1847). *The philosophy of training; or the principles and art of a normal education.* London.

Creswell, J. W. (2014). *Qualitative, quantitative and mixed methods approaches.* Sage

    Publications.

Creswell, J. W. (2018). *Qualitative inquiry & research design: Choosing among five approaches*

    (4th ed.). Sage Publications.

Crews, G. A., & Counts, M. R. (1997). *The evolution of school disturbance in America: Colonial*

    times to modern day. Praeger.

Curran, F. C. (2019). The law, policy, and portrayal of zero tolerance school discipline:

    Examining prevalence and characteristics across levels of governance and school

    districts. *Educational Policy, 33*(2), 319–349. https://doi.org/10.1177/0895904817691840

Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research. *Dimensions of*

    Critical Care Nursing, *36*(4), 253–263. https://doi.org/10.1097/dcc.0000000000000253

Dean, J. E. (2018). *A mixed methods study of high school teachers' and administrators'*

    perceptions of School-Wide Positive Behavior Interventions and Supports. (dissertation).

    Columbus State University.

    https://csuepress.columbusstate.edu/theses_dissertations/332

de Mause, L. (1974) The evolution of childhood. *Journal of Psychohistory, 1*, 403-575

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human*

    behavior. Plenum Press.

Deur, J. L., & Parke, R. D. (1970). Effects of inconsistent punishment on aggression in children.

    Developmental Psychology, 2, 403–411

Digdon, N., Powell, R. A., & Harris, B. (2014). Little Albert's alleged neurological impairment:

    Watson, Rayner, and historical revision. *History of Psychology, 17*(4), 312-324.

    doi:10.1037/a0037325

Discipline facts - American Psychological Association. (n.d.). Retrieved November 15, 2021, from https://www.apa.org/advocacy/health-disparities/discipline-facts.pdf

Dunlap, G., Carr, E. G., Horner, R. H., Zarcone, J. R., & Schwartz, I. (2008). Positive behavior support and applied behavior analysis: A familial alliance. *Behavior Modification, 32*(5), 682-698. doi:10.1177/0145445508317132

Eckes, S., & Russo, C. J. (2012). *School discipline and safety*. Sage Publications.

Eggleton, T. (2001). Discipline in the Schools. ERIC.

Ehrlich, P. R., & Levin, S. A. (2005). The evolution of norms. *Ecology and Evolutionary Biology, 3*(6), 943–948.

Eiraldi, R., McCurdy, B., Khanna, M., Mautone, J., Jawad, A. F., Power, T., ... & Cidav, Z. (2016). A cluster randomized trial to evaluate external support for the implementation of positive behavioral interventions and supports by school personnel. *Implementation Science, 11*(1), 1-15.

Eisenberger, R., & Cameron, J. (1996). The detrimental effects of reward: Myth or reality? *American Psychologist, 51*, 1153–1166.

Elam, S. (1978). A Decade of Gallup Polls of attitudes toward education, 1969–1978. *Phi Delta Kappan.*

Ervin, R. A., Schaughency, E., Goodman, S. D., McGlinchey, M. T., & Matthews, A. (2006). Merging research and practice agendas to address reading and behavior school-wide. *School Psychology Review, 35*(2), 198-223.

Fabelo, T., Thompson, M. D., Plotkin, M., Carmichael, D., Marchbanks, M. P. III, & Booth E. A. (2011). *Breaking schools' rules: A statewide study of how school discipline relates to students' success and juvenile justice involvement.* Council of State Governments Justice

Center; Public Policy Research Institute of Texas A & M University.

http://justicecenter.csg.org/files/Breaking_Schools_Rules_Report_Final.pdf

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using

G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research*

Methods, *41*, 1149-1160.

Fenning, P., & Rose, J. (2007). Overrepresentation of African American students in exclusionary

discipline: The role of school policy. *Urban Education, 42*(6), 536–559.

https://doi.org/10.1177/0042085907305039

Finkelhor, D., Turner, H., Wormuth, B. K., Vanderminden, J., & Hamby, S. (2019). Corporal

punishment: Current rates from a national survey. *Journal of Child and Family Studies,*

28(7), 1991-1997. doi:10.1007/s10826-019-01426-4

Flannery, K. B., Fenning, P., Kato, M. M., & McIntosh, K. (2014). Effects of school-wide

positive behavioral interventions and supports and fidelity of implementation on problem

behavior in high schools. *School Psychology Quarterly, 29*(2), 111-124.

doi:10.1037/spq0000039

Flannery, K. B., Frank, J. L., Kato, M. M., & Fenning, P. (2013). Implementing schoolwide

positive behavior support in high school settings: Analysis of eight high schools. *The*

High School Journal, 96(4), 267-282. doi:10.1353/hsj.2013.0015

Fletcher, J. M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating

academic difficulties. *Child Development Perspectives, 3*(1), 30–37.

https://doi.org/10.1111/j.1750-8606.2008.00072.x

Fraenkel, J. R., Wallen, N. E., & Hyun, H. (2012). *How to design and evaluate research in*

Education. McGraw-Hill Humanities/Social Sciences/Languages.

Freeman, R., Miller, D., & Newcomer, L. (2015). Integration of academic and behavioral MTSS at the district level using implementation science. *Learning Disabilities: A Contemporary Journal*, *13*(1), 59-72.

Freeman, J., Simonsen, B., McCoach, D. B., Sugai, G., Lombardi, A., & Horner, R. (2015). Relationship between school-wide positive behavior interventions and supports and academic, attendance, and behavior outcomes in high schools. *Journal of Positive Behavior Interventions, 18*(1), 41–51. https://doi.org/10.1177/1098300715580992

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93-99. https://doi.org/10.1598/RRQ.41.1.4

Furjanic, D., Mannan, I., Hamilton, J. C., Nese, J. F. T., Austin, S., Izzard, S., & Nese, R. N. T. (2022). Examining the social validity of a universal intervention for reducing exclusionary discipline through stakeholder voice. *Journal of Applied School Psychology, 38(*4), 352-379. doi: 10.1080/15377903.2021.1968092

Gage, N. A., Larson, A., Sugai, G., & Chafouleas, S. M. (2016). Student perceptions of school climate as predictors of office discipline referrals. *American Educational Research Journal, 53*(3), 492-515.

Gagnon, D. J., Jaffee, E. M., & Kennedy, R. (2016*). Exclusionary discipline highest in New Hampshire's urban schools: Suspension and expulsion found to disproportionately affect disadvantaged students* (Regional Issue Brief No. 46). Carsey School of Public Policy.

Gaias, L. M., Lindstrom Johnson, S., White, R. M. B., Pettigrew, J., Dumka, L., & Gonzales, N. A. (2021). Implementing schoolwide positive behavioral interventions and supports during the COVID-19 pandemic. *School Psychology Review, 50*(2), 188-201.

