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Evaluating the Impact of PBIS Rewards on School Climate: A Quasi-Experimental Analysis Using Panorama Survey Data

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by

Paige Fischer Penrod

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COMMITTEE MEMBERS

Committee Chair: Toni Mild

Department Chair, Special Education

Slippery Rock University

Committee Member: Derek Long, Ed.D.

Teacher

Pittsburgh Public Schools

Committee Member: Ashlea Rineer Hershey

Doctorate Program Coordinator, Special Education

Slippery Rock University

ABSTRACT

The purpose of this quantitative, quasi-experimental study was to evaluate the impact of PBIS Rewards, a token economy platform embedded within the PBIS framework, on student and staff perceptions of school climate at an elementary school in Pennsylvania between 2018 and 2022. The problem addressed in this study was the limited evidence regarding the effectiveness of PBIS Rewards in improving student and staff perceptions of school climate. The central research questions focused on determining the extent of which PBIS Rewards affected overall perceptions of school climate, relationships and safety, student motivation and belonging, and staff perceptions of leadership and support. Data were analyzed using descriptive statistics, independent samples t-tests, and multiple regression analyses to compare pre-implementation (2018-2019) and post-implementation (2020-2022) survey results. Findings indicated that staff consistently rated leadership and support highly, while student measures of motivation and emotional regulation showed limited improvement over time. These results suggest while PBIS Rewards contributed to climate stability, it did not significantly impact deeper student social-emotional outcomes.

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Chapter 1

Introduction

According to a July 2022 report by the National Center for Education Statistics, over 80 percent of US schools reported an increase in negative behaviors and a negative impact on student socio-emotional development after the COVID-19 pandemic (National Center for Education Statistics, 2022, para. 1). In the presence of these negative behaviors, students and teachers across school systems may see their school's climate and culture negatively impacted. Given the severe increase in negative behaviors across the US, an analysis of interventions, supports, and resources and how school climates are being affected may benefit US schools. This work provides a review on the specific use of positive behavioral interventions and supports (PBIS) and token economies to look at the effects on school climate.

Special Education

According to the Purdue Online Writing Lab (2021), special education is defined as "a set of services provided to students who experience exceptional learning needs" (para. 1). These learning needs may consist of a learning disability, speech or language impairment, intellectual disability, autism spectrum disorder, or other health impairment. Learning needs may also address behavioral disorders.

Laws that Govern Special Education

In the 1970s, along with the introduction of legal mandates like the Rehabilitation Act of 1973 (Yell et.al., 1998, p. 220), policymakers and educational stakeholders noticed a need for specially designed instruction (instruction specifically designed for students with disabilities in mind) in schools for children with disabilities. There was a realization that all children were unique, and they did not necessarily learn or behave in the same ways. Upon this realization,

education and specially designed instruction for students with disabilities in public schools was making its way to the forefront of courts across the country. This was the time for change and the time for modern special education to be born. In 1975 Congress would pass the Education for All Handicapped Children Act (Public Law 94-142), or what would become Individuals with Disabilities Education Act (IDEA) the first law that protected children with individual learning needs. This law would be reauthorized throughout the 1980's, and 1990's, with the last revision occurring in 2004.

In June 1997, President Bill Clinton signed the Individuals with Disabilities Act Amendments of 1997 (Yell et al., 1998, p. 219). Kern et al. (2020) state: The IDEA includes key principles for the education of students with disabilities, ranging from where a student should be educated (e.g., Least Restrictive Environment) to the development of an Individualized Education Program (IEP) crafted by an IEP team that includes parents as equal members. The most important legal principle of the IDEA is the Free Appropriate Public Education (FAPE) mandate. FAPE supports the education of students with disabilities at no cost, ideally in their neighborhood public schools as appropriate. (p. 1)

This 1997 reauthorization also included new language not seen before, *Positive Behavior Intervention and Supports*. Today, we continue to update and revise the law as necessary to align with the constantly evolving landscape of education.

Behavioral Disorders

Behavioral disorders involve a pattern of disruptive behavior in children that affects how they function in the classroom. These behaviors often manifest as inattention, hyperactivity, impulsivity, and defiance (Better Health Channel, 2025).

In the early 1980's educational stakeholders noticed a need for more programs that focused on interventions for students with behavioral needs. "The reinstatement of the Individuals with Disabilities Education Act (IDEA) in 1997 began to address those needs through the establishment of the Center on Positive Behavioral Interventions and Supports" (Sugai et al., 2012, p. 1).

Practices used prior to PBIS

Before Positive Behavioral Interventions and Supports (PBIS) became common in schools, disciplinary practices were generally more punitive and less structured around proactive support. Some common approaches included zero-tolerance policies, reactive discipline models, behavior contracts and point systems, corporal punishment (in some places), and individualized education plans (IEPs) for behavior issues.

Zero-tolerance policies imposed strict, often mandatory punishments for a variety of rule violations, ranging from minor infractions to more serious offenses. This could lead to suspensions or expulsions, regardless of the context or individual student needs. Zero-tolerance policies gained traction in the 1990s, with federal initiatives like the *Gun-Free Schools Act* (1994), which mandated automatic expulsion for students caught with firearms. Soon, these rules applied to a lot of different offenses, often without considering the situation or how bad it was. They often resulted in suspensions, expulsions, or calls to the police (Skiba, 2000; American Psychological Association Zero Tolerance Task Force, 2008).

Schools relied more on reactive discipline models, where interventions happened after negative behavior occurred, focusing on punishment (like detention or suspension) instead of preventing the behavior.

While some schools adopted systems like behavior contracts and point systems, they were typically reserved for students with specific needs rather than applied across the entire school. Mostly used in special education, these strategies faced criticism for their lack of consistency and sometimes reinforcing negative labels (Sugai & Horner, 2002, p. 26).

Individuals with Disabilities Education Act (IDEA, 1997) required schools to make individualized plans to meet the needs of students with disabilities, but not for the whole school or to stop problems before they happen (Yell et al., 1998, P. 226-227), which is how behavioral IEPs came to be.

PBIS represented a shift away from these reactive and punitive approaches. It introduced structured, evidence-based frameworks focused on teaching and reinforcing positive behavior school-wide, creating a more inclusive, preventive, and supportive school environment.

What is PBIS (Positive Behavioral Interventions and Supports)?

PBIS (Positive Behavioral Interventions and Supports) took off in the late 1990s and early 2000s, and it continues to be implemented in over 25,000 schools across the country (Center on PBIS, 2021).

Positive Behavioral Interventions and Supports is a three-tiered framework that helps students behave by teaching them a set of good behaviors, which is also known as a behavioral matrix (Center on PBIS, 2021). This includes but is not limited to students with behavioral disorders. Therefore, both special education students and general education students can benefit from this framework.

By establishing school-wide positive expectations for students to follow, Tier 1 (Universal Prevention) addresses the majority of students' (about 80%) behaviors. These Tier 1 expectations are modeled, taught, and encouraged by staff. Tier 2 (Targeted Prevention) is used

to address some students' (between 10-15%) behaviors. Tier 2 goes deeper than Tier 1 and focuses on smaller groups of students that have a risk of developing problem behaviors. Typically, Tier 2 interventions will provide students with small group instruction that focuses on self-regulation and social skills (Center on PBIS, 2021). Lastly, Tier 3 (intensive, individualized prevention) addresses a small group of students' (1-5%) behaviors. Tier 3 is typically individual therapy sessions, where students continue to work on self-regulation and social skills. The goal of PBIS is to provide a safe and supportive school environment and improve a school's climate, making it a place where students have a desire to be instead of being required to.

Token Economies

Token economies and PBIS are often paired to support one another because the token economies reinforce the expected behaviors within the PBIS behavioral matrix. The concept of token economies has existed for centuries but entered the educational sector somewhere around the 19th century (Ivy et al., 2017). In contrast, PBIS was implemented for the first time in the 1990s. Ivy et al. (2017, p. 709) define a token economy as "a complex system of reinforcement in which some medium of exchange (i.e., a token) is used to purchase various goods, services, or privileges." Token economies have three major components in the context of education: (1) the behavior the student exhibits, (2) the token or points earned for exhibiting the desired behavior, and (3) exchanging the token for a desired reinforcing reward or preferred activity (Ackerman et al., 2020). There are many token economies used in today's classroom, some implemented and created by teachers, schools, and districts, and others that can be purchased that have specifically been made to be used in the classroom, including Class Dojo, LiveSchool, and PBIS Rewards.

PBIS Rewards

PBIS Rewards, an "automated schoolwide PBIS management system" (PBIS Rewards, 2021), is a specific digital token economy designed to help students, teachers, and staff track, redeem, and reward appropriate and positive behaviors in school (PBIS Rewards, 2021). With this digital function, teachers, students, and even parents can access the application on their phones, computers, or tablets, and it can be utilized schoolwide, with teachers having access to all students. With this program, students and teachers don't have to keep track of the points because they are logged into the system, and students can 'spend' within the online school store. Similarly to a debit card system, students have a certain number of points or 'money' earned to spend on priced items within the school store.

The program's intent is to store and track the students' data while supporting the school's PBIS framework to improve school climate by being quick, easy, and efficient. "As a prevention strategy, PBIS Rewards can help schools by providing a practical and effective way to reward and encourage students to act responsibly, show respect, and follow safety rules and guidelines" (Positive Behavioral Interventions and Supports [PBIS] Rewards, 2021, para. 13).

In January 2022, a personal interview was conducted by Paige Fischer through Microsoft Teams with Pat Heck, CEO of Motivating Systems, LLC, the creators of PBIS Rewards. Mr. Heck identified background information on how PBIS Rewards began and how it continues to grow today. Mr. Heck stated that initially version 1 of PBIS Rewards was in one school, and that school had simple identification badges with QR codes on them. Teachers could scan the QR codes to reward their students, and those students could use those points to spend in their school store. Mr. Heck continued that, from there, the company developed a digital application for teachers to download in 2015. In 2015 and into 2016 the company began selling the digital

software and application to schools around the country. When asked about what makes PBIS Rewards different Pat Heck said “while in the past, and even in some schools and districts still today they are relying on non-digital systems where students may earn some sort of physical object representing a point or token for positive behavior, these may be classroom specific, school specific, or even used district wide, but this can be difficult to manage. PBIS Rewards digital aspect helps save teachers time and can help keep both teachers and students organized”. Today approximately 3,300 schools in the United States and 25 schools in Australia are using PBIS Rewards (P. Fischer, Microsoft Teams Interview, January 7, 2022).

School Climate

School climate refers to how the teachers, students, and the community view the school. Thapa et al. (2013, p. 358) state, “School climate is based on patterns of people’s experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.” School climate can directly and indirectly impact students' social and emotional needs and behaviors, whether positive or negative. Horner, Sugai, and Anderson (2010) suggest that Positive Behavioral Interventions and Supports (PBIS) can positively impact school climate by fostering a safe, supportive, and productive environment through proactive behavioral management and the reinforcement of positive behaviors. Their research indicates that implementing PBIS can lead to reductions in problem behaviors and improvements in school climate indicators, such as student-teacher relationships and overall perceptions of school safety. In this study the researcher plans to review if PBIS can help to promote and develop a positive school climate and improve student behavior.

Problem and Purpose

The need for a school climate to be positive, welcoming, and safe is more important now than ever before, with students and staff still reeling from the effects of the COVID-19 pandemic. However, it is also important that schools design programs that are effective and implemented with fidelity.

In analyzing the data, this research intends to investigate the effects of a token economy (PBIS Rewards), paired with a school's PBIS (Positive Behavioral Intervention Supports) program, and how it affects a school climate.

It is the intent of the researcher to answer the following questions:

- How does the implementation of PBIS Rewards within a PBIS framework impact overall perceptions of school climate as measured by the Panorama Survey?
- What is the relationship between student participation in PBIS Rewards and reported levels of school safety, teacher-student relationships, and peer interactions?
- To what extent does PBIS Rewards influence student engagement, motivation, and sense of belonging in school?
- How do teachers and staff perceive the effectiveness of PBIS Rewards in reinforcing positive behavior and improving school climate?

Existing Research

Though research on PBIS paired with token economies and their effect on school climate is limited, there is little to no existing research on how a digital application like PBIS Rewards specifically affects a school's climate. The first digital PBIS rewards systems began emerging in the early 2010s, as schools increasingly adopted digital tools to enhance the Positive Behavioral Interventions and Supports (PBIS) framework. These early systems provided schools with online

platforms to manage behavior tracking, reward points, and data analysis, replacing traditional paper-based methods. PBIS Rewards is one of the earliest and most widely recognized digital PBIS platforms, launched in 2015.

While exact figures on the number of schools using PBIS Rewards are not readily available, the application has been adopted by thousands of schools nationwide as part of the broader shift to promote positive, supportive school climates and reduce disciplinary issues (PBIS Rewards, 2021).

Historically, general educational research indicates that PBIS and token economies are powerful tools. When PBIS and token economies are paired, they have a positive effect on school climate (Educational Success Expert, 2023). However, more research is needed on PBIS combined with token economies and its effects on school climate. Additional research on the PBIS Rewards software and digital application is also needed to further examine its effects on a school climate. The Literature Review section of Chapter 2 will explore existing research studies.

Significance of the problem

This research's priority of investigating whether a digital token economy (PBIS Rewards) poses a significant effect on a school climate is significant to the current body of research. More specifically investigating PBIS Rewards, due to the limited amount of peer-reviewed research on the specific program. According to the Center on PBIS (2021), there are over 25,000 schools across the country utilizing PBIS. The specific number of schools using PBIS paired with a token economy is not readily available, but tools like PBIS Rewards have been widely adopted across thousands of schools, indicating broad use in conjunction with PBIS frameworks.

Limitations of this study

Although PBIS is present in over 25,000 schools across the country, with token economies also taking place in many of those schools and PBIS Rewards in 3,300 schools, this study will only evaluate a single school, therefore limiting the size of the study. This is a small-scale study only including one school in Pennsylvania, with about 500 students and 41 teachers. This study can only establish a basis for PBIS Rewards' effects on school climate at this school. There isn't a comprehensive database tracking how many PBIS schools specifically use token economies, as schools have flexibility in customizing their PBIS frameworks. However, token economies are a common component, especially in schools serving younger students or students with special needs. While exact statistics on how many schools in the United States specifically use PBIS in combination with token economies are not readily available, some general data and trends can be concluded.

Definitions of Important Terms/Acronyms

Behavioral Disorders: "Any persistent and repetitive pattern of behavior that violates societal norms or rules, seriously impairs a person's functioning, or creates distress in others. The term is used in a very general sense to cover a wide range of disorders or syndromes" (American Psychological Association [APA], 2021).

Behavior Matrix: "...behavior matrix is a simple table that defines concise and positive expectations in various settings. It can also be used to explain classroom routines and configurations" (PBIS rewards, 2021)

"Buy-in": "acceptance of and willingness to actively support and participate in something" (Merriam-Webster, 2021).

IDEA (Individuals with Disabilities Act): The Individuals with Disabilities Education Act (IDEA) is a law that makes available a free appropriate public education to eligible children with disabilities throughout the nation and ensures special education and related services to those children (IDEA, 1997).

Morale: defined as "the level of enthusiasm, sense of purpose, or confidence in the worthiness of a goal that can affect a person's or a group's overall performance in working toward that goal, especially when under pressure" (APA, 2021).

Positive Behavioral Interventions and Supports (PBIS): A "three-tiered, research-based framework designed by each school, increasing positive and decreasing negative behavior" (PBIS Rewards, 2021).

PBIS Rewards: A digital token economy software used in tandem with a school's own PBIS framework (PBIS Rewards, 2021).

Peer Mentor: Someone who provides guidance, support, and encouragement to another person, typically in a similar age group, social context, or professional level.

Relationships: defined as "a continuing and often committed association between two or more people, as in a family, friendship, marriage, partnership, or other interpersonal link in which the participants have some degree of influence on each other's thoughts, feelings, and actions" (APA, 2021).

Teaching-Learning Process: defined as "a transformation process of knowledge from teachers to students. It is referred to as the combination of various elements within the process where an educator identifies and establishes the learning objectives, develops teaching resources, and implements the teaching and learning strategy" (Munna et al., 2021, p. 1).

