DIFFERENCES IN PBIS BETWEEN ELEMENTARY AND SECONDARY SCHOOLS IN MISSOURI

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DIFFERENCES IN PBIS BETWEEN ELEMENTARY AND SECONDARY SCHOOLS IN MISSOURI

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DIFFERENCES IN PBIS BETWEEN ELEMENTARY AND SECONDARY SCHOOLS IN MISSOURI

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CHAPTER ONE

INTRODUCTION

Introduction

There is a wide variety of K-12 public schools in Missouri, many of which serve students falling in lower to middle socioeconomic categories. Missouri public schools have had a history of relatively high discipline rates and dropout rates (Missouri Department of Elementary & Secondary Education [DESE], 2019). Missouri school students eligible for free or reduced-price lunch make up 50% of students (DESE, 2019). In 2019, Missouri's scores on national math and reading assessments only ranked above eight states in fourth-grade math and four states in fourth-grade reading (Rebarber & Pioneer Institute for Public Policy Research, 2020).

Elementary public schools in Missouri have enjoyed a high level of success using the positive behavior interventions and supports (PBIS) model (Missouri Schoolwide Positive Behavior Support [MO-SW-PBS], 2019). Elementary public schools have had a steady and marked decrease in office referrals since beginning the PBIS program. This success has not translated to the public high schools as one would expect based on the success experienced in the elementary public schools. Public high schools in Missouri have struggled with implementing PBIS with fidelity (Flannery Frank, McGrath Kato, Doren, & Fenning, 2013).

In this chapter the researcher will present the purpose and significance of the study, the statement of the problem, and key terms used in the study. The researcher will state research questions to provide information and null hypotheses. The researcher will state limitations, delimitations, assumptions of the study, and what design controls were

used. The researcher will explain the theoretical framework for the positive behavior interventions and supports model and this study.

The positive behavior interventions and supports model provides a framework for the culture of a school to develop in a manner that allows academic success through changing the social climate of the school (Sugai, 2008). The PBIS model has conceptual foundations in behavioral theory and applied behavior analysis. Within this study, the researcher will explain the history of how PBIS was developed in the state of Missouri by exploring research in the area of character education with a focus on the current positive behavior interventions and supports (PBIS) model. The history of character education in Missouri and previous methods used will be covered as well as the foundation for PBIS, its origin, and the adoption of it in Missouri and the evolution to date of Positive Behavior Interventions and Supports in Missouri. The researcher will explore the differences in implementation of Positive Behavior Interventions and Supports, who is at risk, the continuum of supports, universal practices and supports, the role of school culture, and data usage for decision making.

This study sought to determine if there is a statistically significant difference in the SET scores between urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 school years, The study will also explore if there is a statistical difference in the overall average SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program.

Finally, in the literature review the researcher will address possible reasons for differences that will include the attitudes toward Positive Behavior Interventions and Supports/buy-in of staff, possible economic reasons to adopt PBIS in a high school, discipline rates before and after adoption, possible influence of district and community support, possible effects on graduation rates, and school size. This study will offer insight to school leaders as they seek ways to introduce the Positive Behavior Interventions and Supports program to teachers.

In the literature review, the researcher will provide research-based data from public schools of the effectiveness of PBIS in the areas of office discipline referrals (ODRs), attendance, and academic achievement. The researcher will provide evidence of implementation issues, challenges, and shortcomings of the model as well as an overview of implementation in elementary and secondary public schools. The researcher will provide an overview of professional development offered for PBIS in Missouri and what level of success PBIS has had in Missouri secondary public schools.

Character Education in Missouri

Character education is a mandatory part of the education process as it is part of No Child Left Behind and the Every Student Succeeds Act (Test, Kemp-Inman, Diegelmann, Hitt, & Bethune, 2015; Congress.gov, 2001; U. S. Department of Education, 2021). Character education has been endorsed by Presidents Bush, Clinton, and Trump. Federal funding for character education implementation and research increased during the 1990s (Berkowitz, Bier, & McCauley, 2017). President Trump issued a Presidential Proclamation on October 18, 2019, declaring the week of October 20 through October 26 as National Character Counts week (Executive Office of the President, 2020).

While character education has been required, it has been up to individual districts to determine how it will be implemented and to what extent. By allowing public schools to be involved in the process, the federal government gave public schools the acknowledgment and authority educational leaders needed to make a choice and implement it (Bryant & McCamish, 2015). Currently in Missouri the Department of Elementary and Secondary Education requires character education to be taught as part of the Guidance and Counseling curriculum (Ballotpedia.Org, 2020; Missouri Department of Elementary and Secondary Educations, 2020a)

Theoretical Framework

Skinner conducted extensive research into the branch of psychology known as behaviorism between the years of 1928 to 1974 while doing his graduate work and later as a faculty member at Harvard University. In Skinner's view, organisms learn to manipulate and control their environment by their responses to it (R. K. Day, 2016). This became known as Skinner's theory of operant conditioning and is the theoretical framework used for this study.