Galef Jr, B. G. (1998). Edward Thorndike: Revolutionary psychologist, ambiguous biologist.

    American Psychologist, 53(10), 1128.

Gallup, G. H. (1978). The 10th annual Gallup poll of the public's attitude toward public schools.

    Phi Delta Kappa, 60, 1, 33-45.

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction*.

    Pearson/Allyn & Bacon.

Garcia, J., Brett, L. P., & Rusiniak, K. W. (2019). Limits of Darwinian conditioning. In

    Contemporary Learning Theories (pp. 181-204). Routledge.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2005). *Educational research: Competencies for*

    analysis and applications. Pearson Merrill Prentice Hall.

George, J. P., & Kincaid, D. K. (2008). Building district-level capacity for positive behavior

    support. *Journal of Positive Behavioral Interventions, 10*, 20-32. doi:

    10.1177/1098300707311367

Gershoff, E. T., & Font, S. A. (2016). Corporal punishment in U.S. public schools: Prevalence,

    disparities in use, and status in state and federal policy. *Social Policy Report, 30*, 1.

    https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5766273/pdf/nihms862245.pdf

Gershoff, E. T., & Grogan-Kaylor, A. (2016). Spanking and child outcomes: Old controversies

    and new meta-analyses. *Journal of Family Psychology, 30*(4), 453-469.

    https://doi.org/10.1037/fam0000191

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries.

    Educational Communication and Technology, 29, 75-92.

Gewirtz, J. L. (2001). J. B. Watson's approach to learning: Why Pavlov? Why not Thorndike?

    Behavioral Development Bulletin, 10(1), 23-25. doi:10.1037/h0100478

Goertzen, M. J. (2017). Introduction to quantitative research and data. *Library Technology Reports*, *53*(4), 12-18.

Goldstein, A. P., Apter, S. J., & Harootunian, B. (1984). *School violence*. Prentice-Hall.

Gregory, J. F. (1997). Three strikes and they're out: African American boys and American schools' responses to misbehavior. *International Journal of Adolescence and Youth, 7*, 25-34.

Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The achievement gap and the discipline gap: Two sides of the same coin? *Educational Researcher, 39*(1), 59–68. https://doi.org/10.3102/0013189X09357621

Gresham, F. M. (1991). Conceptualizing behavior disorders in terms of resistance to intervention. *School Psychology Review, 20*(1), 23. https://doi.org/10.1080/02796015.1991.12085530

Grimm, M. E. (2022). *High school principals' perceptions on the readiness of school culture for implementation of the multi-tiered systems of Support Framework* (dissertation). Virginia Tech.

Guillory, Sidney. (2015). *The effects of positive behavior interventions and supports (PBIS) Tier 1 on student behavior: A case study*. (dissertation). https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations/5685

Hagan-Burke, S., Burke, M., Martin, E., Boone, R., & Kirkendoll, D. (2005). The internal consistency of the school-wide subscales of the Effective Behavioral Supports Survey. *Education & Treatment of Children, 28*(4), 203–213.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.

Halevy, G., Feldon, J., & Weiner, I. (1987). Resistance to extinction and punishment following training with shock and non-reinforcement: Failure to obtain cross-tolerance. *The Quarterly Journal of Experimental Psychology B: Comparative and Physiological Psychology, 39*(2-B), 147–160.

Han, S., & Weiss, S. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology, 33*(6), 665-679.

Hansen, J. M. (2014). *Relationship between teacher perception of positive behavior interventions support and the implementation process*. (dissertation). http://aquila.usm.edu/dissertations

Harris, B. (1979). Whatever happened to little Albert? *American Psychologist, 34*(2), 151-160. doi:10.1037/0003-066x.34.2.151

Hathaway, R. S. (1995). Assumptions underlying quantitative and qualitative research: Implications for institutional research. *Research in Higher Education*, *36*(5), 535-562.

Hawken, L. S., Vincent, C. G., & Schumann, J. (2008). Response to intervention for social behavior: Challenges and opportunities. *Journal of Emotional and Behavioral Disorders, 16(*4), 213–225. https://doi.org/10.1177/1063426608316018

Heale, R., Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, *18***, 66-67.

Hogrebe, M. C, & Täte, W. F (2010). School composition and context factors that moderate and predict 10th-grade science proficiency. *Teachers College Record, 112*, 1008-1037.

Horner, R. H. (2002). On the status of knowledge for using punishment: A commentary. *Journal of Applied Behavior Analysis, 35*(4), 465-467. doi:10.1901/jaba.2002.35-465

Horner, R. H., & Sugai, G. (2015). School-wide PBIS: An example of applied behavior analysis implemented at a scale of social importance. *Behavior Analysis in Practice, 8*(1), 80-85. doi: 10.1007/s40617-015-0045-4

Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Examining the evidence-base for school wide positive behavior support. *Focus on Exceptional Children, 42*(8), 1–14.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions, 11*(3), 133-144.

Horner, R. H., Todd, A. W., Lewis-Palmer, T., Irvin, L. K., Sugai, G., & Boland, J. B. (2004). The School-wide Evaluation Tool (SET): A research instrument for assessing school-wide positive behavior support. *Journal of Positive Behavior Interventions, 6*(1), 3–12. http://dx.doi.org/10.1177/10983007040060010201

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Hyman, I. A. (1997). *School discipline and school violence: The teacher variance approach.* Allyn & Bacon.

Hyman, LA. & Wise, J. (1979). *Corporal punishment in American education.* Temple University Press.

Irvin, L. K., Horner, R. H., Ingram, K., Todd, A. W., Sugai, G., Sampson, N. K., & Boland, J. B. (2006). Using office discipline referral data for decision making about student behavior in elementary and middle schools: An empirical evaluation of validity. *Journal of*

Positive Behavior Interventions, 8(1), 10–23.

https://doi.org/10.1177/10983007060080010301

Irvin, L. K., Tobin, T. J., Sprague, J. R., Sugai, G., & Vincent, C. G. (2004). Validity of office discipline referral measures as indices of school-wide behavioral status and effects of school-wide behavioral interventions. *Journal of Positive Behavior Interventions, 6*(3), 131-147.

Irwin, V., Wang, K., Cui, J., Zhang, J., & Thompson, A. (2021). Report on indicators of school crime and safety: 2020. U.S. Department of Justice. Retrieved from https:// nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2021092.

Johnson, A. H., & Jones, J. (2020). The impact of COVID-19 on PBIS implementation: Emerging themes from the field. *Preventing School Failure: Alternative Education for Children and Youth, 64*(4), 367-374.