School Climate: defined as "based on patterns of people's experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (Thapa et al., 2013, p. 358).

Special Education: defined as "a set of services provided to students who experience exceptional learning needs" (Purdue University, 2021).

Supports: "assist, help" (Merriam-Webster, 2021).

Token Economy: defined as "a complex system of reinforcement in which some medium of exchange (i.e., a token) is used to purchase various goods, services, or privileges" (Ivy et al., 2017, p. 709).

Summary

Positive Behavior Supports and Interventions (PBIS) was born from lawmakers and educational stakeholders noticing a need for programs that were designed to support and assist students with special education needs, and specifically students with behavioral needs. It has since evolved and has made its way into thousands of schools across the country, along with token economies. The program's evolution has coincided with a technological revolution, unleashing a plethora of software and digital applications such as PBIS Rewards to aid teachers and students in utilizing these programs.

Throughout this study we will focus on how the influence of these aspects (PBIS, token economies, and PBIS Rewards) has affected school climate by collecting data for a small-scale study at one school in Pennsylvania.

The next chapter examines existing research on PBIS, token economies, school climate, and PBIS Rewards. Chapter 2 provides a comprehensive overview of the research, delves into its historical background, and explores the impact of each of the elements on students, teachers, and

school communities. Chapter 3 dives into what the study will entail— proposed research methodologies, implementation, participants and setting, procedures, timeline, data collection, district authorization, and what the presentation of results will look like. In Chapter 4, the reader can expect to see the results of the research, and Chapter 5 will present a complete summary of all findings.

Chapter 2

Introduction

According to the National Center on Safe and Supportive Learning Environments (2021), school climate is a broad term that involves looking comprehensively at students' educational experiences. School climate is "the product of a school's attention to fostering safety; promoting a supportive academic, disciplinary, and physical environment; and encouraging and maintaining respectful, trusting, and caring relationships" (National Center on Safe and Supportive Learning Environments, 2021). Developing a positive school climate is often where Positive Behavior Intervention Supports (PBIS) can support, intervene, and help schools develop practices to continue a positive school climate. With PBIS presently implemented in over 25,000 schools across the country (Center on Positive Behavioral Interventions & Supports, 2021), it is important to understand how and why PBIS works, including how and why it is effective on overall school climate, as well as what kinds of token economies can help improve and support these types of programs.

Literature Review

School Climate

Many may wonder: 'Why is school climate so important?' A safe and supportive school climate is a direct reflection of a school's success (Charlton et al., 2021). School climate refers to how the teachers, students, and the community view the school.

School climate has many facets, including safety, academics, discipline, environment, and relationships between staff and students. Charlton et.al. (2021, p.185) refers to safety as "the absence of bullying, harassment, social aggression, substance abuse, physical aggression, and other forms of violence". Academics simply refers to the school's expectations for students and

the quality of instruction. The school climate encompasses clearly defined behavioral expectations of students, as well as models of expected behaviors from staff and adults. Discipline is handled by positive reinforcement and acknowledgment granted to students for following through with the expected behaviors after the provision of clearly defined, understandable behavior expectations. Environment simply refers to the school's physical space. Charlton et.al. (2021, p. 185) describes environment as being "…most directly related to the physical conditions at school, whereas aspects of the social environment are spread between the safety and engagement domains". Lastly, school climate refers to relationships (i.e., a mutual respect) between staff and students. The facets of school climate (e.g., safety, academics, discipline, environment, and relationships between staff and students) have a direct impact on schools' PBIS programming.

Positive Behavior Intervention and Supports

In 1997, the Individuals with Disabilities Act (IDEA), included an amendment that referenced educational settings to use "positive behavioral interventions, strategies, and supports". This was the catalyst that catapulted PBIS to where it is today.

What is Positive Behavior Intervention and Supports (PBIS)? PBIS is implemented in tens of thousands of schools across the United States and worldwide. It is a program designed to improve a school's systems, data, and practices to help students be more successful (Center on PBIS, 2021). This multifaceted program teaches staff how to eliminate problem behaviors by encouraging students to replace problem behaviors with more positive behaviors. For example, a problem behavior a student may be having is leaving the classroom when the student becomes frustrated with difficult work. The school staff would obviously like to replace this behavior with

the student not leaving the classroom, and PBIS can help assist in replacing the problem behavior by positively reinforcing the replacement behavior.

PBIS uses a tiered system approach that evaluates students based on their individual needs, degree of problem behaviors, and student background. By design, PBIS cannot be introduced and learned by staff in a single day. PBIS is a pledge that a school takes to change overall student behavior. The three-tiered system makes evident the need for a strong foundation, one of the most important aspects of PBIS. This entails providing a PBIS team that can create this initial groundwork. PBIS teams typically consist of an administrator, at least one teacher, a school counselor, and at least one parent per school building; however, these teams can differ from school to school. It is the responsibility of the PBIS team to begin the roll-out of any programs related to PBIS; including classroom behavior management professional developments, different types of token economies, and trainings focused on implementing PBIS in the classroom. The PBIS teams helps to foster these strong foundations to implement the program in their schools with fidelity. (Center on PBIS, n.d.; SchoolAI, 2025).

Three Tiers of PBIS

According to the Center on Positive Behavioral Interventions & Supports (2021), PBIS is a three-tiered framework that helps support students' behavioral needs at various levels. The three-tiered behavioral support system looks as follows:

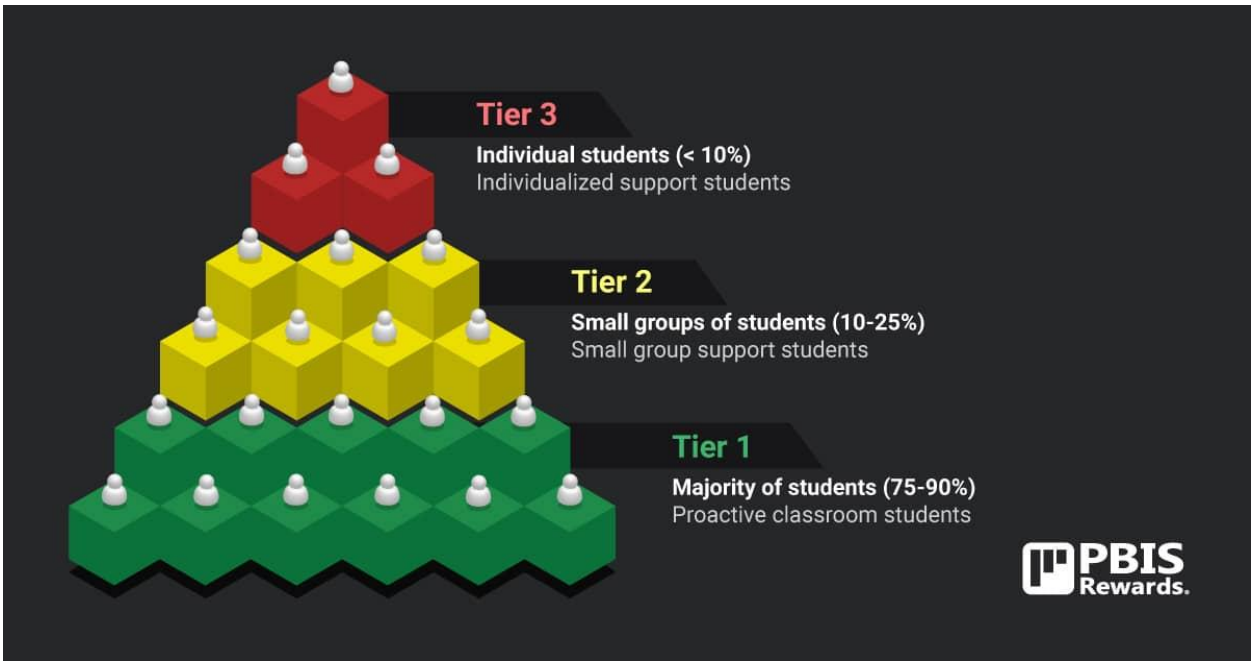
Tier 1 (Universal Support): PBIS establishes a school-wide system of expectations, focusing on proactive strategies to promote positive behavior for all students. This includes teaching, modeling, and reinforcing expectations, which helps create a safe and respectful school climate.

Tier 2 (Targeted Support): At this level, PBIS provides additional supports for students who need more than universal interventions. Targeted group interventions focus on specific behavioral challenges, like social skills training or check-in/check-out (CICO) programs.

Tier 3 (Individualized Support): PBIS incorporates individualized, intensive interventions for students with the most significant behavioral challenges, often involving personalized behavior support plans (Sugai & Horner, 2010; Center on PBIS, 2021). See Figure 2.1 below for a full example of the MTSS model, and the 3 tiers of support.

Figure 2.1

MTSS Model



Note: This figure shows the Multi-Tiered System of Supports (MTSS) three-tiered systems of support.

Figure 2.1. Image. Adapted from PBIS Rewards (2021).

Tier 1

The first tier establishes routines and practices for over 80 percent of students, known as primary and universal interventions. Schoolwide positive expectations and behaviors are defined and taught to all students; these may include, but are not limited to, being prompt and on time for school and classes, being kind to others, showing integrity in classwork, and being respectful of teachers and peers. To establish and reinforce positive expectations and behaviors in a school setting, PBIS frameworks often use clear, simple guidelines that promote consistency and clarity for all students. Here's how these school-wide expectations might look:

Be Prompt and Prepared

- Expectation: Arrive on time to school and to all classes, with the necessary materials ready.
- Example Teaching: Teachers might explain that being prompt shows respect for others' time and readiness to learn. Students practice setting up their materials quickly at the start of class.

Be Kind and Considerate

- Expectation: Treat others with kindness, helping to create a supportive environment.
- Example Teaching: During the school day, teachers could model respectful ways of communicating and recognize students for small acts of kindness throughout the week.

Show Integrity in Your Work

- Expectation: Complete assignments honestly and to the best of your ability.

- Example Teaching: Teachers discuss why integrity is crucial for personal growth, and students practice this by committing to do their own work and asking for help when needed, rather than copying.

Show Respect to Teachers, Peers, and Property

- Expectation: Listen when others are speaking, follow classroom rules, and take care of school property.
- Example Teaching: This can include role-playing respectful responses or practicing active listening in small group activities.

In a PBIS framework, these behaviors are frequently revisited, reinforced with recognition or rewards, and consistently applied across all school environments (e.g., classrooms, hallways, cafeteria). This type of structured support helps students understand expectations, builds positive habits, and promotes a welcoming school climate (Center on PBIS, 2021; Sugai & Horner, 2010).

A strong Tier 1 foundation in Positive Behavioral Interventions and Supports (PBIS) establishes clear, consistent behavioral expectations and supports that are provided to all students across school settings. Key components of a robust Tier 1 include:

Clearly Defined Expectations:

School-wide expectations (such as “Be Safe, Be Respectful, Be Responsible”) are created collaboratively and are simple, positive, and understandable for students of all ages. These expectations are then visibly posted and reinforced throughout the school (Sugai & Horner, 2010).

Teaching and Reinforcing Expected Behaviors:

Just like academic subjects, expected behaviors are taught explicitly. Teachers and staff model, practice, and discuss these behaviors with students in various settings (classrooms, hallways, cafeterias). Reinforcement comes through specific praise, recognition systems, and positive reinforcement to encourage adherence to expectations (Center on PBIS, 2021).

Consistent Consequences and Reinforcement:

Positive reinforcement (e.g., verbal praise, points, or tokens) encourages desirable behaviors, while consistent responses address minor misbehaviors. The system's consistency across all classrooms and non-classroom settings makes expectations predictable, reinforcing fairness and accountability (McIntosh & Goodman, 2016).

Data-Driven Decision-Making:

Behavioral data is gathered and analyzed regularly to identify trends and assess the effectiveness of Tier 1 supports. Office discipline referrals (ODRs) or minor behavior incidents may be tracked to monitor both individual and school-wide behavior, helping educators adjust practices to better meet student needs (Sugai et al., 2000).

Family and Community Engagement:

Engaging families and community members in PBIS helps reinforce the behavioral expectations outside of school. Communication with families about school-wide expectations and student achievements strengthens the connection between home and school, creating a supportive environment (Center on PBIS, 2021).

A Positive School Climate:

Tier 1 PBIS helps build a positive school climate where students feel safe, respected, and ready to learn. By prioritizing proactive behavior management, PBIS fosters inclusivity,

belonging, and academic engagement, contributing to overall school success (Bradshaw et al., 2012).

In essence, a strong Tier 1 provides a universal, proactive approach to behavior management, promoting positive behavior, improving school climate, and reducing behavioral issues across the board.

Tier 2

The second tier is used for a smaller portion of students (i.e., about ten percent of students typically require Tier 2 interventions). In Tier 2, students receive Tier 1 supports but benefit from more concentrated and focused guidance. Students are referred to Tier 2 supports to help target unwanted behaviors before they become more severe. “Tier 2 supports often involve group interventions with ten or more students participating. Specific Tier 2 interventions include practices such as social skills groups, self-management, and academic supports” (Center on Positive Behavioral Interventions & Supports, 2021).

A strong Tier 2 in Positive Behavioral Interventions and Supports (PBIS) provides targeted support for students who need additional help beyond the universal Tier 1 interventions. It focuses on addressing specific behaviors with structured, small-group interventions that prevent the escalation of issues. Here are the main components of a robust Tier 2 support system:

Data-Based Identification:

Students are identified for Tier 2 supports based on behavior data, teacher recommendations, or screening tools. Common indicators include attendance records, office discipline referrals (ODRs), and academic performance data. This systematic identification ensures that students receive the necessary support before behaviors escalate (McIntosh & Goodman, 2016; Sugai et al., 2010).

Targeted, Evidence-Based Interventions:

Tier 2 interventions are structured programs that provide additional guidance to small groups of students with similar needs. Common Tier 2 interventions include Check-In/Check-Out (CICO), social skills training, and self-management programs. These programs are evidence-based, meaning they have been tested and shown to be effective for improving behavior outcomes (Center on PBIS, 2021).

Consistent Progress Monitoring:

Data collection is ongoing to assess students' response to Tier 2 interventions. Progress monitoring helps ensure that interventions are effective and allows teams to make timely adjustments. Monitoring includes tracking attendance in interventions, behavioral improvements, and changes in academic engagement (Fairbanks et al., 2007).

Structured Support and Regular Feedback:

Tier 2 supports include frequent feedback and structured support to help students practice positive behaviors. For example, the CICO intervention provides students with regular check-ins with an adult mentor at the start and end of each day, promoting positive reinforcement and accountability. Consistent feedback helps students internalize and reinforce behavioral expectations (Hawken et al., 2007).

Involvement of Families and Caregivers:

Engaging families in Tier 2 interventions reinforces the behaviors being taught at school. Families can be informed about the goals of the intervention and how they can support their child's behavior at home. This involvement strengthens the consistency of the intervention across settings (McIntosh & Goodman, 2016).

Clear Pathway to Tier 3:

If Tier 2 supports are not effective, a process is in place for identifying students who may need individualized, intensive Tier 3 support. This pathway ensures that students who need more help receive it promptly, with data from Tier 2 informing their Tier 3 intervention plans (Sugai et al., 2010).

A strong Tier 2 PBIS system provides structured, small-group support based on data, incorporates frequent monitoring and feedback, and engages families to reinforce positive behaviors. This proactive approach helps prevent the need for more intensive interventions while promoting a supportive school climate.

Tier 3

Tier 3 supports are the most intensive. Tier 3 supports are typically appropriate for one to five percent of students experiencing difficulties with Tier 1 or Tier 2 supports. Tier 3 focuses more on students at the individual level and provides supports specifically designed for each student. “Tier 3 practices stem from strong foundations in Tier 1 and Tier 2 supports. With both tiers in place, schools are free to organize individualized teams to support students with more intense needs” (Center on Positive Behavioral Interventions & Supports, 2021). Some tier 3 supports may include behavior plans, more individual motivation and engagement, and getting staff and family involved to assist in motivating the student (Petrasek, M. et. Al., 2021).