Jones, S. M., Barnes, S. P., Bailey, R., & Doolittle, E. J. (2017). Promoting social and emotional competencies in elementary school. *The Future of Children, 27*(1), 49–72. https://doi.org/ 10.1353/foc.2017.0003

Kaestle, C. F. (1973). *Joseph Lancaster and the monitorial school movement: A documented history*. Teachers College Press.

Kaestle, C. F. (1983). *Pillars of the republic: Common schools and American society, 1780-1860* (Vol. 154). Macmillan.

Kaufman, P., Chen, X., Choy, S. P., Ruddy, S. A., Miller, A. K., Fleury, J. K., Chandler, K. A., Rand, M. R., Klaus, P., & Planty, M. G. (2000). Indicators of school crime and safety.

U.S. Departments of Education and Justice. NCES 2001017/NCJ-184176. Washington, D.C.

Kazdin, A. E. (1982). The token economy: A decade later. *Journal of Applied Behavior Analysis, 15*, 431-435.

Kazdin, A. E. (2012). *Behavior modifications in applied settings* (7th ed.). Waveland Press.

Kazdin, A. E. & Bootzin, R. R. (1973). The token economy: An evaluative review. *Journal of Applied Behavior Analysis, 5*, 343-372. https://doi.org/10.1901/jaba.1972.5-343

Kelm, J. L., McIntosh, K., & Cooley, S. (2014). Effects of implementing school-wide positive behavioral interventions and supports on problem behaviour and academic achievement in a Canadian elementary school. *Canadian Journal of School Psychology, 29*(3), 195–212. https://doi.org/10.1177/0829573514540266

Kern, L., & Wehby, J. H. (2014). Using data to intensify behavioral interventions for individual students. *Council for Exceptional Children, 46*(4), 45–53. doi:10.1177 /0040059914522970

Kern, L., & Yell, M. (2020). Center on PBIS: Resource: Idea & students with disabilities. Retrieved November 24, 2021, from https://www.pbis.org/resource/idea-students-with-disabilities

Kincaid, D., Dunlap, G., Kern, L., Lane, K. L., Bambara, L. M., Brown, F., Knoster, T. P. (2015). Positive behavior support: A proposal for updating and refining the definition. *Journal of Positive Behavior Interventions, 18*, 69–73. doi:10.1177 /1098300715604826

Kleck, G., & Barnes, J. C. (2013). Deterrence and macro-level perceptions of punishment risks: Is there a "collective wisdom?" *Crime and Delinquency, 59*(7), 1–29. doi:10.1177/0011128708327569.

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Kohn, A. (1993). *Punished by rewards*. Houghton Mifflin.

Kumar, A. (1999, December 28). Suit fights school alcohol policy. *St. Petersburg Times*, p. 3B.

Lancaster, J., & Corston, W. (2014). *Improvements in education, as it respects the industrious classes of the community: With a brief sketch of the life of Joseph Lancaster*. Cambridge University Press.

Lane, K. L., & Menzies, H. M. (2003). A school-wide intervention with primary and secondary levels of support for elementary students: Outcomes and considerations. *Education and Treatment of Children, 26*(4), 431-451.

Lassen, S. R., Steele, M. M., & Sailor, W. (2006). The relationship of school-wide positive behavior support to academic achievement in an urban middle school. *Psychology in the Schools, 43*(6), 701-712.

Lawson, G. M., McKenzie, M. E., Becker, K. D., Selby, L., & Hoover, S. A. (2019). The core components of evidence-based social emotional learning programs. *Prevention Science, 20*(4), 457–467. https://doi.org/10.1007/s11121-018-0953-y

Lenell, W., & Boissoneau, R. (1996). Using causal-comparative and correlational designs in conducting market research. *Journal of Professional Services Marketing*, *13*(2), 59–69. https://doi.org/10.1300/j090v13n02_05

Leonard, K. M., Coyne, M. D., Oldham, A. C., Burns, D., & Gillis, M. B. (2019). Implementing MTSS in beginning reading: Tools and systems to support schools and teachers. *Learning Disabilities Research & Practice*, *34*(2), 110-117.

Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28*(1), 129.

Levis, D. J. (2017). Behavioral therapy: The fourth therapeutic revolution? In *Foundations of Behavioral Therapy Foundations* (pp. 1-35). Routledge.

Lewis, T. J., & Sugai, G. (1999). Effective behavior support: Systems approach to proactive schoolwide management. *Focus on Exceptional Children, 31*.

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Lorenzetti, F. D., Mozzachiodi, R., Baxter, D. A., & Byrne, J. H. (2005). Classical and operant conditioning differentially modify the intrinsic properties of an identified neuron. *Nature Neuroscience, 9*(1), 17-19. doi:10.1038/nn1593

Losen, D. J, & Skiba, R. J. (2010). Suspended education: Urban middle schools in crisis. UCLA: The civil rights project. Retrieved from https://escholarship.org/uc/item/8fh0s5dv

Luiselli, J. K., Putnam, R. F., Handler, M. W., & Fieinberg, A. B. (2005). Whole-school positive behaviour support: Effects on student discipline problems and academic performance. *Educational Psychology, 25*: 2-3, 183-198). doi: 10.1080/0144341042000301265

Maag, J. W. (2016). *Behavior management: From theoretical implications to practical applications*. Cengage Learning.

Mace, F. (C 1994). The significance and future of functional analysis methodologies. *Journal of Applied Behavior Analysis*, *27*(2), 385–392. https://doi.org/10.1901/jaba.1994.27-385

Mace, F. C., & Critchfield, T. S. (2010). Translational research in behavior analysis: Historical traditions and imperative for the future. *Journal of the Experimental Analysis of Behavior*, *93*(3), 293–312. https://doi.org/10.1901/jeab.2010.93-293

Maggin, D. M., & Johnson, A. H. (2020). Schoolwide positive behavioral interventions and

    supports in the age of remote instruction: Implementation and adaptation. *Preventing*

    School Failure: Alternative Education for Children and Youth, 64(4), 275-283.

Malone, J. C. (2014). Did John B. Watson really "found" behaviorism? *The Behavior Analyst,*

    37(1), 1-12. doi:10.1007/s40614-014-0004-3

Mann, H. (1934). Seventh annual report to the Massachusetts State Board of Education, 1843. In

    Euwood Cubberly (Ed). *Readings in public education in the United States, A collection of*

    sources and readings to illustrate the history of educational practice and progression the

    United States. (pp. 287-288). Houghton Mifflin.

Marchbanks III, M. P., Blake, J. J., Booth, E. A., Carmichael, D., Seinbert, A. L., & Fabelo, T.

    (2015). The economic effects of exclusionary discipline on grade retention and high

    school dropout. In D. J. Losen (Ed*.). Closing the school discipline gap: Equitable*

    remedies for excessive exclusion. (pp. 59-74). Teachers College Press.

Mathews, S., McIntosh, K., Frank, J. L., & May, S. L. (2013). Critical features predicting

    sustained implementation of school-wide positive behavioral interventions and supports.

    Journal of Positive Behavior Interventions, 16, 168–178.

    doi:10.1177 /1098300713484065

Mayer, G. R., & Butterworth, T. (1979). A preventive approach to school violence and

    vandalism: An experimental study. *Personnel and Guidance Journal, 57*, 436–441.

Mayworm, A. M., & Sharkey, J. D. (2014). Ethical considerations in a three-tiered approach to

    school discipline policy and practice. *Psychology in the Schools, 51*(7), 693-704.

    doi: 10.1002/pits.21782

McCart, A., Sailor, W., Bezdek, J., & Satter, A. (2020). Building the capacity of schools to meet

    students' Tier 3 behavioral needs within an integrated multi-tiered system of support: A

    case example during the COVID-19 crisis. *School Psychology Review, 49(*3), 289-300.

McDaniel, Kim, & Guyotte (2017). Perceptions of implementing positive behavior interventions

    and supports in high-need school contexts through the voice of local stakeholders.

    Journal of At-Risk Issues. 20(2), 35-44

McDaniel, S., Kim, S., Kwon, D., & Choi, Y-J. (2018): Stakeholder perceptions of contextual

    factors related to PBIS implementation in high need schools, *Journal of Children and*

    Poverty. doi: 10.1080/10796126.2018.1518777

McIntosh, K., Chard, D. J., Boland, J. B., & Horner, R. H. (2006). Demonstration of combined

    efforts in school-wide academic and behavioral systems and incidence of reading and

    behavior challenges in early elementary grades. *Journal of Positive Behavior*

    Interventions, 8(3), 146-154. doi: 10.1177/10983007060080030301

McIntosh, K., Filter, K. J., Bennett, J. L., Ryan, C., & Sugai, G. (2010). Principles of sustainable

    prevention: Designing scale-up of school-wide positive behavior support to promote

    durable systems. *Psychology in the Schools, 47*(1), 5-21.

McIntosh, K., Massar, M. M., Algozzine, R. F., George, H.P., Horner, R. H., Lewis, T. J., &

    Swain-Bradway, J. (2017). Technical adequacy of the SWPBIS Tiered Fidelity Inventory.

    Journal of Positive Behavior Interventions, 19(1), 3-13.

McIntosh, K., L. K. Predy, G. Upreti, A. E. Hume, M. G. Turri, & S. Mathews. (2014).

    Perceptions of contextual features related to implementation and sustainability of
    school-wide positive behavior support. *Journal of Positive Behavior Interventions, 16*(1),
    31–43.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative Research: A guide to design and implementation* (4th ed.). Jossey Bass.

Middleton, J. (2008). The experience of corporal punishment in schools, 1890–1940. *History of Education, 37*(2), 253-275. doi:10.1080/00467600701607882

Midlarsky, E., & Klain, H. M. (2005). A history of violence in the schools. In: Denmark, F. L., Krauss, H. H., Wesner, R.W., Midlarsky, E., Gielen, U. P. (Eds) *Violence in Schools.* Springer. https://doi.org/10.1007/0-387-28811-2_3

Mills, W. (1899). The nature of animal intelligence and the methods of investigating it. *Psychological Review, 5*, 262–274

Molloy, L. E., Moore, J. E., Trail, J., Van Epps, J. J., & Hopfer, S. (2013). Understanding real-world implementation quality and "active ingredients" of PBIS. *Prevention Science, 14*, 593–605. doi:10.1007/s11121-012-0343-9

Monahan, K. C., VanDerhei, S., Bechtold, J., & Cauffman, E. (2014). From the school yard to the squad car: School discipline, truancy, and arrest. *Journal of Youth and Adolescence, 43*, 1110–1122. doi:10.1007/s10964-014-0103-1

Moreno, G., & Gaytán, F. X. (2012). Reducing subjectivity in special education referrals by educators working with Latino students: Using functional behavioral assessment as a pre-referral practice in student support teams. *Emotional and Behavioural Difficulties, 15*(1), 15–22. doi: 10.1080/13632752.2012.675132

Morris, E. K., Smith, N. G., & Altus, D. E. (2005). B. F. Skinner's contributions to applied behavior analysis. *The Behavior Analyst, 28*(2), 99-131.

Murano, D., Sawyer, J. E., & Lipnevich, A. A. (2020). A meta-analytic review of preschool social and emotional learning interventions. *Review of Educational Research, 90*(2), 227-263. https://doi.org/10.3102/0034654320914743

National Center for Education Statistics. (2021a). Incidence of victimization at school and away from school. *Condition of Education.* U.S. Department of Education, Institute of Education Sciences. Retrieved 8/25/2022 from https://nces.ed.gov/programs/coe/indicator/a02.

National Center for Education Statistics. (2021b). Violent deaths at school and away from school and school shootings. *Condition of Education.* U.S. Department of Education, Institute of Education Sciences. Retrieved 8/25/2022 from https://nces.ed.gov/programs/coe/indicator/a01.

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research.* U.S. Department of Health and Human Services. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html

Nese, R. N., Santiago-Rosario, M. R., Malose, S., Hamilton, J., Nese, J. F., & Horner, R. (2022). Improving a universal intervention for reducing exclusionary discipline practices using student and teacher guidance. *Psychology in the Schools*, *59*(10), 2042-2061.

Newman, I., Ridenour, C., Weis, D. M, & McNeil, K., (1997). Theses and dissertations: A guide to writing in social and physical sciences. *Educational Leadership Faculty Publications, 82*. http://ecommons.udayton.edu/eda_fac_pub/82

Nocera, E. J., Whitbread, K. M., & Nocera, G. P. (2014). Impact of school-wide positive

behavior supports on student behavior in the middle grades, *RMLE Online, 37*(8), 1-14.

doi: 10.1080/19404476.2014.11462111

Noltemeyer, A. L., & Mcloughlin, C. S. (2010). Patterns of exclusionary discipline by school

typology, ethnicity, and their interaction. *Perspectives on Urban Education, 7*, 27–40.

https://edsource.org/wp-content/uploads/2018/09/Noltemeyer_Ward_2015_Meta-

Analysis.pdf

Noltemeyer, A. L., Ward, R. M., & Mcloughlin, C. (2015). Relationship between school

suspension and student outcomes: A meta-analysis. *School Psychology Review, 44*(2),

224-240. doi:10.17105/spr-14-0008.1

O'Leary, K. D., & Drabman, R. (1971). Token reinforcement programs in the classroom: A

review. *Psychological Bulletin, 75*(6), 379–398. https://doi.org/10.1037/h0031311

Oluwole, J. (2022). *Ingraham v. Wright. Encyclopedia Britannica.*

https://www.britannica.com/event/Ingraham-v-Wright

Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*

(7th ed.). Open University Press.