A strong Tier 3 system in Positive Behavioral Interventions and Supports (PBIS) offers intensive, individualized support for students who exhibit persistent behavioral challenges despite receiving Tier 1 and Tier 2 interventions. Tier 3 focuses on tailoring interventions to each student’s specific needs through comprehensive planning and close monitoring. Key components include:

Individualized, Functional Behavior Assessment (FBA):

A thorough FBA is conducted to understand the function of a student's behavior—why the behavior occurs and what environmental factors influence it. The FBA process includes collecting data, observing behavior, and analyzing triggers and consequences to inform a tailored support plan (McIntosh & Goodman, 2016; Center on PBIS, 2021).

Comprehensive Behavior Intervention Plans (BIP):

Using FBA results, a Behavior Intervention Plan (BIP) is developed with specific strategies to address the student's unique needs. This plan includes personalized interventions, reinforcement strategies, and skills training designed to replace challenging behaviors with positive alternatives. The BIP is implemented consistently across all settings, ensuring that support is integrated within the student's entire school day (Sugai et al., 2010).

Increased Support and Monitoring:

Students in Tier 3 receive intensive support, with frequent check-ins and real-time feedback to reinforce desired behaviors. Continuous progress monitoring is essential, as it allows teams to assess the effectiveness of the intervention and make timely adjustments. Behavioral data, such as frequency and severity of incidents, is tracked closely to guide modifications to the BIP (Hawken et al., 2009).

Collaboration with a Multi-Disciplinary Team:

Tier 3 interventions involve a team of professionals, including teachers, school counselors, behavior specialists, and often family members. This collaboration ensures that all aspects of the student's needs are addressed, from academic to social-emotional support. Multi-disciplinary input helps create a comprehensive and cohesive support plan (McIntosh & Goodman, 2016).

Family and Community Involvement:

Engaging the family is critical at Tier 3. Parents and caregivers are involved in the planning and implementation of the BIP, creating consistency between school and home environments. Community resources, such as mental health services, may also be involved to address any external factors contributing to the student's behavior (Center on PBIS, 2021).

Focus on Skill-Building and Self-Regulation:

Beyond addressing problem behaviors, Tier 3 interventions often focus on teaching self-regulation and coping skills that the student can generalize to various settings. Skills such as emotional regulation, social interactions, and conflict resolution are taught to help the student gain long-term success and independence (Sugai & Horner, 2009).

Pathway for Reintegration into Tier 2:

As students make progress, Tier 3 interventions are gradually reduced, with the goal of reintegrating them into Tier 2 or Tier 1 supports as appropriate. This transition is carefully monitored to ensure the student's success is sustained, allowing them to continue benefiting from PBIS at a less intensive level (Hawken et al., 2009).

Having a strong Tier 3 system in PBIS means being data-driven, collaborative, highly individualized, with a focus on skill-building.

PBIS Implementation

One of the most important components of PBIS is implementation. Each year, educational stakeholders such as teachers, administrators, and support staff often encounter multiple programs, yet they receive minimal accompanying training. To make sure PBIS is implemented correctly and effectively, the PBIS team must ensure that teachers and other staff members that interact daily with children are well-trained in the practice. Positive Behavioral Interventions and Supports (PBIS) training for teachers focuses on equipping them with

strategies to promote positive behavior and create a supportive learning environment. This is going to entail a solid understanding of the PBIS Framework; **r**esearch indicates that a clear understanding of the PBIS framework is crucial for effective implementation (Sugai & Simonsen, 2012). There must be data collection and analysis; effective data collection is essential for monitoring progress and making informed decisions about interventions (Sugai et al., 2010). A plan for crisis prevention and management must be in place; training in de-escalation techniques is vital for managing challenging behaviors safely (Brackett et al., 2019). Ensuring fidelity in PBIS implementation is critical for achieving desired outcomes (Gage et al., 2018), and continuous professional development is important for sustaining effective PBIS practices (Lewis et al., 2015). It is crucial to the effectiveness of PBIS that they are prepared with the skill set to implement all aspects of PBIS (Scaletta et.al., 2020; Tyre et.al., 2021; Feuerborn et.al., 2016; Tillery et.al., 2010).

As with any program, often teachers, administrators, and other educational stakeholders are hesitant with the planning and implementation of new school programs; PBIS is no different. Concerns often include planning and implementation time, concerns with other staff's implementation (especially if they do not support the PBIS philosophy or do not buy into the program), lack of training, disagreement with the philosophies of PBIS, lack of support from other staff and administration, and resource availability (Feuerborn et.al., 2016; Tyre et.al., 2021; Scaletta et.al., 2020; McIntosh et.al., 2015; Tillery et.al., 2010).

Teachers, administrators, and other educational stakeholders typically feel more confident with programs when there is an evidence-based plan in place. Feurborn et al. (2016), also reported that teachers feel more convinced about PBIS programs when the following criteria are met: time for collaboration, provision of appropriate resources, a disciplined system in place,

administrator support, consistency, specific procedures, clearly defined expectations, time to develop student-teacher relationships, and implementation of an acknowledgment system.

Token Economies

Token economies are essential for any effective PBIS program. Ivy et.al. (2017, p.709) refers to a token economy as "a complex system of reinforcement in which some medium of exchange (i.e., a token) is used to purchase various goods, services, or privileges". Typically, these goods or services are not otherwise available (Ackerman et.al., 2020). As token economies relate to PBIS, 'goods' and 'rewards' may include activities, such as extra recess, technology time, a movie, homework tickets, lunch with a teacher, lunch with a principal, or tangible rewards such as a snack, stickers, toys, games, etc. Token economies are often used in relation to PBIS to acknowledge students' positive behaviors at school.

Relating School Climate to PBIS and Token Economies

There is an obvious relationship between PBIS, token economies, and positive school climate. Both PBIS and token economies are tools that help shape a positive school climate. PBIS provides the framework for behavioral expectations, and token economies offer a tangible system for reinforcing those behaviors.

There is a strong link between the climate of a school and the use of Positive Behavioral Interventions and Supports (PBIS), especially when a token economy system is added. Research involving 204,701 students across 288 middle and high schools indicates that the fidelity of PBIS implementation correlates positively with improved perceptions of school climate and reduced office discipline referrals (ODRs) (Elrod et al., 2022; Anderson, 2022). The same research concluded that the use of token economies—where students earn tokens for demonstrating positive behavior—can enhance the effectiveness of PBIS by providing immediate, tangible

rewards, contributing to a more positive school climate (Elrod et al., 2022; Anderson, 2022). Over time, schools with sustained PBIS implementation, particularly when paired with a token economy, demonstrate ongoing improvements in climate, suggesting that early positive experiences with PBIS can predict better fidelity in later years (Elrod et al., 2022; Anderson, 2022).

By using positive reinforcement strategies, such as a token economy, schools can create a climate where students feel supported, motivated, and acknowledged for their efforts (PBIS Rewards, 2021). With both PBIS and token economies, schools focus on preventing misbehavior through positive reinforcement rather than relying on punitive measures, which often contributes to a safer, more nurturing climate.

PBIS creates a structured, consistent approach to behavior management, while token economies provide specific mechanisms for rewarding positive behavior. Together, they support the creation of a positive school climate that enhances learning and promotes student well-being.

Review of Relevant Research

School Safety and PBIS paired with Token Economies

A Boolean search using PBIS AND school safety, PBIS AND token economy AND safety, PBIS AND school climate, as well as PBIS AND token economy AND school climate, was executed through ERIC, Sage Journals, Academic OneFile, and Academic Search Ultimate in June 2021.

A primary focus of PBIS is producing school environments that promote safety (Cressey et.al., 2018). According to Swain-Bradway et al. (2013) over 18,000 schools implementing PBIS reported an improved perception of overall school safety. What specific areas within PBIS paired with token economies help support school safety?

The Center on PBIS (2021) maintains that PBIS is built in a way that supports student behavior; this behavior (e.g., the lack of bullying, harassment, aggression, and violence) pertains to their safety. It is built on the idea that positive behavior can be taught and reinforced just like academic skills. The framework is designed to create an environment that encourages positive behavior, reduces negative behavior, and supports students' social and academic growth. The key components of this framework that encourage school safety include the three-tiered system of support, data driving the decision-making, teaching of expectations, positive reinforcement, consistent consequences for the problematic behaviors, focus on school climate and building relationships, family and community engagement, and professional development for staff.

Research shows that combining Positive Behavioral Interventions and Supports (PBIS) with token economies can significantly enhance perceptions of school safety among students and staff. Implementing PBIS effectively leads to improved school climate, which is closely linked to increased perceptions of safety. Schools that consistently apply PBIS strategies often report lower rates of disciplinary incidents, which contributes to a safer environment for students (Gage et al., 2018; Heiniger et al., 2022).

Token economies serve as a motivational system that rewards students for demonstrating positive behaviors. This reinforcement not only encourages students to engage in desired behaviors but also helps to create a structured and predictable environment, which is essential for feelings of safety (Heiniger et al., 2022). By providing clear expectations and immediate rewards, token economies contribute to a supportive atmosphere that can deter negative behaviors that threaten safety. The implementation of token economies within a PBIS framework has been shown to reduce problem behaviors and increase prosocial behaviors. This reduction in disruptive behaviors directly correlates with a safer school environment, as students feel more

secure when they are not exposed to negative interactions (Gage et al., 2018; Heiniger et al., 2022).

Longitudinal studies suggest that schools with sustained PBIS and token economy practices not only see immediate improvements in safety perceptions but also benefit from ongoing positive behavioral trends among students. This suggests that initial successful experiences can lead to a more comprehensive sense of safety and support within the school over time (Heiniger et al., 2022).

These findings underscore the importance of PBIS and token economies in fostering a safe and positive school environment. By reinforcing positive behaviors and creating a supportive climate, schools can enhance student well-being and safety.

School Safety and School Climate

School safety and school climate are closely interconnected concepts that significantly influence each other. School Climate refers to the overall atmosphere of a school, including the quality of interactions among students, staff, and parents, as well as the school's values, norms, and physical environment (Cohen et al., 2009). Positive school climate fosters supportive relationships and a sense of belonging. School safety encompasses both physical safety (protection from violence, bullying, and accidents) and psychological safety (freedom from fear and emotional distress) (Thapa et al., 2013).

A positive school climate contributes to enhanced feelings of safety among students. When students perceive their environment as supportive and respectful, they are more likely to feel secure, leading to better emotional and academic outcomes (Blum & Libbey, 2004). Conversely, schools with a negative climate can lead to feelings of fear and anxiety among students, which can impede learning (Thapa et al., 2013).

Research indicates that schools that promote a positive climate experience a lower rate of disciplinary issues, such as bullying and violence, thus improving overall safety (Gage et al., 2018). Effective behavioral interventions, like Positive Behavioral Interventions and Supports (PBIS), enhance both school climate and safety by creating structured environments that encourage positive behaviors (Horner et al., 2015).

The relationship between school climate and safety can create a feedback loop. A safe school environment enhances a positive climate, which in turn can lead to even greater feelings of safety. For example, when students feel safe and supported, they are more likely to engage in prosocial behaviors, further enhancing the school climate (Cohen et al., 2009; Gage et al., 2018).

Community engagement and parental involvement play crucial roles in shaping both school climate and safety. When parents and community members actively participate in school activities, it fosters a sense of collective responsibility, enhancing the overall atmosphere and safety of the school (Thapa et al., 2013).

Academics with PBIS and Token Economies

A Boolean search using PBIS AND academics, PBIS AND token economy AND academics, PBIS AND school climate, as well as PBIS AND token economy AND academics, was executed through ERIC, Sage Journals, Academic OneFile, Taylor & Francis Online, and Academic Search Ultimate in June 2021.

A basis for PBIS is to support and improve overall academic outcomes for all students (Center on PBIS, 2021). Due to the nature of PBIS (i.e., encouraging students to do their best and achieve expected and desired behaviors), it is evident that improved academics would be a desired behavior. When paired with a token economy, this could have a significant impact on a

school's overall academic outcomes. Several studies were examined to consider how PBIS may impact academics.

In a study completed by Kelm et al. (2014), researchers looked at the impact of an implemented PBIS program on academic achievement in an elementary school in Canada. Researchers examined academic achievement by analyzing scores on an achievement test. The researchers identified a positive increase in the participating schools' scores after the implementation of PBIS and greater academic achievement than the district as a whole.

Rogers (2020) wrote a dissertation exploring the effects of PBIS on academics. Rogers (2020) conducted research at a suburban middle school in California. He looked at the impact of PBIS on academics, behavior, and attendance. Rogers' (2020) findings suggested that PBIS increased overall academic achievement. "The correlations yielded statistically significant results with positive correlation coefficient values ranging from .087 to .774. The strongest positive correlation was thus between average student perceptions about their school and perceptions of PBIS implementation. This positive correlation shows that as students' perceptions of PBIS implementation increase, so do the average student's perceptions about their schools" (Rogers, 2020, p. 82).

A long-term, 9-year study was completed by Madigan et al. (2016). Madigan et. al. (2016) evaluated the association between PBIS and academic achievement. The study matched twenty-one elementary, middle, and high schools with twenty-eight control schools. The study used a quasi-experimental design in which academic gains were assessed. When compared, results indicated that schools in which PBIS had been implemented had a notable improvement in overall academic achievement.

All three studies demonstrate a positive relationship between PBIS implementation and academic achievement. They emphasize the importance of fidelity in the implementation of PBIS programs to achieve desired outcomes. Each study underscores the need for ongoing support and training for educators involved in PBIS initiatives.

However, Madigan et al. conducted a long-term evaluation over nine years, while Kelm et al. focused on a specific case study in Canada, and Rogers concentrated on middle school students with a mixed-methods approach. Rogers was the only one of the three studies that looked at equity issues in the context of PBIS. He suggested that different groups of students might benefit from the program in different ways, which was an idea that wasn't really looked into in the other two studies. While Madigan et al. and Kelm et al. primarily used quantitative data analysis, Rogers incorporated qualitative interviews to provide a deeper understanding of the student and teacher experiences with PBIS.

Discipline with PBIS and Token Economies

A Boolean search using PBIS AND discipline, PBIS AND token economy AND discipline, PBIS AND token economy AND school climate, as well as PBIS AND school climate, was executed through ERIC, Sage Journals, Academic OneFile, and Academic Search Ultimate in June 2021.

PBIS has changed how school officials, teachers, and staff view discipline and has introduced a new focus: how to modify students' behaviors and support students struggling with behavioral issues. This is in stark contrast to their former zero-tolerance policies, reactive discipline models, behavior contracts and point systems, corporal punishment, and using Individualized Education Plans (IEPs) for behavior issues.

PBIS emphasizes a preventative framework, aiming to reduce problem behaviors before they escalate. When paired with token economies, schools focus on reinforcing positive behaviors rather than merely punishing negative ones. This proactive approach encourages a more supportive school climate and reduces the need for traditional disciplinary actions, such as suspensions or expulsions (Gage et al., 2018; Simonsen et al., 2012). Gage et al. (2020) examined growing evidence that has made determinations on how PBIS can affect school suspensions. Students are only aware of what is expected of them when behavior expectations are clearly defined and reviewed. Gage et al. (2020) suggest that with PBIS programs in place, behavioral data is more efficiently collected; therefore, it is easier to track which tier should be used to intervene with a student's behavior. With great consensus, researchers within this study indicated that PBIS can have a powerful and positive impact on reducing disciplinary issues.

Flannery et al. (2014) analyzed the effects of PBIS on problem behaviors in high schools. This large-scale study of 36,653 students measured problem behaviors and fidelity of implementation between participating schools and comparison (control) schools. Researchers recruited schools and trained staff and then performed the three-year study. Over the three-year period, researchers observed a significant decline in problem behaviors in the participating schools and observed an increase in problem behaviors in the comparison schools. The study highlights that PBIS can be an effective approach for managing and reducing problem behaviors in high schools, provided it is implemented with fidelity. It reinforces the importance of school-wide consistency, data-driven strategies, and administrative support for achieving positive behavioral outcomes.