Pas, E. T., & Bradshaw, C. P. (2012). Examining the association between implementation and

outcomes: State-wide scale-up of school-wide positive behavior interventions and

supports. *Journal of Behavioral Health Services & Research, 39*(4), 417-433.

Pas, E. T., Waasdorp, T. E., & Bradshaw, C. P. (2015). Examining contextual influences on

classroom-based implementation of positive behavior support strategies: Findings from a

randomized controlled effectiveness trial. *Prevention Science, 16*(8), 1096-1106.

doi: http://dx.doi.org.iris.etsu.edu:2048/10.1007/s11121-014-0492-0

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R.

Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17-59). Academic Press.

Perry, B. L., & Morris, E. W. (2014). Suspending progress: Collateral consequences of exclusionary punishment in public schools. *American Sociological Review, 79*, 1067–1087. doi:10.1177/0003122414556308

Petrillo, L. (1997, October 29). Eight-year-old may be expelled under zero-tolerance code. *San Diego Union-Tribune*, p. B-1.

Pierce, W. D., & Cameron, J. (2002). A summary of the effects of reward contingencies on interest and performance. *The Behavior Analyst Today, 3*, 221–228.

Pierce, W. D., & Cheney, C. D. (2004). *Behavior analysis and learning* (3rd ed.). Routledge. https://doi.org/10.4324/9781315200682

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Prentice, E. D., & Antonson, L. (1987). A protocol review guide to reduce IRB inconsistency. *IRB: Ethics and Human Research*, *9*(1), 9. https://doi.org/10.2307/3563646

Prothrow-Stith, D., & Quaday, S. (1996). Communities, schools, and violence. In A. M. Hoffman (Ed), *Schools, violence, and society* (pp. 153-161). https://books.google.com/books?hl=en&lr=&id=GgVlxbJ4VDEC&oi=fnd&pg=PR7&ots =EusUTWNVyw&sig=fcDV9DLwxFAQvd_iKeUUqQZF8I0#v=onepage&q&f=false

Putnam, R. F., Luiselli, J. K., & Sunderland, M. (2002). Longitudinal evaluation of behavior

    support intervention in a public middle school. *Journal of Positive Behavior*

    Interventions, 4, 182–188.

Rehman, I., Mahabadi, N., Sanvictores, T., & Rehman, C. (2021). *Classical conditioning.*

    Retrieved March 23, 2022, from https://www.ncbi.nlm.nih.gov/books/NBK470326/

Richter, M. M., Lewis, T. J., & Hagar, J. (2011). The relationship between principal leadership

    skills and school-wide positive behavior support. *Journal of Positive Behavior*

    Interventions, *14*(2), 69–77. https://doi.org/10.1177/1098300711399097

Reinke, W. M., Herman, K. C., & Stormont, M. (2013). Classroom-level positive behavior

    supports in schools implementing SW-PBIS: Identifying areas for enhancement. *Journal*

    of Positive Behavior Interventions, 15(1), 39-50.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's

    mental health in schools: Teacher perceptions of needs, roles, and barriers. *School*

    Psychology Quarterly, 26(1), 1–13. https://doi.org/10.1037/a0022714

Ross, P.T. & Zaidi, N.L.B. (2019). Limited by our limitations. *Perspectives on Medical*

    Education, 8(4), 261-264.

Ross, S. W., Romer, N., & Horner, R. H. (2012). Teacher well-being and the implementation of

    school-wide positive behavior interventions and supports. *Journal of Positive Behavior*

    Interventions, 14(2), 118-128.

Rowan, B., Correnti, R., Miller, R. J., & Camburn, E. M. (2009). School improvement by design:

    Lessons from a study of comprehensive school reform programs. *Consortium for Policy*

    Research in Education. Retrieved from

    http://repository.upenn.edu/cpre_researchreports/54/

Schenker, J. D., & Rumrill Jr, P. D. (2004). Causal-comparative research designs. *Journal of Vocational Rehabilitation*, *21*(3), 117-121.

Schriro, D. (1985). *Safe schools, sound schools: Learning in a non-disruptive environment.* National Institute of Education.

Schwarz, N. (2007). Retrospective and concurrent self-reports: The rationale for real-time data capture. In A. A. Stone, S. Shiffman, A. A. Atienza, & L. Nebeling (Eds.), *The science of real-time data capture: Self-reports in health research* (pp. 11-26). Oxford University Press.

Scott, T. M., & Barrett, S. B. (2004). Using staff and student time engaged in disciplinary procedures to evaluate the impact of school-wide PBS. *Journal of Positive Behavior Interventions, 6*(1), 21-27.

Sharkey, J. D., & Fenning, P. A. (2012). Rationale for designing school contexts in support of proactive discipline. *Journal of School Violence, 11*, 95–104. doi:10 .1080/15388220.2012.646641

Shemer, A., & Feldon, J. (1984). Long-term partial reinforcement extinction effect and long-term partial punishment effect in a one-trial-a-day paradigm. *Bulletin of the Psychonomic Society, 22*(3), 221-224.

Shepherd, T. L., & Linn, D. (2015). *Behavior and classroom management in the multicultural classroom: Proactive, active, and reactive strategies*. SAGE Publications.

Simon, M. (2011). The role of the researcher. Retrieved from http://portal.regenesys.net.

Simonsen, F.E. (1991). *Juvenile justice in America* (3rd edition). Macmillan.

Simonsen, B., Eber, L., Black, A. C., Sugai, G., Lewandowski, H., Sims, B., & Myers, D. (2012). Illinois statewide Positive Behavioral Interventions and Supports: Evolution and

impact on student outcomes across years. *Journal of Positive Behavior Interventions,*

    14(1), 5–16. https://doi.org/10.1177/1098300711412601

Skiba, R. J. (2000). Zero tolerance: Zero evidence. An analysis of school disciplinary practice.

    Policy Research Report. https://files.eric.ed.gov/fulltext/ED469537.pdf

Skiba, R. J., Arredondo, M. I., & Williams, N. T. (2014). More than a metaphor: The

    contribution of exclusionary discipline to a school-to-prison pipeline. *Equity &*

    Excellence in Education, 47, 546–564. doi:10.1080/10665684.2014.958965

Skiba, R. J. & Peterson, R. L. (1999). The dark side of zero tolerance: Can punishment lead to

    safe schools? *Phi Delta Kappan, 80*, 372-376, 381-382.

Skiba, R., & Rausch, M. K. (2006). School disciplinary systems: Alternatives to suspension and

    expulsion. In G. G. Bear & K. M. Minke (Eds.), *Children's needs III: Development,*

    prevention, and intervention (pp. 87–102). *National Association of School Psychologists.*

Skinner, B. F. (1937). Two types of conditioned reflex: A reply to Konorski and Miller. *The*

    Journal of General Psychology, 16(1), 272-279. doi:10.1080/00221309.1937.9917951

Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis*. Appleton-Century.

Skinner, B. F. (1953). *Science and human behavior.* The Free Press.

Skinner, B. F. (1966). Contingencies of reinforcement in the design of a culture. *Behavioral*

    Science, 11(3), 159–166. https://doi.org/10.1002/bs.3830110302

Skinner B. F. (1986). Some thoughts about the future. *Journal of the Experimental Analysis of*

    Behavior, 45(2), 229–235. https://doi.org/10.1901/jeab.1986.45-229

Solomon, B. G., Tobin, K. G., & Schutte, G. M. (2015). Examining the reliability and validity of

    the effective behavior support self-assessment survey. *Education and Treatment of*

    Children, 38, 175–192.

Spaulding, S. A., Irvin, L. K., Horner, R. H., May, S. L., Emeldi, M., Tobin, T. J., & Sugai, G. (2010). Schoolwide social-behavioral climate, student problem behavior, and related administrative decisions: Empirical patterns from 1,510 schools nationwide. *Journal of Positive Behavior Interventions, 12*(2), 69–85. https://doi.org/10.1177/1098300708329011

Staats, A.W., Staats, C. K., Schutz, R. E. and Wolf, M. (1962). The conditioning of textual responses using "extrinsic" reinforcers. *Journal of the Experimental Analysis of Behavior, 5*, 33-40. https://doi.org/10.1901/jeab.1962.5-33

Staddon, J. E., & Cerutti, D. T. (2003). Operant conditioning. *Annual Review of Psychology, 54*, 115–144. https://doi.org/10.1146/annurev.psych.54.101601.145124

Steed, E. A., Shapland, D., & Leech, N. (2021). Early childhood teachers' perceptions of the effectiveness of their elementary school's approach to social emotional learning: A mixed methods study. *Early Childhood Education Journal, 50*(7), 1121–1132. https://doi.org/10.1007/S10643-021-01248-4

Stussi, Y., Ferrero, A., Pourtois, G., & Sander, D. (2019). Achievement motivation modulates Pavlovian aversive conditioning to goal-relevant stimuli. *NPJ Science of Learning, 4*(1). https://doi.org/10.1038/s41539-019-0043-3

Sugai, G., & Horner, R. (2002). The evolution of discipline practices: School-wide positive behavior supports. *Child & Family Behavior Therapy, 24*(1-2), 23-50. doi:10.1300/J019v24n01_03

Sugai, G., & Horner, R. H. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35*, 245–259.

Sugai, G., Horner, R. H., & Todd, A. W. (2003). *EBS Self-Assessment Survey (2.0).* Eugene, OR: Educational and Community Supports.

Sugai, G., & Lewis, T. J. (1999). Developing positive behavioral support systems. In G. Sugai & T. J. Lewis (Eds.), *Developing positive behavioral support for students with challenging behavior* (pp. 15–23).

Sugai, G., & Simonsen, B. (2012). Positive behavioral interventions and supports: History, defining features, and misconceptions.

Sugai, G., Simonsen, B., Bradshaw, C., Horner, R., & Lewis, T. (2014). Delivering high quality school wide positive behavior support in inclusive schools. In J. McLeskey, N. L. Waldron, F. Spooner, & B. Algozzine (Eds.), *Handbook of Research and Practice for Inclusive Schools* (pp. 306–321).

Swoszowski, N. C., McDaniel, S. C., Jolivette, K., & Melius, P. (2013). The effects of tier II check-in/check-out including adaptation for non-responders on the off-task behavior of elementary students in a residential setting. *Education and Treatment of Children, 36*(3), 63-79.

Tabachinick, B., & Fidell, L. S. (2019). *Using multivariate statistics* (7th Edition). Pearson.

Taylor, C. A., Manganello, J. A., Lee, S. J., & Rice, J. C. (2010). Mothers' spanking of 3-year-old children and subsequent risk of children's aggressive behavior. *Pediatrics, 125*(5), https://doi.org/10.1542/peds.2009-2678

The Civil Rights Project. (2000). Opportunities suspended: The devastating consequences of zero tolerance and school discipline. *UCLA: The Civil Rights Project.* Retrieved from https://escholarship.org/uc/item/99v051v1

Theofanidis, D., & Fountouki, A. (2018). Limitations and delimitations in the research

      process. *Perioperative Nursing-Quarterly Scientific, Online Official Journal of*

      GORNA, 7(3), 155-163.

 Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data.

      American Journal of Evaluation, 27(2), 237–246.

      https://doi.org/10.1177/1098214005283748

Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes

      in animals. *The Psychological Review: Monograph Supplements, 2*(4).

      https://doi.org/10.1037/h0092987

Toby, J. (1998). Getting serious about school discipline. *The Public Interest, 133*, 68–84.

      doi:10.7282/T3794321

Totani, Y., Aonuma, H., Oike, A., Watanabe, T., Hatakeyama, D., Sakakibara, M., & Ito, E.

      (2019). Monoamines, insulin and the roles they play in associative learning in pond

      snails. *Frontiers in Behavioral Neuroscience, 13*, 65.

U.S. Department of Education, Office of Special Education Programs, Positive Behavioral

      Interventions & Supports Technical Assistance Center. (2016). PBIS and the law.

      Retrieved from https://www.pbis.org/school/pbis-and-the-law

Vincent, C., Spaulding, S., & Tobin, T. J. (2010). A reexamination of the psychometric

      properties of the school-wide evaluation tool (SET). *Journal of Positive Behavior*

      *Interventions, 1*2(3), 161–179. https://doi.org/10.1177/1098300709332345

Violent Schools, Safe Schools: The Safe School Study Report to the Congress. (1977). United

      States: U.S. Government Printing Office.

Volokh, A., & Snell, L. (1997). School violence prevention: Strategies to keep schools safe. Policy Study No. 234.

Waasdorp, T. E., Bradshaw, C. P., & Leaf, P. J. (2012). The impact of schoolwide positive behavioral interventions and supports on bullying and peer rejection. *Archives of Pediatrics & Adolescent Medicine, 166*(2), 149-156.

Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*(4), 194-209. doi:10.1177/106342669600400401

Watson, J. B. (1913). Psychology as the behaviorist views it. *Psychological Review, 20*(2), 158–177. https://doi.org/10.1037/h0074428

Watson, J. B., & Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3*(1), 1.