Additional studies have shown that schools implementing PBIS alongside token economies report significant decreases in office discipline referrals. By providing immediate

rewards for positive behaviors, token economies can motivate students to adhere to behavioral expectations, thereby minimizing incidents that require disciplinary measures (Horner et al., 2014; Kelm et al., 2014).

The pairing of PBIS with token economies has led to a fundamental shift in how schools handle discipline, moving towards more constructive, supportive practices that prioritize positive behavior and community building over punitive measures. This holistic approach not only improves behavioral outcomes but also fosters a healthier school environment for both students and staff.

Physical Environment and PBIS with Token Economies

A Boolean search using PBIS AND environment, PBIS AND token economy AND environment, PBIS AND token economy AND school climate, as well as PBIS AND school climate, was executed through ERIC, Sage Journals, Academic OneFile, and Academic Search Ultimate in June 2021.

PBIS emphasizes clear expectations for behavior in various school settings (e.g., classrooms, hallways, cafeterias). When token economies are implemented, schools often create organized areas for displaying behavioral expectations and the associated rewards. This structure helps students understand where and how to behave appropriately, leading to a more organized and functional physical environment (Horner et al., 2014).

Schools implementing PBIS and token economies often utilize visual supports, such as posters, charts, and signage that illustrate expected behaviors and the reward system. These visual aids enhance the physical environment by providing constant reminders of behavioral expectations, reinforcing positive behaviors, and making it easier for students to navigate their school environment effectively (Gage et al., 2018).

With token economies, schools may designate specific areas for students to redeem their tokens for rewards (e.g., a prize box or a "store" where students can trade tokens for items). Creating these spaces fosters a sense of community and excitement while encouraging positive behavior. These areas can also serve as a motivational hub for students, making the environment feel more engaging and supportive (Kelm et al., 2014).

A well-structured environment that reinforces positive behaviors can increase student engagement. When students feel supported by their physical environment—through visual cues, designated reward areas, and clear behavioral expectations—they are more likely to participate actively in classroom activities and school life (Madigan et al., 2016).

Recognizing and rewarding positive behaviors can make the overall physical environment feel more welcoming and safer. When students see that their positive actions lead to tangible rewards, they are likely to engage more positively with their surroundings. This change can lead to a reduction in negative behaviors, which often contribute to a chaotic or uncomfortable environment (Rogers, 2020).

Building Relationships with PBIS and Token Economies

A Boolean search using PBIS AND building relationships, PBIS AND token economy AND relationships, PBIS AND token economy AND school climate, as well as PBIS AND school climate, was executed through ERIC, Sage Journals, Academic OneFile, and Academic Search Ultimate in June 2021.

One of the most important facets of PBIS is its impact on relationships between school staff and their students. Though teachers have always had the ability to recognize positive behaviors, PBIS supports the activity and makes it easier to recognize students for performing specific positive behaviors.

In Petrasek's et.al. (2021) article "Enhancing motivation and engagement within a PBIS framework. Improving Schools", researchers discuss how PBIS can enhance relationships. "Educators have the opportunity to better understand students' personalized motivation, develop positive relationships that support the development of motivational systems, model healthy motivation and enthusiasm, maximize the effectiveness of external reinforcement as it is delivered, enhance social factors that facilitate motivation, and support the long-term development of an intrinsic value for learning and achieving" (Petrasek et.al., 202, p. 2). By embedding these strategies into the PBIS framework, educators can create a more engaging and motivating learning environment that supports positive student behavior and academic achievement.

A dissertation completed by Cochran (2013), assessed the impact of PBIS on perceptions of student-teacher relationships. As previously addressed, Cochran (2013) also stated that students' overall school experience is influenced by their relationships with their teachers. The researcher used the Student Teacher Relationship Scale (STRS) and the Teacher-Student Relationship Inventory to evaluate the quality of student-teacher relationships. Overall, the findings suggest that effective PBIS implementation may lead to improved perceptions of student behavior and strengthened teacher-student relationships, contributing to a more positive educational environment.

Limitations of PBIS and Token Economies Research

Although there is research on PBIS and token economies in relation to school climate, there is little understanding of how each aspect of school climate is impacted by PBIS and token economies when paired together. Even still, there is little peer-reviewed research on PBIS Rewards, specifically.

Limitations within this specific research topic also include the lack of data on PBIS impact on schools' physical environments. Multiple research studies throughout this review evaluated only a small sample size containing less than 1,000 participants and therefore cannot necessarily be generalized.

Additional research is needed in the area of PBIS when paired with token economies and their effects on school climate. Categorically, additional research is needed to determine the effectiveness of the PBIS Rewards system across a wider range of schools and with more students.

Opposing Views

While Positive Behavioral Interventions and Supports (PBIS) is widely recognized for its positive impact on school climate, some peer-reviewed studies have identified potential challenges and limitations. A study by Bradshaw et al. (2010) found that the effectiveness of PBIS is closely tied to its faithful implementation. Inconsistencies or deviations from the prescribed framework can lead to suboptimal outcomes, which may negatively impact perceptions of school climate. Research by Pitts (2017) indicated that while PBIS may have positive effects during its implementation, there might be limited residual benefits once students transition to subsequent educational levels where PBIS is not in place. This suggests that the positive impacts on school climate may not persist without continuous reinforcement.

These findings underscore the importance of consistent and faithful implementation of PBIS, as well as the need for ongoing support to maintain its positive effects on school climate.

Additionally, while most researchers would agree that PBIS has had a positive impact on school climate, they may not agree that it has had a positive impact on each area of school climate. Gage et.al. (2015) reported in their review of “Academic Achievement and School-Wide

Positive Behavior Supports" that PBIS does not affect academic achievement. "Although the potential exists, SWPBS cannot alone solve the academic achievement challenges pressuring our schools, especially at the school level" (Gage et.al., 2015, p. 207).

Wilson (2015) argues that PBIS has its limitations in regard to sociocultural values and data collection procedures. Wilson (2015, p. 92) contends that due to PBIS's top-down tiered approach, and that typically administrators and school leaders are choosing the select behaviors that students should strive towards, and the behaviors they chose may not necessarily reflect the "culture of the student body". According to a recent article written by Will (2020) for Education Week, 79.3% of educators identify as white. Therefore, Wilson asserts that, "school administrators may be more likely to select behaviors associated with their own Eurocentric culture" (Wilson, 2015, p. 92) and those behaviors may not be a direct reflection of student's cultural norms. Wilson (2015) cites a second problem: students must engage in unwanted behaviors to be placed within Tier 2 and access more mental health services. Consequently, if a student is not displaying unwanted behaviors but is still in need of mental health services, they may not receive them because mental health services are restricted to Tier 2.

Token Economy: PBIS Rewards

PBIS Rewards is an "automated schoolwide PBIS management system" (PBIS Rewards, 2021). This program is designed to make the implementation of PBIS in the classroom easier and use a token economy to acknowledge appropriate behaviors, focusing more on the positive behaviors and less on the negative (PBIS Rewards, 2021). The goal of PBIS Rewards (2021) is to simplify the implementation of PBIS and make tracking students behavior more accessible through their reporting system. In theory, this program should enable students and administrators to track, report, and reward behaviors more efficiently.

"Reinforcement and recognition of positive student behavior is planned and implemented systematically within a PBIS framework. Reinforcement refers to any stimulus that strengthens or increases the probability of a specific response" (Petrasek et.al., 2021, p.7). This is where a program that reinforces PBIS can assist.

Awarding Points

PBIS Rewards, in its design, allows for school staff to identify when students are demonstrating positive behaviors anytime and anywhere with its simple application. The program is quick and efficient and allows staff to give students immediate recognition for demonstrating positive behaviors. PBIS Rewards pairs with schools' data systems such as Classlink or Clever (digital attendance programs that track class rosters of students, staff members, and student information). The program is able to incorporate students' information, staff information, and class lists into automatically generated groups and store new and inactive students up to date. Schools that do not use digital attendance programs need to manually input information on students and staff.

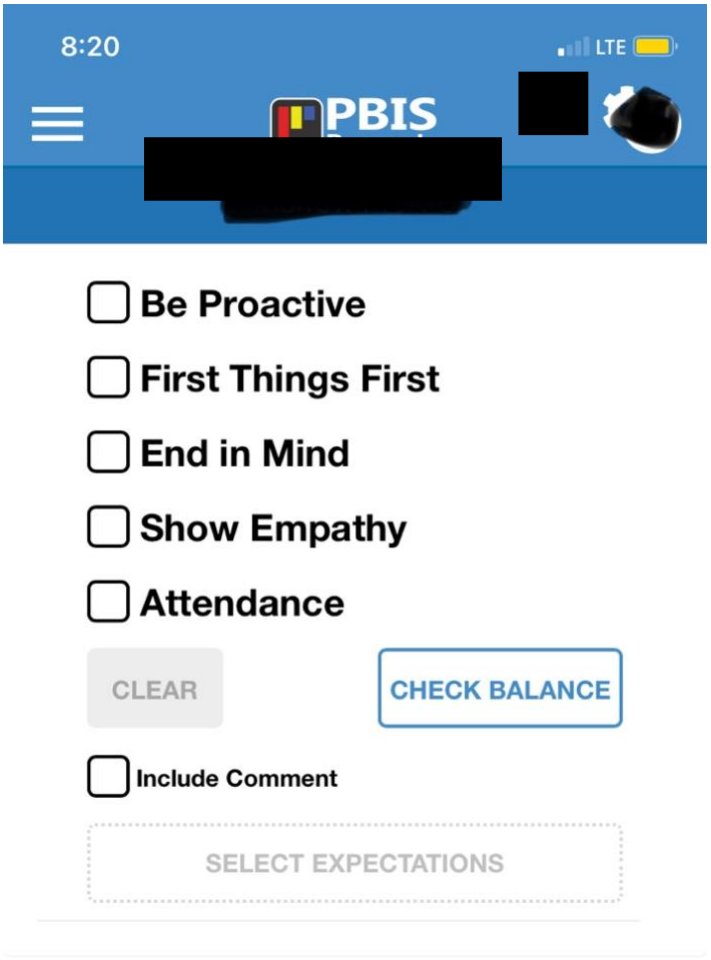
Staff can download the application to their mobile device or log in to the program's website using an internet browser. Once staff accesses PBIS Rewards, they can add specific classes to their 'My Groups/Favorites' which allows staff to easily find students to award points to. The application also has a feature that enables staff to search for any student in the school.

When it comes to awarding points, it is up to the individual schools to decide what they are awarding points for as far as their PBIS framework. Each school determines which behaviors students must exhibit to earn points. PBIS Rewards' token economy structure is designed to be paired with PBIS. Therefore, schools typically award points for behaviors associated with their specific PBIS behavioral matrix. These behavioral matrixes include three to five short but

effective expectations for students. These may include, but are not limited to, showing empathy, being kind, being proactive, being on time, having materials, being prepared, or sharing. For this particular study, the school's behavioral matrix expectations include the following within their PBIS framework: Be Proactive, Put First Things First, Begin with the End in Mind, and Show Empathy. Staff can simply select which behavior to award for, as referenced in figure 2.2 below.

Figure 2.2

PBIS Rewards Mobile Application, 2021



Note: This figure shows part of the PBIS Rewards Mobile Application, with a checklist of the school's behavioral expectations.

Figure 2.2 Image. Adapted from PBIS Rewards (2021).

Spending the Points

It is the school's responsibility to determine how students are able to spend the award points they earn. PBIS Rewards offers an optional school store, teacher store, event, and raffle. Schools have the option to "place" items within their school store and the program allows students to "shop" online or in person. If the school places items within the school store feature, they can record inventory, give the item an image, and record how many points each item is worth. Teachers are also able to run their own individual store out of their classroom, and this works the same for their store. Schools can also choose to raffle off specific items, such as school gear, or big-ticket items such as bicycles, televisions, or phones. The students purchase raffle tickets with their points for a chance to win items. The program also enables schools to hold events such as pep rallies or games and allows students to purchase tickets to the events with their points.

Tracking and Reporting

PBIS Rewards simplifies tracking and reporting in schools by using a digital platform to award and track points for positive student behaviors. Teachers, staff, and administrators can monitor individual, class, and school-wide behavior trends through real-time reports. The system includes tools like a digital store for redeeming points, event management for participation tracking, and parent communication via an app for transparency. Advanced analytics help identify behavior patterns and guide data-driven decisions to enhance PBIS implementation and school climate. This streamlined process makes recognizing and reinforcing positive behavior more efficient and effective. Through the PBIS website and PBIS Rewards application, staff can monitor each of their students by selecting the reports tab or clicking the students tab.

Summary and Looking Forward

This chapter explored the relationship between Positive Behavioral Interventions and Supports (PBIS), token economies, and their impact on school climate, safety, academics, and discipline. It examines PBIS implementation, its benefits, challenges, and the role of token economies in reinforcing positive behaviors.

PBIS uses a three-tiered system of support: Tier 1: Universal supports for all students to promote positive behavior. Tier 2: Targeted interventions for students requiring additional behavioral guidance. Tier 3: Intensive, individualized supports for students with persistent behavioral challenges.

PBIS teams, consisting of administrators, teachers, counselors, and parents, are responsible for implementing programs, offering professional development, and establishing token economies to reinforce positive behaviors.

Token economies are systems of reinforcement where students earn tokens for exhibiting positive behaviors, which they can exchange for goods, privileges, or rewards. Examples include extra recess, tangible items, or access to special events. These systems enhance the effectiveness of PBIS by providing immediate, tangible incentives for positive behavior.

School climate refers to the overall atmosphere of a school, encompassing safety, academics, discipline, environment, and relationships. PBIS plays a crucial role in fostering a positive school climate by teaching and reinforcing behavioral expectations, creating safer environments, and promoting respectful relationships among students and staff.

PBIS improves perceptions of safety by reducing problem behaviors (e.g., bullying, violence) through proactive reinforcement and structured behavioral expectations. Studies demonstrate a positive correlation between PBIS implementation and improved academic

outcomes due to reduced behavioral disruptions and increased engagement. PBIS shifts the focus from punitive measures to proactive strategies, significantly reducing disciplinary referrals and promoting a supportive environment.

PBIS fosters a well-structured physical environment through visual cues (e.g., posters) and dedicated spaces for recognizing positive behaviors, creating an organized and welcoming atmosphere. However, PBIS effectiveness relies heavily on faithful implementation and ongoing professional development. Concerns include inconsistencies in application, resource availability, and the potential misalignment of behavior expectations with students' cultural norms. Critics argue that PBIS's tiered approach may limit access to mental health services for students not exhibiting visible behavioral issues.

PBIS Rewards is a digital platform designed to streamline the implementation of PBIS. It allows staff to award, track, and report points for positive behaviors in real-time. Students can use points to purchase items, participate in events, or enter raffles, fostering motivation and engagement. The system includes advanced analytics, parent communication tools, and features to enhance data-driven decision-making.

PBIS, when paired with token economies, positively impacts school climate, safety, academics, and discipline. However, successful outcomes depend on consistent implementation, cultural sensitivity, and adequate resources. The PBIS Rewards system provides a modern, efficient way to enhance PBIS programs and support positive behavioral outcomes.

In the next chapter, we will begin exploring the methodology used to complete the study. Specifically, it will provide a generalized picture of the participating school, review research questions related to the study's hypothesis, identify procedures, and review quantitative methods used to describe the data collected.

Chapter 3

Introduction

This study uses a quantitative, almost experimental method to look at how PBIS Rewards work in a PBIS framework to change the school climate, as measured by the Panorama Survey. The study will compare pre- and post-implementation survey data and use statistical methods like t-tests and regression analysis to assess changes over time. By analyzing both existing and newly collected Panorama Survey data, this research aims to provide meaningful insights into how PBIS Rewards contributes to school climate improvement and fosters positive behavioral outcomes for students.

The research will focus on answering the following research questions:

- How does the implementation of PBIS Rewards within a PBIS framework impact overall perceptions of school climate as measured by the Panorama Survey?
- What is the relationship between student participation in PBIS Rewards and reported levels of school safety, teacher-student relationships, and peer interactions?
- To what extent does PBIS Rewards influence student engagement, motivation, and sense of belonging in school?
- How do teachers and staff perceive the effectiveness of PBIS Rewards in reinforcing positive behavior and improving school climate?

Proposed Methodology

Implementation

This study is a quantitative, quasi-experimental study designed to examine the impact of PBIS Rewards within a PBIS framework on school climate as measured by the Panorama Survey. According to the American Psychological Association (2021), quantitative research

involves the systematic collection and analysis of numerical data to understand phenomena, test hypotheses, and make predictions, and a quasi-experimental design is an empirical study that aims to evaluate the effect of an intervention or treatment on a target population without the use of random assignment.

This study will utilize quantitative measures to examine the impact of PBIS Rewards on school climate and related outcomes. Both existing and newly collected data from the Panorama Survey will be analyzed to assess student engagement, motivation, and staff perceptions of the school environment. To evaluate change over time, the study will employ a quasi-experimental, pre-post design by comparing school climate perceptions before and after the implementation of PBIS Rewards. In addition, a cross-sectional design will be incorporated to explore relationships between student participation in PBIS Rewards and various school climate factors, providing further insight into the program's effectiveness.

Quantitative measures will include the following:

A. Using existing and new Panorama Survey data to measure school climate, student engagement, motivation, and staff perceptions.
B. Compares pre- and post-implementation data to assess changes in school climate perceptions over time.

Quasi-experimental design will include the following:

A. Examining the pre- and post-implementation data, the study follows a pre-post quasi-experimental design, analyzing changes in school climate perceptions before and after PBIS Rewards implementation.

B. A cross-sectional design will be used, analyzing relationships between PBIS Rewards participation and school climate factors.

With the study following a quasi-experimental design using pre-post or cross-sectional comparisons, the analysis will focus on statistical methods that assess the impact of PBIS Rewards implementation on school climate as measured by the Panorama Survey. This study will use t-tests and regression analysis to assess the impact of PBIS Rewards implementation on school climate as measured by Panorama Survey data. Below is a breakdown of each method and how it will be applied.

Statistical analysis for this study will include both t-tests and regression analysis to evaluate the impact of PBIS Rewards on school climate. Paired and independent samples t-tests will be used to compare mean differences in school climate perceptions before and after the implementation of PBIS Rewards (pre-post design), as well as between groups of students with high versus low levels of participation in the program (cross-sectional design). These tests will help determine whether the changes observed are statistically significant.

In addition, regression analysis will be conducted to examine the predictive relationship between PBIS Rewards participation and various school climate factors. This method will allow for the control of relevant variables such as grade level, gender, and prior perceptions of school climate, providing a more precise understanding of the strength and nature of the relationship between program participation and school climate outcomes.

T-tests (Paired and Independent Samples)

A. To compare mean differences in school climate perceptions before and after PBIS Rewards implementation (pre-post design) or between students with high vs. low PBIS Rewards participation (cross-sectional design).

B. Helps determine whether the implementation of PBIS Rewards has a statistically significant effect on school climate factors.

Regression Analysis

A. To predict the effect of PBIS Rewards participation on school climate factors while controlling for other variables (e.g., grade level, gender, prior school climate perceptions).

B. Helps quantify the strength of the relationship between PBIS Rewards participation and school climate.

Justification

A true experimental design (RCT) is not feasible because students cannot be randomly assigned to PBIS Rewards vs. non-PBIS Rewards conditions. A quasi-experimental approach allows for a structured examination of how PBIS Rewards impacts school climate using real-world school data. A purely quantitative approach ensures objectivity, replicability, and generalizability of the findings.

Participants and Setting

The study will take place at an urban prekindergarten through 8th grade school in Pennsylvania with approximately 500 students enrolled (i.e., 250 male, 251 female). Approximately 83.64% of students are economically disadvantaged, and the student body is composed of 317 African Americans, 107 Caucasians, 62 multi-racial, <5 Hispanics, <5 Asians, <5 American Indians, and <5 Pacific Islanders.

In grades kindergarten through 8th grade, there are 41 teachers (i.e., 37 females, 4 males), 13 paraprofessionals (i.e., 11 females, 2 males), two interventionalists (i.e., 2 female), one learning environmental specialist (i.e., 1 female), two guidance counselors (i.e., 1 female, 1

male), one acting principal (i.e., 1 male), and two assistant principals (i.e., 2 female).The school's pre-kindergarten population will not be represented in this study as this group did not implement the PBIS Rewards program into daily learning and academics.

Data will be collected from the Panorama Survey, which is collected yearly by the school district. According to Panorama Education (2021), the Panorama Student Survey is a research-based tool designed to gather student perceptions on various aspects of their educational experience, including school climate, teaching effectiveness, and social-emotional learning. Developed through a collaboration between researchers at the Harvard Graduate School of Education and Panorama Education, the survey aims to provide educators with actionable insights to enhance student outcomes. The survey encompasses nineteen key topics, such as pedagogical effectiveness, classroom climate, student engagement, and growth mindset. It is structured into scales—groups of related questions—that allow educators to customize the survey based on the topics they consider most relevant. The Panorama survey does not survey students in grades kindergarten through 2nd grade; therefore, students in grades kindergarten through 2nd grade will not have data collected.

The Panorama Teacher and Staff Survey enables school and district leaders to gather insights into educators' professional, social, and emotional needs. This tool is intended to foster productive conversations between teachers and school leaders on topics such as well-being, professional learning, cultural competency, school leadership, and school climate (Panorama Education, 2021).

Procedures

To effectively address the research questions, this study will follow a structured data collection and analysis methodology using both Panorama Survey data and PBIS Rewards

participation records. The process begins with defining the study population, which includes all students participating in PBIS and PBIS Rewards within the selected school building. Additionally, educators and support staff involved in the implementation of PBIS, as well as school administrators responsible for overseeing school climate initiatives, will be included.

Prior to data collection, the study will secure all necessary ethical approvals, including Institutional Review Board (IRB) approval at both the school district and university levels.

Following approval, the next step involves identifying and aligning relevant Panorama Survey metrics with the research questions. Existing Panorama data will be extracted and mapped to the specific constructs needed for analysis. For example, to examine the impact of PBIS Rewards on school climate, survey constructs such as School Climate, School Safety, Engagement, and Teacher-Student Relationships will be analyzed. To explore the relationship between PBIS Rewards participation and school safety or peer interactions, constructs like Sense of Belonging and Peer Interactions will be considered. Student motivation and engagement will be assessed through indicators such as Growth Mindset and Motivation, while staff perceptions will be measured using constructs related to Leadership, Feedback, and Professional Learning.

Data collection will involve retrieving the existing 2018-2022 Panorama survey results for students, teachers, and staff. These data will be segmented by grade level, demographic variables, and PBIS participation levels to ensure robust analysis.

Quantitative data analysis will compare survey responses collected before and after the implementation of PBIS Rewards. Paired and independent samples t-tests will be used to evaluate changes in perceptions of school safety and climate over time, while regression analysis will help determine the extent to which PBIS Rewards participation predicts outcomes such as engagement, motivation, and teacher-student relationships, controlling for relevant variables.

Finally, the study will interpret and report the findings by triangulating the quantitative data to identify key trends. Specifically, the analysis will focus on whether PBIS Rewards participation is associated with improved perceptions of school climate and student motivation. The results will be summarized in a report featuring data visualizations and practical recommendations to strengthen PBIS implementation and improve school-wide practices. Below is a step-by-step breakdown of the procedures.

Step 1: Define the Study Population

A. Students: All students participating in PBIS and PBIS Rewards at this specific school building.
B. Teachers and Staff: Educators and support staff who interact with students and are responsible for PBIS implementation.
C. Administrators: School leadership responsible for overseeing PBIS and school climate.

Step 2: Obtain Permissions & Ethical Approvals

A. Institutional Review Board (IRB) Approval at the school district and University level. All data that will be acquired is existing data. Data is generalized and has no identifiable characteristics, therefore no consent from participants is required.

Step 3: Identify and Align Panorama Survey Metrics

A. Extract relevant existing Panorama Survey data.
B. Align survey constructs with research questions:

Research Question	**Relevant Panorama Survey Constructs**

Impact of PBIS Rewards on school climate	School Climate, School Safety, Engagement, Teacher-Student Relationships
Relationship between PBIS Rewards participation and school safety, peer relationships	School Safety, Teacher-Student Relationships, Sense of Belonging, Peer Interactions
Effect of PBIS Rewards on student motivation and engagement	Student Engagement, Growth Mindset, Motivation, Sense of Belonging
Teacher/staff perceptions of PBIS Rewards	Staff-Leadership Relationships, School Climate, Feedback & Coaching, Professional Learning

Step 4: Data Collection

A. Retrieve Existing Panorama Survey Data

1. Obtain most recent Panorama survey results for students, teachers, and staff.
2. Segment data by grade level, demographics, and PBIS participation.

Step 5: Data Analysis

- Quantitative Analysis
  - Compare Panorama survey responses.
  - Pre- vs. post-PBIS Rewards implementation.
- Statistical tests:
  - T-Test: Compare school safety perceptions before vs. after PBIS Rewards.

- Regression analysis: Assess the impact of PBIS Rewards on school safety, engagement, and teacher-student relationships.

Step 6: Interpretation & Reporting

1. Triangulate findings by comparing quantitative survey data.
2. Identify key trends:

a. Does PBIS Rewards participation correlate with improved perceptions of school climate?

3. Prepare a report summarizing findings with:

a. Data visualizations (charts, tables).

b. Practical recommendations for PBIS improvements.

By following these procedures, researchers can systematically analyze how PBIS Rewards affects school climate, safety, engagement, and student motivation using Panorama Survey data.

Timeline

After the acquisition of IRB approval at the school district level, as well as Slippery Rock's IRB approval, data collection will take place in the Summer (i.e., July) of the 2025 school year. Data analysis will take place immediately following (i.e., Summer of 2025).

Data Collection

Surveys

For the data collection within this study, teachers and students will fill out the Panorama survey (see Appendix B, which is a requirement by the school district. The Panorama Education Surveys are research-based surveys designed to gather feedback from students, teachers, and staff to improve school climate, teaching effectiveness, and student success. They are commonly used in K-12 schools to assess social-emotional learning (SEL), school culture, and instructional

practices. The Panorama Teacher Survey collects feedback from educators on their experiences, perceptions, and the school environment. It is designed to help schools improve teacher engagement, professional development, and overall effectiveness. The Panorama Student Survey gathers feedback from students about their learning experiences, relationships, and perceptions of their school. It helps educators understand students' social-emotional needs, engagement, and the effectiveness of school programs.

The Panorama survey is a 15 to 20-minute-long online survey; parents within this district can opt out if they do not want their child to participate. Within this school district, the Panorama is given twice a year, once in the fall and once in the spring. Only results collected in the spring of 2019, 2020, 2021, and 2022. Therefore, during district IRB approval, a formal request to collect Panorama survey data will be submitted.

Validity

The research questions and objectives were evaluated for validity through a pilot study in June 2021. The pilot study reviewed the school's Panorama data from 2020-2021 school year. Content validity was established, as the questions covered all relevant parts of the subject to be measured. The research questions were found to be valid and did not require much adjustment and therefore were adopted for data collection.

Data Analysis

Surveys

The Panorama survey has predetermined questions with fill-in-the-bubble responses. Responses will be coded by questions. Similarly, to analysis of the questionnaires, major patterns found within the surveys will be evaluated to gain a generalized understanding of participants' feelings, so that general conclusions can be made.

Coding

Since this study relies on numerical data from the Panorama Survey, the best approach to coding and analyzing the data involves assigning numerical values to categorical responses, organizing data into structured datasets, and applying statistical techniques. Below is a step-by-step breakdown of the coding process:

1. Data Preparation and Organization

A. Importing Data

a. Data will be collected from:

i. Panorama survey results (Likert-scale responses)

ii. Demographic information (e.g., grade level, gender, prior engagement)

b. The data will be compiled in an Excel spreadsheet for analysis.

2. Coding Survey Responses (Dependent Variables)

A. Coding School Climate Variables (Dependent Variables)

a. Panorama survey responses typically use Likert scales (e.g., 1-5 scale for agreement or perception). These responses will be numerically coded as:

Survey Response	Numerical Code
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

b. Example school climate measures:

i. Student Engagement Score (1-5 scale)

ii. School Safety Perception Score (1-5 scale)

iii. Teacher-student relationship score (1-5 scale)

This coding system allows for mean comparisons, t-tests, and regression analysis.

3. Statistical Analysis and Application

A. T-Tests

a. Independent t-test : compare different groups of students based on school climate perceptions.

B. Regression Analysis

a. Simple Linear Regression:

i. Examines whether certain school climate factors predict overall engagement.

b. Multiple Regression:

i. Controls for grade level, prior engagement, and gender.

Site Permission

District and School Authorization

The school district requires all researchers to make research requests to the internal review committee prior to the collection of data. Permissions will be requested to the school district, through the District's Office of Research and Evaluation, and a "Data Request" will be submitted.

Slippery Rock University also requires all students conducting research to apply with the Institutional Review Board (IRB), prior to the collection of data. According to the Slippery Rock University website (2021) students must complete the following steps to apply to the IRB:

- Determine if the project meets the definition of human subject research;
- Read through the Responsibilities of the Principal Investigator section;
- Complete the required training course on the protection of human participants in research;
- The IRB subscribes to the Collaborative Institutional Training Initiative (CITI) Online Training Program to comply with this regulation;
- Determine the level of review;
- Complete the IRB Application Form found on the Forms tab;
- Complete any necessary consent forms and/or appendices to your application;
- Submit your IRB Application Form and any other necessary appendices and documentation of CITI training to the IRB Office, 008 Old Main (Slippery Rock University Campus).

Confidentiality

The Panorama Survey results acquired from the district by researchers are entirely anonymous. The results from the survey, once given to the researchers from the district are completely generalized, and there will be no identifiable data of participants.

Presentation of Results

The findings from this study will be visually represented using a combination of charts, tables, and graphs. Results will be presented in a PowerPoint document. Each subset of data collection research and analysis will have its own combination of charts, tables, and graphs. This presentation will be represented within Chapter 4 of this review.

Limitations

The current study is limited due to multiple factors. Although the case study will be representing approximately 300 students and 41 teachers, it only represents one school's findings. Therefore, this should be considered a small-scale study, and findings may not be generalized.

This study follows a quasi-experimental design, meaning participants are not randomly assigned to control and experimental conditions. In addition, due to the novelty of the PBIS Rewards program, little peer-reviewed research currently exists about the program's effectiveness on school climate.

This study is also dependent on Panorama Survey responses, which are self-reported measures of student engagement, school safety, and teacher-student relationships. Students and teachers may respond in ways they think are expected rather than providing fully honest answers. Additionally, other school-wide initiatives, external factors, or prior experiences could influence the school climate outcomes measured in the study. The Panorama Survey is also a standardized tool designed to measure perceptions, but it may not capture all nuances of school climate. School climate is a complex, multi-faceted construct, and using only survey-based metrics may oversimplify how PBIS influences school climate.

Summary

The current study intends to investigate the effects of the newly implemented PBIS Rewards program, paired with the participating school's already implemented PBIS program, on the school's climate. This study will be qualitative in nature and use a grounded theory approach to code categories and build a theory. Data will be collected using the Panorama survey. Data will be analyzed and coded according to generalized patterns of participants' feelings. Before

data collection begins, the school district's Interval Review Committee and Slippery Rock University's IRB will need to approve all aspects of the research.

In the next chapter, the research begins to examine the results of the data collection and delve further into what the data represents.

Chapter 4

Introduction

This chapter presents the results of quantitative analyses examining the impact of PBIS Rewards on school climate, safety, student engagement, and staff perceptions at an elementary school in Pennsylvania between 2018-2022. Across the 2018–2022 survey period, participation in the Panorama School Climate and Social-Emotional Learning surveys remained consistently strong among both students and staff. Student participation was particularly robust, averaging 140-160 respondents per survey administration, providing a reliable representation of the school community. The 3–5 student cohort ranged from 117 to 176 participants per survey, while the 6–8 student cohort ranged from 87 to 163 participants. The highest levels of participation occurred in Fall 2018 and Spring 2019, when 176 and 170 elementary students, respectively, completed the survey. These initial years reflect strong engagement and reliable baseline data.