Wehby, J. H., & Kern, L. (2014). Intensive behavior intervention. *Council for Exceptional Children, 46*, 38–44. doi:10.1177/0040059914523956

West, S. G., Finch, J. F., & Curran, P. J. (1995). *Structural equation models with non-normal variables: Problems and remedies*. In R. H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 56–75). SAGE Publications.

Wight, V. A. (2020). *Student and teacher perceptions of school climate in PBIS-implementing middle schools.* (dissertation). ProQuest.

Wolfe, K., Pyle, D., Charlton, C. T., Sabey, C. V., Lund, E. M., & Ross, S. W. (2016). A systematic review of the empirical support for check-in check-out. *Journal of Positive Behavior Interventions, 18*(2), 74–88. https://doi.org/10.1177/1098300715595957

Yin, R. K. (2018). *Case study research and applications: Design and methods*. SAGE
Publications.

Youssef, R. M., Attia, M. S. E. D., & Kamel, M. I. (1998). Children experiencing violence II:
prevalence and determinants of corporal punishment in schools. *Child Abuse & Neglect,
22*(10), 975–985. https://doi.org/10.1016/S0145-2134(98)00084-2

Appendix A

DATE: February 9, 2023

TO: Jonathan Gross

FROM: ███████████████████████████

Director of Professional Learning

SUBJECT: **RESEARCH APPROVAL REQUEST**

Your request to conduct research for your graduate program at Columbus State University is approved. The purpose of your study, *"Trends In A Middle Georgia School District's K-12 PBIS SAS Survey Results And Disciplinary Data Over A Three-Year Period: A Quantitative Investigation"*, is to examine staff perceptions of PBIS using the SAS survey instrument and to determine the impact these perceptions have on ODR using the Georgia Department of Education's database, across all school levels and over a consecutive three-year period from 2019 to 2022 in a single middle Georgia school district. The timeframe for this research study is one year from the date of district approval.

Thank you for submitting your research proposal, syllabus, principal approval letter, and District PBIS Coordinator approval letter.

Please keep in mind that you will be responsible for compiling the data for your research. Staff at ████████████████████ and the Departments of District & School Effectiveness and Technology Services is unable to compile data for your research. Board policy also prohibits the use of district email for personal research. Please also remember student and teacher anonymity is of utmost priority for this research project.

I have attached to this approval e-mail the ████████████ Schools Requirements for Conducting Research.

I wish you the best as you work toward earning your graduate degree. Please let me know if I may be of any assistance to you again in the future.

cc: ███████████

Appendix B

Institutional Review Board
Columbus State University

Date: 2/17/2023

Protocol Number: 23-031

Protocol Title: TRENDS IN A MIDDLE GEORGIA SCHOOL DISTRICT'S K-12 PBIS SAS SURVEY RESULTS AND DISCIPLINARY DATA OVER A THREE-YEAR PERIOD: A QUANTITATIVE INVESTIGATION

Principal Investigator: Jonathan Gross
Co-Principal Investigator: Robert Waller

Dear Jonathan Gross:
The Columbus State University Institutional Review Board or representative(s) has reviewed your research proposal identified above. It has been determined that the project is classified as exempt under 45 CFR 46.101(b) of the federal regulations and has been approved. You may begin your research project immediately.
Please note any changes to the protocol must be submitted, using a Project Modification form, to the IRB before implementing the change(s). Any adverse events, unexpected problems, and/or incidents that involve risks to participants and/or others must be reported to the Institutional Review Board at irb@columbusstate.edu or (706) 507-8634.
If you have further questions, please feel free to contact the IRB.
Sincerely,

Sammy Kanso, Graduate Assistant

Institutional Review Board
Columbus State University

Appendix C

Informed Consent Form

COLUMBUS STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
Informed Consent Form

You are being asked to participate in a research project conducted by Jonathan Andrew Gross, a student in the Teacher Education, Leadership, and Counseling department at Columbus State University. Your participation is the allowance of the researcher access to the district's archival Positive Behavior Intervention and Supports (PBIS) Self-Assessment Survey (SAS) for the 2019 through 2022 academic years. This project is being supervised by Dr. Robert Waller.

I. Purpose:

The purpose of this project is to determine differences in Positive Behavior Intervention and Supports' Self Assessment Survey and office discipline referrals (ODR) based on school type. Additionally, this project aims to determine the impact of PBIS perceptions using SAS results with ODR at each school level.

II. Procedures:

1. The school district's office professional development and the PBIS coordinator will be sent an email requesting the retrieval of secondary archival SAS results from the district's elementary, middle, and high schools. When the district approves the use of the archival SAS data and returns the signed informed consent agreeing to let the researcher use the data in the current study, the researcher will indirectly collect the secondary archival SAS data from the district's PBIS coordinator in the office of student services for three previous academic years.

2. Once the raw data is collected, the researcher will code any identifying information while performing raw data entry into SPSS, a statistical analysis software.

3. Once the raw data entry has occurred, the researcher will clean the data by removing any duplicate entries, filter unwanted outliers, and handle missing or incomplete data.

3. Once the data has been coded and cleaned in SPSS software, the researcher will create composite scores of the individual SAS factors.

4. After the creation of composite scores, the researcher will use the data to check all appropriate assumptions for the ANOVA and linear multiple regression statistical models.

5. The researcher will answer the researcher questions by running a factorial and repeated measures ANOVA to answer research questions one and two, respectively. In a second line of analysis, the researcher will run Pearson product moment correlations and linear multiple regressions to answer research questions three, four, and five.

6. The data will be encrypted and stored on the researchers personal external data drive, which will be stored in a safe at the researchers home when not in use and for a period of up to three years following project completion.

7. There is a posibility for dat to be used for future research projects.

III. Possible Risks or Discomforts:

Participation in this study poses no risks. Collection of pre-existing data anonymous SAS data from the district PBIS coordinator will be performed in a manner that is protective of any identifying district or sample information, and will take place outside of regular school hours.

IV. Potential Benefits:

There are no potential benefits for any individual involved in the study, nor is there any potential benefit for individuals whos pre-existing SAS data was used for the current study. However, the implications of this study may be used to support the implementation of the PBIS framework over time and at different school levels.

V. Costs and Compensation:

There is no cost or compensation for involvment in this study.

VI. Confidentiality:

Any identifying district information will be replaced with pseudonyms. Only the researcher and the research team will have access to the data sets. The researcher will encrypt the data using full-disk encryption, which encrypts all data on a device and only reveals the data after a password has been provided. The device (external hard drive) will be kept in a safe at the researcher's home when not in use and for a period of up to three years following project completion before being destroyed. The researcher will destroy the data by using Secure Erase software, a software that permanently and thoroughly destroy all selected data on a device.