Participation among staff remained steady as well. Teacher response rates ranged from 45 to 49 participants each spring, providing a stable, representative voice of instructional staff across years. Paraprofessionals, while a smaller group, consistently contributed between six and eight responses each year, adding valuable perspectives to the overall climate analysis. Although the paraprofessional sample is small, its consistency provides meaningful qualitative insight into school culture and perceptions of support.

A notable dip in participation occurred during the 2020–2021 school year, coinciding with the COVID-19 pandemic and the disruptions caused by remote and hybrid learning. Student participation decreased to 128 (grades 3–5) and 103 (grades 6–8) in Fall 2020, and then again to 117 and 87, respectively, in Spring 2021. These declines mirror national trends in reduced

engagement during periods of remote instruction. However, by Spring 2022, participation levels nearly returned to pre-pandemic norms, with 161 younger students and 117 middle-grade students completing the survey, suggesting improved stability and re-engagement among students.

Overall, the dataset demonstrates strong and consistent participation across five years and multiple stakeholder groups. With total respondents often exceeding 250–300 individuals per survey administration, the sample is sufficiently robust to support meaningful statistical analysis. The consistency of teacher and student participation across time enhances comparability between years, while the inclusion of paraprofessionals enriches the triangulation of perspectives on school climate and social-emotional learning. Given this breadth and stability of participation, the following statistical analyses can be interpreted with confidence in their reliability and representativeness.

Results are organized by research question and presented using multiple levels of statistical analysis, including descriptive statistics, inferential tests, and visualizations to illustrate key findings. Descriptive statistics summarize the overall patterns in the data—such as means, standard deviations, and percentage changes—allowing the reader to understand general trends before deeper analyses are introduced. Inferential tests, including t-tests and regression analyses, were then used to determine whether the observed differences between groups or time periods were statistically significant and not due to chance. Finally, visualizations, such as charts and graphs, were incorporated to provide a clear, accessible representation of these quantitative results and to highlight patterns across implementation years and participant groups.

For reference, the results in this chapter are organized according to the following research questions:

RQ1: What is the impact of PBIS Rewards on overall perceptions of school climate?

RQ2: How does PBIS Rewards relate to perceptions of school safety, teacher–student relationships, and peer interactions?

RQ3: What is the effect of PBIS Rewards on student motivation, engagement, and sense of belonging?

RQ4: How do teachers and paraprofessionals perceive the effectiveness of PBIS Rewards on school climate?

The data were analyzed using a series of descriptive and inferential statistical techniques to examine the impact of PBIS Rewards on student and staff perceptions of school climate. First, descriptive statistics, including means and standard deviations, were computed for each Panorama construct across pre-implementation (2018–2019) and post-implementation (2020–2022) periods. These statistics provided a foundational understanding of central tendency—that is, the average or most typical response within each group—and variability, which reflects the degree of spread or consistency in participants' responses. In this context, measures of central tendency (e.g., the mean) indicate the general level of agreement or perception for each construct (e.g., Growth Mindset, Social Awareness), while measures of variability (e.g., the standard deviation) show how much participants' views differ within each group. Together, these descriptive statistics helped establish whether participants' perceptions were relatively uniform or widely dispersed before and after PBIS Rewards implementation. To assess whether differences between the pre- and post-implementation periods were statistically significant, independent-samples t-tests were conducted for each construct. This allowed testing of mean differences across time while accounting for differences in group sizes, with effect sizes

quantified using Cohen's d to assess the magnitude of change between pre- and post-implementation groups. Cohen's d provides a standardized measure of how substantial the observed difference is—beyond simply determining whether it is statistically significant—by expressing the mean difference in terms of standard deviation units. In addition, multiple regression analysis was used to explore predictors of student motivation, specifically Growth Mindset. Multiple regression is a statistical technique that examines how two or more independent variables jointly predict a single dependent variable. This study allowed for the assessment of how grade level, gender, and implementation period (pre vs. post) each contributed to variations in Growth Mindset scores, while controlling for the influence of the other factors. This method helps identify which variables have the strongest relationship with student motivation and whether changes in Growth Mindset can be meaningfully attributed to the implementation of PBIS Rewards. Collectively, this analytic strategy allowed for both general comparisons of pre- and post-implementation climate perceptions and a more nuanced understanding of the factors influencing student motivation.

Research Questions

Research Question 1

RQ1: What is the impact of PBIS Rewards on overall perceptions of school climate? To address this question, student constructs including Growth Mindset, Self-Efficacy, Self-Management, Social Awareness, Grit, and general school climate items were analyzed across semesters. Table 4.1 presents descriptive statistics by construct and year.

Research Question 2

RQ2: How does PBIS Rewards relate to perceptions of school safety, teacher–student relationships, and peer interactions? The construct of Supportive Relationships was used as a

proxy for interpersonal dynamics. These perceptions are reflected within the Social Awareness construct shown in Table 4.1. Results indicate consistently high ratings of relationships across semesters (73–84%), with no statistically significant changes following PBIS Rewards implementation.

Table 4.1

Descriptive Statistics by Construct and Year

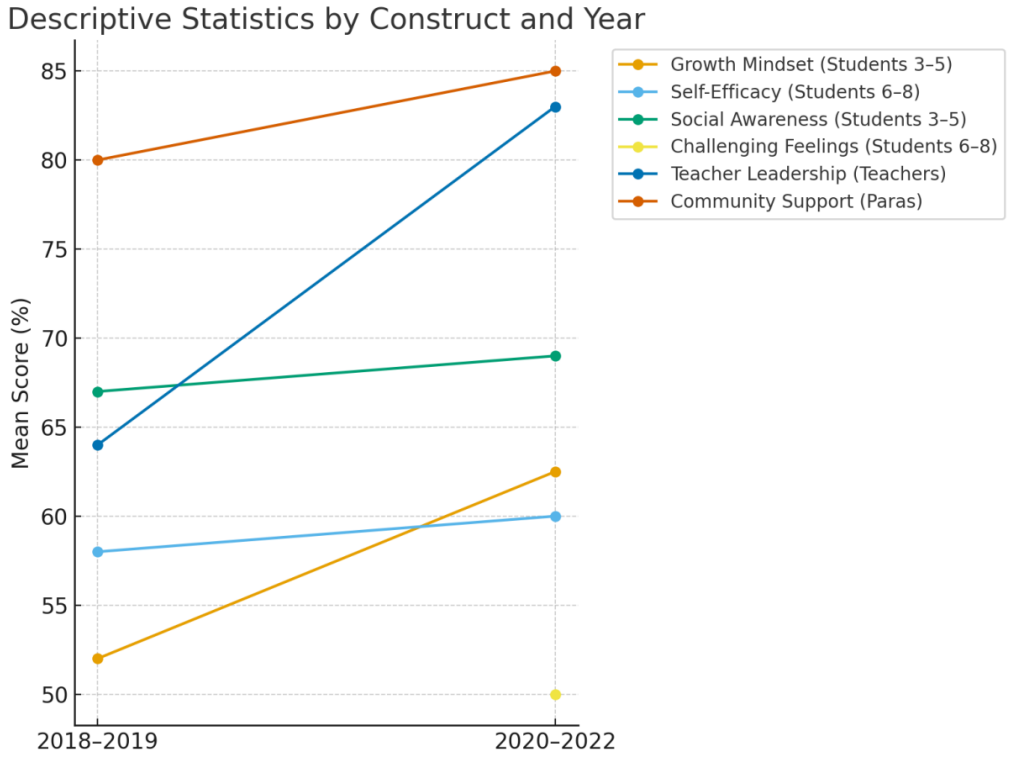
Construct	Group	2018-2019 (M, SD)	2020-2022 (M, SD)
Growth Mindset	Students 3-5	52.0 (4.5)	62.5 (3.8)
Self-Efficacy	Students 6-8	58.0 (5.2)	60.0 (4.7)
Social Awareness	Students 3-5	67.0 (6.0)	69.0 (5.5)
Challenging Feelings	Students 6-8	__	50.0 (4.0)
Teacher Leadership	Teachers	64.0 (5.8)	83.0 (4.9)
Community Support	Paraprofessionals	80.0 (4.2)	85.0 (3.6)

Note. M = mean; SD = standard deviation. Pre-implementation years = 2018–2019; Post-implementation years = 2020–2022.

Research Question 3

RQ3: What is the effect of PBIS Rewards on student motivation, engagement, and sense of belonging? Constructs analyzed included Growth Mindset, Grit, Self-Efficacy, Learning Strategies, Emotion Regulation, and Challenging Feelings. Growth Mindset rose from 52% in 2019 to 63% in 2019–2020 but plateaued thereafter. Challenging Feelings remained low (50–55%) across the post-implementation period, indicating ongoing difficulty with emotional regulation and belonging. Figure 4.1 illustrates these trends.

Figure 4.1



Note: This figure shows the results from Table 4.1 in a visual chart. This chart displays mean pre- and post-implementation scores for each construct. The chart illustrates both the stability and gaps across constructs.

Research Question 4

RQ4: How do teachers and paraprofessionals perceive the effectiveness of PBIS Rewards on school climate? Teacher and paraprofessional responses indicated consistently strong perceptions of leadership and community support. Teacher Leadership rose from 64% in 2019 to 89% in 2021, then stabilized at 77% in 2022. Community Support remained stable at 80–85%. Figures 4.2 and 4.3 present staff-student comparisons and a focused look at students' emotional

regulation challenges. Figures 4.2 and 4.3 visually complement the statistical results presented in Tables 4.2 and 4.3 by illustrating how PBIS Rewards affected both staff and student perceptions of school climate constructs. The visual representation in Figure 4.2 provides an immediate understanding of the direction and relative strength of the predictors, highlighting where meaningful differences occurred across demographic variables. This visualization of Figure 4.3 emphasizes that the most meaningful impacts of PBIS Rewards were observed among staff leadership and elementary-level student motivation, rather than across all groups equally.

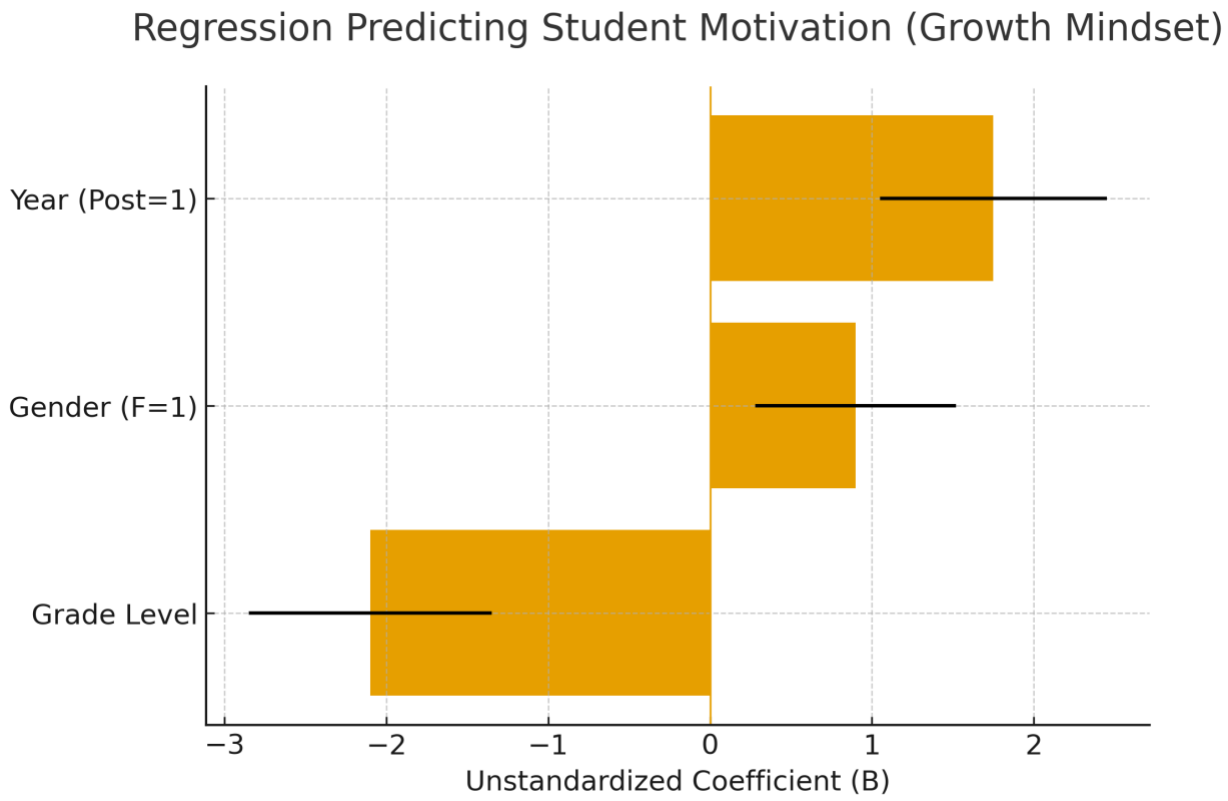
Table 4.2

Regression Predicting Student Motivation Constructs

Predictor	B	SE	β	t	p
Grade Level	-2.1	0.75	-.29	-2.8	.007**
Gender (F=1)	0.9	0.62	.12	1.45	.152
Year (Post=1)	1.75	0.7	.25	2.49	.015*

Note. DV = Growth Mindset composite. Adjusted $R^2 = .21$, $F(3, 120) = 11.34$, $p < .001$.

Figure 4.2



Note: This figure shows the results from table 4.2 in a visual chart. This regression results chart illustrates predictors of Growth Mindset.

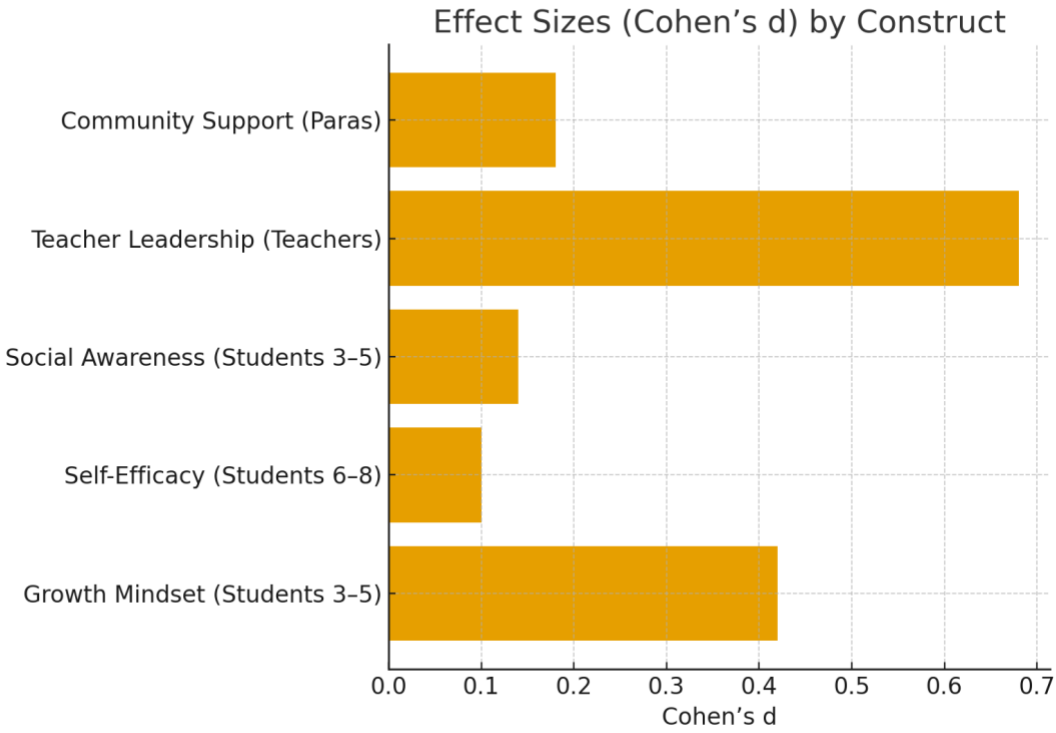
Table 4.3

Independent Samples t-Tests (Pre vs. Post Implementation)

Construct	Group	t(df)	p	Cohen's d
Growth Mindset	Students 3-5	2.15 (85)	.034*	0.42
Self-Efficacy	Students 6-8	0.76 (90)	.448	0.10
Social Awareness	Students 3-5	0.98 (77)	.331	0.14
Teacher Leadership	Teachers	3.27 (42)	.002**	0.68
Community Support	Paraprofessionals	1.02 (39)	.314	0.18

Note. Results represent independent-samples t-tests comparing pre-implementation (2018–2019) and post-implementation (2020–2022) mean scores for each construct. Positive t values indicate higher post-implementation means. Cohen's d values represent standardized effect sizes, where 0.20 = small, 0.50 = medium, and 0.80 = large effects. $p < .05$ (*) indicates statistical significance at the 5% level; $p < .01$ (**) indicates statistical significance at the 1% level.

Figure 4.3



Note: This figure shows the results from table 4.3 in a visual chart. This horizontal bar chart shows the magnitude of pre- and post-differences across constructs.

Summary of Results

This chapter presented the results of the quantitative analyses examining the impact of PBIS Rewards on school climate, as measured by Panorama survey constructs. Data were analyzed across pre-implementation (2018–2019) and post-implementation (2020–2022) periods, organized by research question.

Descriptive statistics provided an overview of changes in mean scores across student, teacher, and paraprofessional groups. Findings showed measurable increases in Growth Mindset and Teacher Leadership, while Self-Efficacy, Social Awareness, and Community Support remained relatively stable. Independent-samples t-tests identified statistically significant

differences for Growth Mindset and Teacher Leadership, indicating improvement following PBIS Rewards implementation.

Regression analysis was conducted to explore predictors of student motivation, with Growth Mindset serving as the dependent variable. Results indicated that grade level and implementation period were significant predictors, suggesting variation in student motivation across age groups and over time.

Visual representations, including Figures 4.1 through 4.3, illustrated changes across constructs and compared pre- and post-implementation data. These figures highlighted both the magnitude of the changes and the relationships between the predictor variables and the outcome measures.

Overall, Chapter 4 summarized the statistical results for each research question and laid the quantitative foundation for interpretation. The next chapter, Chapter 5, will provide a detailed discussion of these findings, connecting them to the existing literature, theoretical framework, and implications for practice.

Chapter 5

Introduction

The purpose of this study was to evaluate the impact of PBIS Rewards on school climate, safety, engagement, and staff perceptions at a Pennsylvania school from 2018 through 2022. Using Panorama survey data, this study investigated whether PBIS Rewards produced measurable changes in students' social-emotional learning (SEL) competencies and school climate perceptions, and how those perceptions compared with those of teachers and paraprofessionals.

Summary

Analyses and Findings Research Question 1

The descriptive analysis in Table 4.1 indicated measurable improvements in Growth Mindset, Self-Efficacy, and Social Awareness following the implementation of PBIS Rewards. These findings suggest that students experienced more positive perceptions of school climate, but the gains were moderate rather than substantial. The descriptive analysis in Table 4.1 showed notable improvements in Growth Mindset, Self-Efficacy, and Social Awareness following the implementation of PBIS Rewards. Mean scores for Growth Mindset increased from 52.0 (SD = 4.5) in 2018–2019 to 62.5 (SD = 3.8) in 2020–2022, a 10.5-point rise with a moderate effect size (d = 0.42). Self-Efficacy rose slightly from 58.0 (SD = 5.2) to 60.0 (SD = 4.7), and Social Awareness went up from 67.0 (SD = 6.0) to 69.0 (SD = 5.5); both changes had small effect sizes (d = 0.10 and 0.14, respectively). These findings suggest students felt somewhat more positive about the school climate after PBIS Rewards. However, the improvements were modest rather than significant, showing that perceived benefits were meaningful but limited in scope across the different areas.

This pattern may reflect PBIS Rewards' primary focus on reinforcing observable behaviors, which might not fully capture more profound changes in motivation or sense of belonging. For example, while Growth Mindset scores increased by 10.5 points (from M = 52.0 to M = 62.5, SD = 4.5–3.8), showing a moderate effect size (d = 0.42), Self-Efficacy and Social Awareness showed only minor gains of about two points each (d = 0.10 and d = 0.14, respectively). These modest improvements suggest that although students reported slightly higher engagement and more positive attitudes after PBIS Rewards implementation, the changes were not significant enough to indicate deep internalized change. External factors, notably the COVID-19 pandemic, may also have influenced the consistency of students' perceptions of connectedness and safety during the post-implementation period. Recent studies have shown that pandemic-related school disruptions altered students' experiences of belonging, safety, and emotional connection with teachers and peers. Adolescents who reported lower connectedness before the pandemic exhibited greater declines in well-being and perceptions of school safety during remote and hybrid instruction (Widnall et al., 2022). Similarly, Bryce et al. (2022) found that interruptions to daily routines and peer interactions weakened students' perceptions of support and hope during remote learning. These relational disruptions extended to educators as well—teachers and staff reported lower relational engagement and self-efficacy, which likely shaped how students perceived emotional safety at school (Yang et al., 2021). A descriptive analysis from the U.S. Department of Education (2021) further confirmed modest but inconsistent changes in school-climate ratings during the pandemic, suggesting that fluctuating instructional formats and uncertainty may have contributed to variability in student perceptions. Taken together, these contextual factors likely explain some of the moderate rather than substantial shifts observed in student outcomes during the PBIS Rewards implementation period.

Research question 1 asked: What is the impact of PBIS Rewards on overall perceptions of school climate? To address this question, student constructs including Growth Mindset, Self-Efficacy, Self-Management, Social Awareness, Grit, and general school climate items were analyzed through the Panorama Survey across semesters. These constructs collectively measure student social and emotional learning competencies, engagement, and climate perceptions over time. Comparing pre- (2018–2019) vs. post-implementation (2020–2022) allowed for an analysis of school climate shifts. Findings indicated that student perceptions of overall school climate constructs, including Growth Mindset, Self-Efficacy, Self-Management, Social Awareness, and Grit remained in the moderate range (50-70%) throughout the study period. While Growth Mindset showed a temporary increase between 2019 and 2020, overall climate scores plateaued. These findings suggest the PBIS Rewards may have had limited long-term impact on students' perceptions of school climate.

Analyses and Findings Research Question 2

Research Question 2 examined the relationship between PBIS Rewards and perceptions of school safety, teacher–student relationships, and peer interactions. These areas are reflected within the Panorama construct of Social Awareness, which captures empathy, respect, and relationship quality. The results in Table 4.1 showed relatively stable ratings across both pre- and post-implementation periods, suggesting that PBIS Rewards helped maintain, but not significantly enhance, perceptions of safety and relationships. This finding implies that relational climate may rely more heavily on interpersonal consistency and communication than on extrinsic recognition systems alone. Schools may therefore consider embedding structured opportunities for dialogue, peer collaboration, and reflection into PBIS frameworks to strengthen social connectedness and belonging (Allen et al., 2018; McCabe, 2024).

Research Question 2 asked: How does PBIS Rewards relate to perceptions of school safety, teacher–student relationships, and peer interactions? The Supportive Relationships construct was used as a proxy for interpersonal dynamics. In this context, interpersonal dynamics refer to the patterns of interaction, communication, and connectedness that develop among individuals within the school environment—specifically how students relate to teachers and peers, how they perceive emotional support, and how safe and included they feel in daily interactions. The results provided data on these relationship-based aspects of school climate, capturing how safe and connected students felt. While "safety" was not explicitly labeled as a construct in the Panorama survey, related dimensions, such as relationships and social awareness, served as validated proxies. Results indicated consistently high ratings of relationships across semesters (73–84%), with no statistically significant changes following PBIS Rewards implementation.

Analyses and Findings Research Question 3

The regression analysis in Table 4.2 explored how PBIS Rewards participation related to student motivation, engagement, and sense of belonging, with Growth Mindset serving as the outcome variable. Results indicated that grade level was a significant negative predictor, with older students reporting lower motivation and engagement scores. Conversely, the post-implementation year was a significant positive predictor, demonstrating moderate gains in motivation following PBIS Rewards adoption. These findings align with previous research showing that Tier-1 PBIS and token-economy strategies have strong effects in elementary settings. Still, results tend to be more mixed or depend on implementation in secondary schools. A large randomized trial involving 37 elementary schools found significant PBIS effects on behavior and self-regulation, including reductions in aggressive behavior and better emotion

regulation (Bradshaw et al., 2012). In contrast, studies in high schools report smaller or fidelity-dependent effects (Flannery et al., 2014). Meta-analyses and systematic reviews of token economies also show significant effects in K–5 classrooms, supporting the idea that reinforcement-based systems are most effective with younger students (Kim et al., 2022; Maggin et al., 2011). Additional motivational research indicates that as students grow into adolescence, conditions that support autonomy—those encouraging choice, relevance, and self-determination—become increasingly important for maintaining engagement (Ryan & Deci, 2000, 2020). These developmental changes explain why PBIS strategies in middle and high schools may need to rely less on tangible rewards and more on intrinsic motivators that foster student ownership and internalized behavior regulation.

Research question 3 asked: What is the effect of PBIS Rewards on student motivation, engagement, and sense of belonging? Constructs analyzed included Growth Mindset, Self-Efficacy, Grit, Learning Strategies, Emotion Regulation, and Challenging Feelings. Growth Mindset rose from 52% in 2019 to 63% in 2019-2020 but plateaued thereafter. Challenging Feelings remained low (50-55%) across the post-implementation period, indicating ongoing difficulty with emotional regulation and belonging.

Analyses and Findings Research Question 4

Research Question 4 investigated teacher and paraprofessional perceptions of PBIS Rewards' effectiveness in improving school climate. As illustrated in Table 4.3, both Teacher Leadership and Community Support constructs improved post-implementation. Teacher Leadership showed a statistically significant increase ($p < .01$), reflecting stronger staff collaboration and collective efficacy. These results suggest that PBIS Rewards can serve as a unifying structure that enhances professional cohesion and shared accountability.

Paraprofessional ratings improved slightly but less dramatically, perhaps due to limited participation in data review or decision-making processes. Future training and PBIS team structures should intentionally include all staff to ensure consistent implementation and equitable engagement.

Research question 4 asked: How do teachers and paraprofessionals perceive the effectiveness of PBIS Rewards on school climate? Teacher and paraprofessional responses indicated consistently strong perceptions of leadership and community support. Teacher Leadership rose from 64% in 2019 to 89% in 2021, then stabilized at 77% in 2022. Community Support remained stable at 80-85%.

Interpretation of Findings

These results align with prior research suggesting that token economies and PBIS frameworks can improve surface-level behavior and engagement (Ivy et al., 2017) but may have limited impact on deeper constructs of belonging, motivation, and emotional regulation (Kelm et al., 2014; Madigan et al., 2016). The gap between staff and student perceptions is consistent with Flannery et al. (2013), who found that staff often perceive PBIS implementation as more effective than students report experiencing. While PBIS Rewards appears to reinforce behavioral consistency and stability, it may not address independently critical issues such as student mental health, coping strategies, or intrinsic motivation.

Implications

The results suggest that PBIS Rewards is most effective when it is supported by strong social-emotional learning (SEL) initiatives. Schools could strengthen PBIS implementation by integrating lessons and activities that help students build coping skills, regulate emotions, and develop a stronger sense of belonging. This finding also points to a gap between how staff and

students perceive school climate, emphasizing the need for more open dialogue. Facilitating structured discussions and incorporating student perspectives into PBIS planning can help bridge that gap and make the program more meaningful for all stakeholders. Additionally, older students reported lower levels of engagement and SEL-related perceptions, suggesting that middle schools may need to adapt PBIS approaches to focus more on autonomy, peer influence, and intrinsic motivation. Finally, using data for continuous improvement is key; schools should review Panorama results each year to identify areas, such as emotional regulation or challenging feelings, that need further support. This data-driven approach allows PBIS implementation to evolve beyond basic reward systems toward a more comprehensive model that supports lasting behavioral and emotional growth.

Limitations

This study relied on schoolwide pre-post analysis without individual-level tracking, limiting causal inference. Some constructs were measured indirectly (e.g., safety inferred from relationships). Additionally, OCR extraction introduced minor data reliability concerns, though trends were validated through consistency across semesters.

Recommendations for further research

Future research should conduct longitudinal tracking of individual students to assess within-student growth under PBIS Rewards. It should also explore mixed methods designs (quantitative surveys and qualitative focus groups) to capture the student's voice. Researchers should also compare PBIS Rewards schools with those using alternative SEL/behavior frameworks, and investigate differential effects by grade level, gender, and other demographics to refine implementation strategies.

Conclusions

Overall, the results demonstrate that PBIS Rewards contributes to positive behavioral consistency and a more cohesive school culture, though its effects on deeper emotional constructs are more limited. This reinforces theoretical perspectives within PBIS literature, suggesting that SEL (social and emotional learning) and relational strategies must complement external reinforcement to achieve holistic improvements in school climate. Differences between elementary and middle-grade outcomes further highlight the importance of developmental adaptation. Future research should explore longitudinal models to assess sustained outcomes and qualitative studies to capture staff and student perspectives on motivation, belonging, and climate over time.

This study demonstrated that PBIS Rewards provided consistency and stability in school climate perceptions but did not produce significant long-term improvements in student SEL constructs. Staff viewed leadership and climate positively, while students continued to struggle with emotional regulation and belonging. These findings highlight the importance of supplementing PBIS Rewards with targeted SEL (social and emotional learning), and mental health supports to address the deeper social-emotional needs of students.

In conclusion, the expanded analyses presented in Chapters 4 and 5 demonstrate that PBIS Rewards can be a valuable component of a multi-tiered support system when implemented with fidelity and complemented by SEL programming. By continuously integrating data, promoting student voice, and engaging all staff in collaborative reflection, schools can sustain and expand the positive outcomes achieved through PBIS frameworks.

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APPENDIX A: LETTER OF APPROVAL

Jennifer Jacobs
Director of Research & Evaluation
341 South Bellefield Avenue
Pittsburgh, PA 15213

jjacobs2@pghschools.org
412-529-3741

April 1, 2025

Paige Fischer Penrod
Slippery Rock University
1 Morrow Way
Slippery Rock, PA 16057
plf0318@sru.edu

Dear Paige Fischer Penrod,

The Pittsburgh Public Schools' Data Governance and Research Review Board has reviewed your data request for your research, *Did the implementation of the school's PBIS program make a positive change on the school's climate*. Your data request has been approved as of May 1, 2024.

We wish you the best in your research.

Any major modifications to the data request or approval timeline must be forwarded to the Data Governance and Research Review Board for separate approval.

Please reach out with any specific question or clarifications. I look forward to hearing from you. Thank you for your interest in working with the Pittsburgh Public Schools.

Sincerely,

Jennifer Jacobs

cc: DREA

APPENDIX B: SURVEYS

Due to the sheer size of the surveys, they have been linked to this dissertation. Below are the links to both the samples of the Panorama Teacher and Staff Survey and the Panorama Student Survey.