VII. Withdrawal:

Your participation in this research study is voluntary. You may withdraw from the study at any time, and your withdrawal will not involve penalty or loss of benefits.

For additional information about this research project, you may contact the Principal Investigator, Jonathan Gross, at 478-662-7290 or gross_jonathan@columbusstate.edu. If you have questions about your rights as a research participant, you may contact Columbus State University Institutional Review Board at irb@columbusstate.edu.

I have read this informed consent form. If I had any questions, they have been answered. By signing this form, I agree to participate in this research project. [If participation is dependent upon the participant being 18 years of age or older, you must include a statement here confirming the age.]

_____	_____
Signature of Participant	Date

Appendix D

(PBIS) Self Assessment Survey
Assessing and Planning Behavior Support in Schools

Name of school _____   Date _____

District _____   State _____

Person Completing the Survey:

· Administrator	· Special Educator	· Parent/Family member
· General Educator	· Counselor	· School Psychologist
· Educational/Teacher Assistant	· Community member	· Other _____

1. Complete the survey independently.

2. Schedule 20-30 minutes to complete the survey.

3. Base your rating on your individual experiences in the school. If you do not work in classrooms, answer questions that are applicable to you.

    To assess behavior support, first evaluate the status of each system feature (i.e. *in place, partially in place, not in place*) (left hand side of survey). Next, examine each feature:

    a. "What is the current status of this feature (i.e. *in place, partially in place, not in place*)?"

    b. For those features rated as partially in place or not in place, "What is the priority for improvement for this feature (i.e., *high, medium, low*)?"

4. Return your completed survey to _____ by _____

PBIS Self-Assessment Survey version 3.0 August 2009
©2000 Sugai, Horner & Todd, Educational and Community Supports
University of Oregon

1

Revised 08/27/03
Revised 08/15/09

238

SCHOOL-WIDE SYSTEMS

Current Status			Feature	Priority for Improvement		
In Place	Partial in Place	Not in Place	**School-wide** is defined as involving all students, all staff, & all settings.	High	Med	Low
			1. A small number (e.g. 3-5) of positively & clearly stated student expectations or rules are defined.			
			2. Expected student behaviors are taught directly.			
			3. Expected student behaviors are rewarded regularly.			
			4. Problem behaviors (failure to meet expected student behaviors) are defined clearly.			
			5. Consequences for problem behaviors are defined clearly.			
			6. Distinctions between office v. classroom managed problem behaviors are clear.			
			7. Options exist to allow classroom instruction to continue when problem behavior occurs.			
			8. Procedures are in place to address emergency/dangerous situations.			
			9. A team exists for behavior support planning & problem solving.			
			10. School administrator is an active participant on the behavior support team.			
			11. Data on problem behavior patterns are collected and summarized within an on-going system.			
			12. Patterns of student problem behavior are reported to teams and faculty for active decision-making on a regular basis (e.g. monthly).			
			13. School has formal strategies for informing families about expected student behaviors at school.			
			14. Booster training activities for students are developed, modified, & conducted based on school data.			
			15. School-wide behavior support team has a budget for (a) teaching students, (b) on-going rewards, and (c) annual staff planning.			
			16. All staff are involved directly and/or indirectly			

2

e·c·s

Current Status			Feature	Priority for Improvement		
In Place	Partial in Place	Not in Place	**School-wide** is defined as involving all students, all staff, & all settings.	High	Med	Low
			in school-wide interventions.			
			17. The school team has access to on-going training and support from district personnel.			
			18. The school is required by the district to report on the social climate, discipline level or student behavior at least annually.			

Name of School _____   Date _____

e·c·s

NONCLASSROOM SETTING SYSTEMS

Current Status			Feature	Priority for Improvement		
In Place	Partial in Place	Not in Place	**Non-classroom settings** are defined as particular, times or places where supervision is emphasized (e.g., hallways, cafeteria, playground, bus).	High	Med	Low
			1. School-wide expected student behaviors apply to non-classroom settings.			
			2. School-wide expected student behaviors are taught in non-classroom settings.			
			3. Supervisors actively supervise (move, scan, & interact) students in non-classroom settings.			
			4. Rewards exist for meeting expected student behaviors in non-classroom settings.			
			5. Physical/architectural features are modified to limit (a) unsupervised settings, (b) unclear traffic patterns, and (c) inappropriate access to & exit from school grounds.			
			6. Scheduling of student movement ensures appropriate numbers of students in non-classroom spaces.			
			7. Staff receives regular opportunities for developing and improving active supervision skills.			
			8. Status of student behavior and management practices are evaluated quarterly from data.			
			9. All staff are involved directly or indirectly in management of non-classroom settings.			

Name of School _____   Date _____

CLASSROOM SYSTEMS

Current Status			Feature	Priority for Improvement		
In Place	Partial in Place	Not in Place	**Classroom settings** are defined as instructional settings in which teacher(s) supervise & teach groups of students.	High	Med	Low
			1. Expected student behavior & routines in classrooms are stated positively & defined clearly.			
			2. Problem behaviors are defined clearly.			
			3. Expected student behavior & routines in classrooms are taught directly.			
			4. Expected student behaviors are acknowledged regularly (positively reinforced) (>4 positives to 1 negative).			
			5. Problem behaviors receive consistent consequences.			
			6. Procedures for expected & problem behaviors are consistent with school-wide procedures.			
			7. Classroom-based options exist to allow classroom instruction to continue when problem behavior occurs.			
			8. Instruction & curriculum materials are matched to student ability (math, reading, language).			
			9. Students experience high rates of academic success ($\geq$ 75% correct).			
			10. Teachers have regular opportunities for access to assistance & recommendations (observation, instruction, & coaching).			
			11. Transitions between instructional & non-instructional activities are efficient & orderly.			

Name of School _____   Date _____

5

242

INDIVIDUAL STUDENT SYSTEMS

Current Status			Feature	Priority for Improvement		
In Place	Partial in Place	Not in Place	**Individual student systems** are defined as specific supports for students who engage in chronic problem behaviors (1%-7% of enrollment)	High	Med	Low
			1. Assessments are conducted regularly to identify students with chronic problem behaviors.			
			2. A simple process exists for teachers to request assistance.			
			3. A behavior support team responds promptly (within 2 working days) to students who present chronic problem behaviors.			
			4. Behavioral support team includes an individual skilled at conducting functional behavioral assessment.			
			5. Local resources are used to conduct functional assessment-based behavior support planning (~10 hrs/week/student).			
			6. Significant family &/or community members are involved when appropriate & possible.			
			7. School includes formal opportunities for families to receive training on behavioral support/positive parenting strategies.			
			8. Behavior is monitored & feedback provided regularly to the behavior support team & relevant staff.			

Name of School _____   Date _____

6

e·c·s