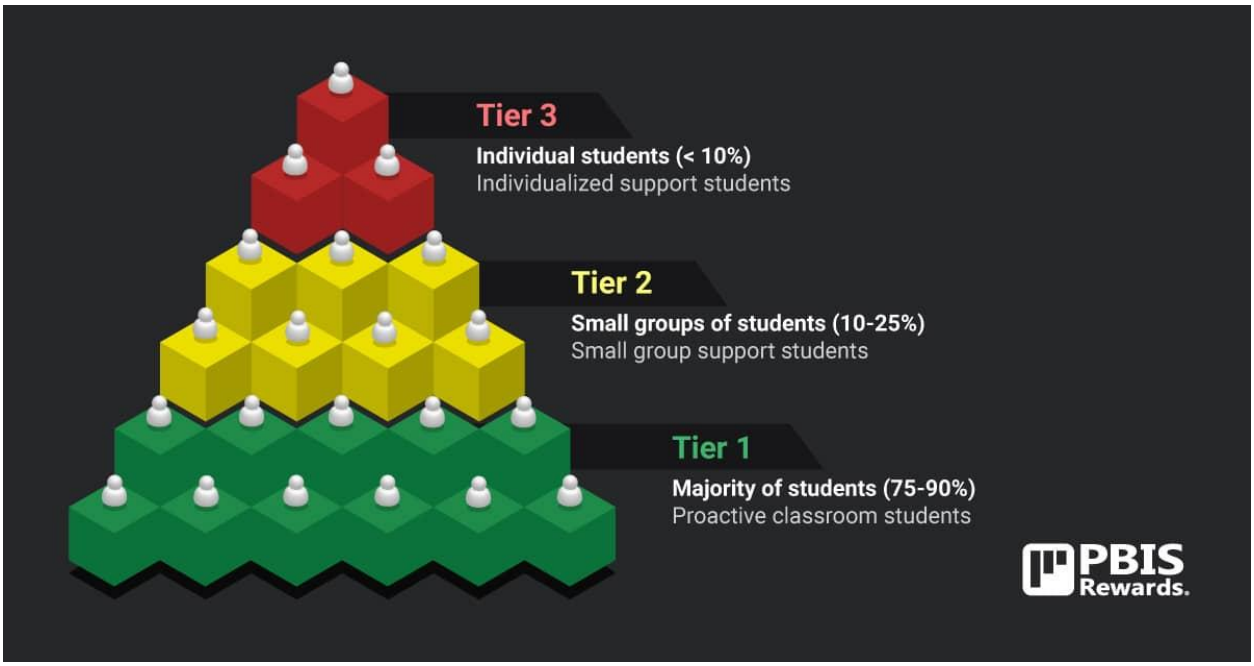
Panorama Teacher and Staff Survey

Panorama Student Survey

APPENDIX C: FIGURES

Figure 2.1

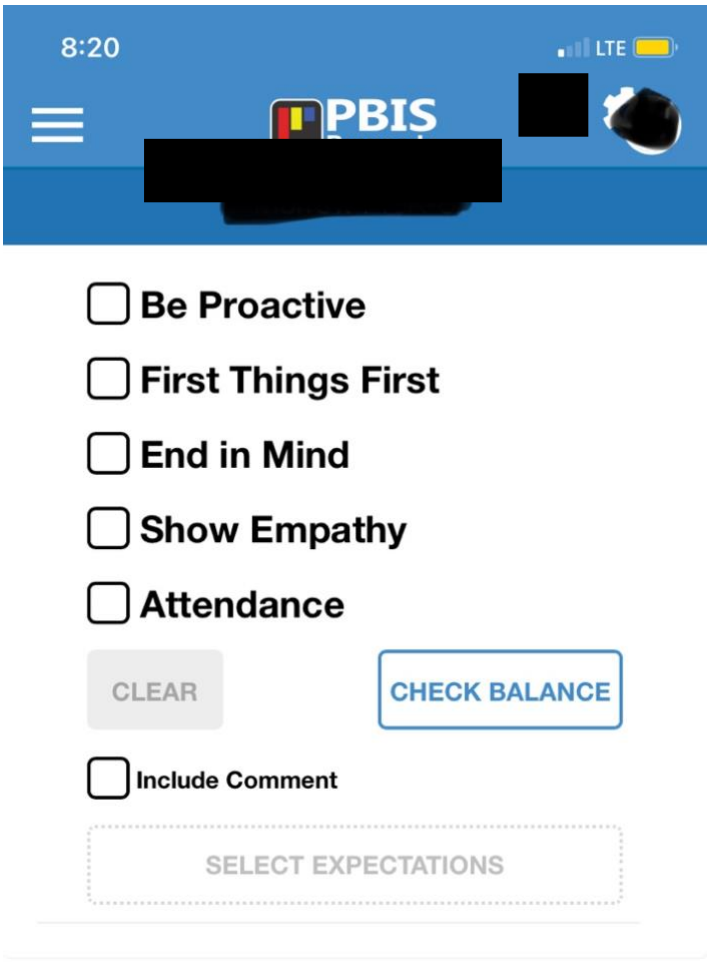
MTSS Model



Note: This figure shows the Multi-Tiered System of Supports (MTSS) three-tiered systems of support.

Figure 2.2

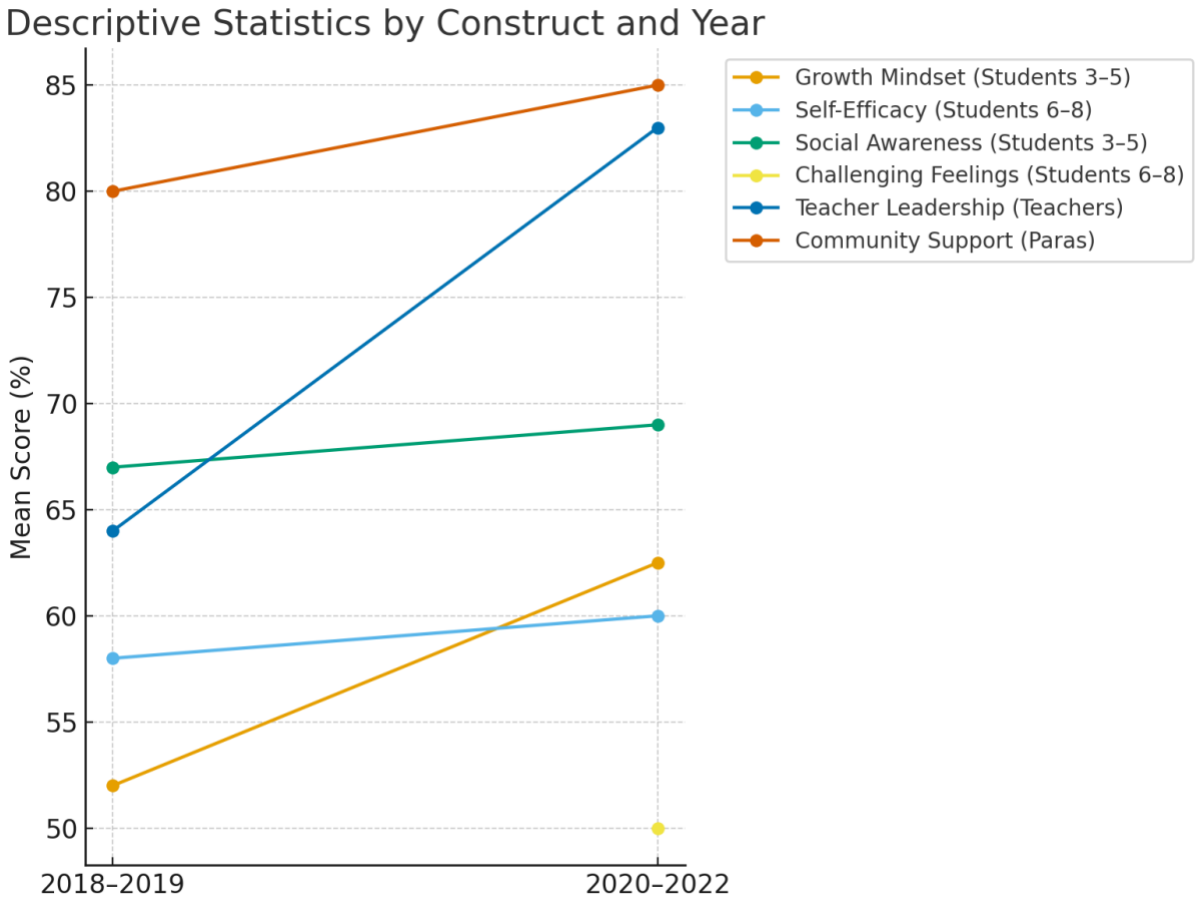
PBIS Rewards Mobile Application, 2021



Note: This figure shows part of the PBIS Rewards Mobile Application, with a checklist of the school's behavioral expectations.

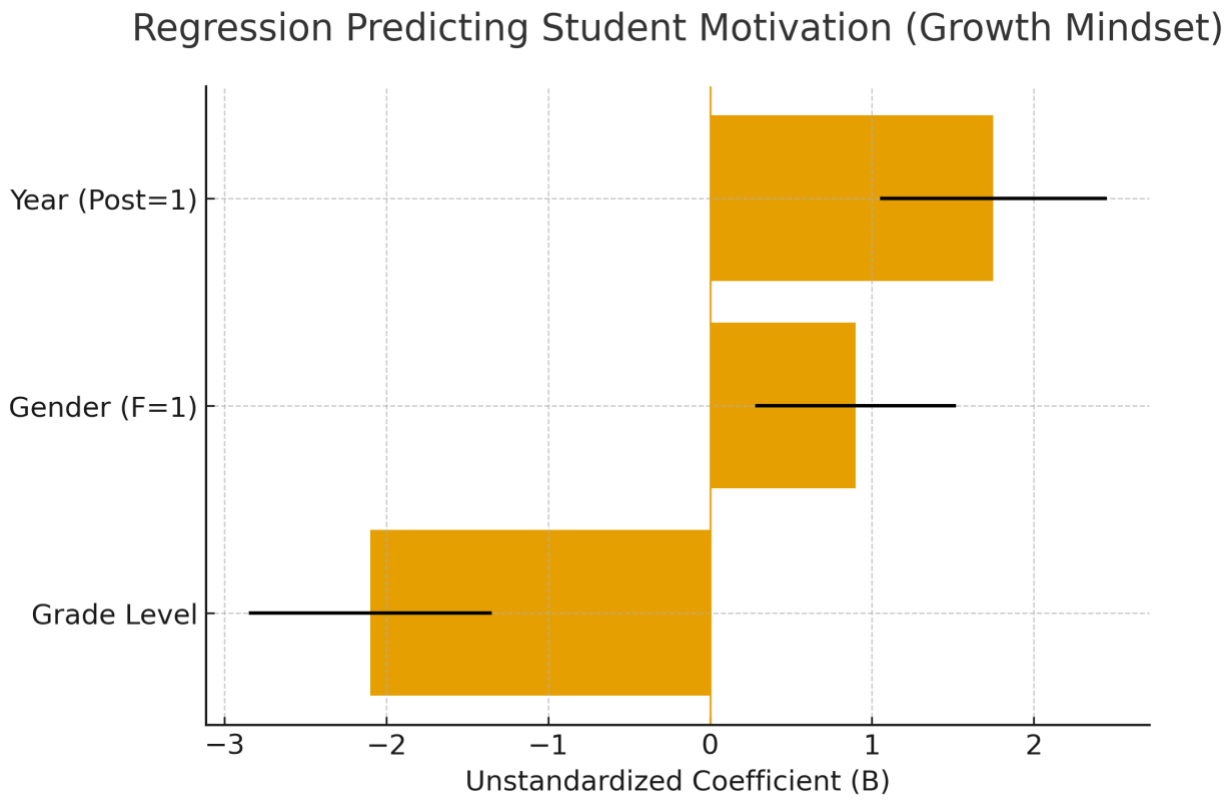
Figure 2.2 Image. Adapted from PBIS Rewards (2021).

Figure 4.1



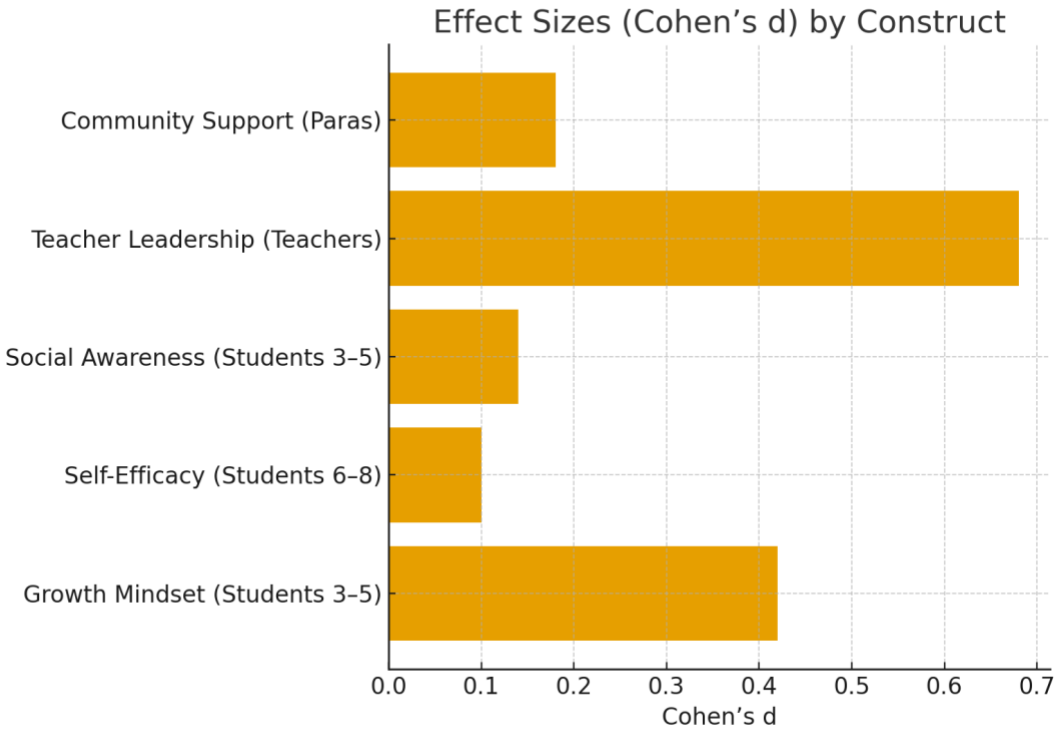
Note: This figure shows the results from Table 4.1 in a visual chart. This chart displays mean pre- and post-implementation scores for each construct. The chart illustrates both the stability and gaps across constructs.

Figure 4.2



Note: This figure shows the results from table 4.2 in a visual chart. This regression results chart illustrates predictors of Growth Mindset.

Figure 4.3



Note: This figure shows the results from table 4.3 in a visual chart. This horizontal bar chart shows the magnitude of pre/post differences across constructs.

APPENDIX D: TABLES

Table 4.1

Descriptive Statistics by Construct and Year

Construct	Group	2018-2019 (M, SD)	2020-2022 (M, SD)
Growth Mindset	Students 3-5	52.0 (4.5)	62.5 (3.8)
Self-Efficacy	Students 6-8	58.0 (5.2)	60.0 (4.7)
Social Awareness	Students 3-5	67.0 (6.0)	69.0 (5.5)
Challenging Feelings	Students 6-8	—	50.0 (4.0)
Teacher Leadership	Teachers	64.0 (5.8)	83.0 (4.9)
Community Support	Paraprofessionals	80.0 (4.2)	85.0 (3.6)

Note. M = mean; SD = standard deviation. Pre-implementation years = 2018–2019; Post-implementation years = 2020–2022.

Table 4.2

Regression Predicting Student Motivation Constructs

Predictor	B	SE	β	t	p
Grade Level	-2.1	0.75	-.29	-2.8	.007**
Gender (F=1)	0.9	0.62	.12	1.45	.152
Year (Post=1)	1.75	0.7	.25	2.49	.015*

Note. DV = Growth Mindset composite. Adjusted $R^2 = .21$, $F(3, 120) = 11.34$, $p < .001$.

Table 4.3

Independent Samples t-Tests (Pre vs. Post Implementation)

Construct	Group	t(df)	p	Cohen's d
Growth Mindset	Students 3-5	2.15 (85)	.034*	0.42
Self-Efficacy	Students 6-8	0.76 (90)	.448	0.10
Social Awareness	Students 3-5	0.98 (77)	.331	0.14
Teacher Leadership	Teachers	3.27 (42)	.002**	0.68
Community Support	Paraprofessionals	1.02 (39)	.314	0.18

Note. Results represent independent-samples t-tests comparing pre-implementation (2018–2019) and post-implementation (2020–2022) mean scores for each construct. Positive t values indicate higher post-implementation means. Cohen's d values represent standardized effect sizes, where 0.20 = small, 0.50 = medium, and 0.80 = large effects. $p < .05$ (*) indicates statistical significance at the 5% level; $p < .01$ (**) indicates statistical significance at the 1% level.