Operant conditioning is a learning process where behaviors are reinforced through consequences. Operant means influenced by the environment. There are four types of operant conditioning: positive reinforcement, negative reinforcement, negative punishment, and positive punishment (Kentrop et al., 2020). Reinforcement indicates a process that strengthens a behavior. Positive, positive or pleasant stimulus, reinforcement is used after a response to increase the frequency of the response. In short, operant conditioning is the learning process where the strength of a behavior is modified by reinforcement or punishment (Cherry, 2016; Hambel, 2020).

Operant conditioning relies on a fairly simple premise-actions that are followed by reinforcement will be strengthened and more likely to occur again in the future (Cherry, 2016). This is the basis of effective character education or educating students on correct social behaviors. The purpose of this causal-comparative study was to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS program for public elementary and secondary public schools in Missouri. Public schools monitor the effectiveness of PBIS through the use of a 28-item research-validated instrument called the SET. This instrument allows public schools to assess if operant conditioning is happening and if the reinforcement for actions is achieving the desired response in the future (Sugai & Horner, 2020).

In 1965 Skinner wrote, "The most widely publicized efforts to improve education show an extraordinary neglect of method. Learning and teaching are not analyzed, and almost no effort is made to improve teaching as such" (p0). Skinner was convinced that immediate feedback or reinforcement was significant in learning a new skill or knowledge (R.K. Day, 2016). This is the foundation of PBIS.

The positive behavior interventions and supports model provides a conceptual framework for the culture of the school to develop in a manner that allows academic success by changing the social climate of the school (Sugai & Horner, 2020). A factor in successful change in an organization is its ability to empower its members, a concept from Bolman and Deal's (2017) human resource frame. The conceptual framework used for this study is behavioral theory and applied behavior analysis.

The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner Sugai, Todd, & Lewis-

Palmer, 2005). Data are some of the most powerful tools to be used in driving decisions. It is not simply possessing and going over data that makes it worthwhile. Data needs to be shared with staff to create a powerful story of the school so that they can see the need for adjustments for the betterment of all (Kennedy, Peters, & Thomas, 2011). It is also important to staff that the data collected are used. Teachers are busy and do not want to use valuable time doing something that is not used (Glazzard, Rose, & Ogilvie, 2021).

There are five core areas of data collected in a PBIS school. These are referred to as the Big Five and include the following: referrals by day, referrals by time, referrals by location, referrals by student, and referrals by behavior (Sugai & Horner, 2020). By using this data staff can determine problem areas in a school that may need more monitoring or identify students who need more intensive behavioral instructions.

Sooter (2014) stated, "Positive school climates are an extremely important variable in determining whether a school is successful or not. PBIS attempts to improve school climate by introducing interventions that target certain elements of school climate" (p. 93). A vast number of interventions have been developed that address everything from the student to the district. Success of an intervention is dependent on how specific the target of the intervention is (Sooter, 2014). The most frequent theme representing factors important to the sustainability of PBIS was staff buy-in. Staff buy-in describes the commitment of teachers and staff in supporting PBIS implementation. A lack of staff buy-in is the most common barrier for PBIS (Pinkelman, McIntosh, Rasplica, Berg, & Strickland-Cohen, 2015).

Statement of the Problem

There is inconsistent success of the PBIS program on the secondary school level in Missouri (MO-SW-PBS, 2019). While there are many studies of PBIS in elementary public schools there are few studies that address PBIS in secondary schools (Vancel, Missall, & Bruhn, 2016). This leads administrators to question why elementary public schools have a higher success rate with the program. Flannery & McGrath Kato, (2017) suggested that the underlying principles of implementation for PBIS are the same for elementary and secondary public schools. The difference is in the context secondary public schools use to approach implementation. Flannery & McGrath Kato suggested that secondary public schools must provide their leadership with data that support secondary teachers teaching behaviors. Sugai et al. (2020) believed it is a crucial step to have commitment from leaders in the school and stakeholders to the implementation of the program in securing staff buy-in. Without commitment from leaders, staff will revert to old ways and influential teachers that have not bought into the program will make it all but impossible to implement the program (Bennett, 2020; C. Day, 2016; Yeung et al., 2016). Secondary public schools must rely on their leadership believing in the program and be able to communicate that to staff. They must be able to provide the stakeholders with data as to why the program is worthwhile (DeMarco & Gutmore, 2021; Swain-Bradway, Pinkney, & Flannery 2015). This study is an attempt to extend existing research to explore differences between urban and rural implementation and elementary and secondary implementation.

In the next chapter the researcher will provide a review of character education in Missouri, the foundation for PBIS, its adoption in Missouri, and its evolution to date. The

researcher will provide examples of benefits of PBIS to school culture, attendance rate, graduation rate, and discipline rate. The researcher will provide evidence of PBIS implementation issues, challenges, and shortcomings. Factors influencing the decision to adopt PBIS to public high schools will be explored. Influencing factors of attitudes toward PBIS/ buy-in include: data-driven decision making, economic reasons, and evidence for effectiveness in the secondary public schools. The researcher will also provide examples of universal practices and continuum of supports and importance of continuing targeted professional development.

Purpose of the Study

The purpose of this causal-comparative study is to test Skinner's theory of operant conditioning as it relates to the implementation of PBIS for elementary and secondary public schools in Missouri. The independent variable is public schools in Missouri that are implementing the components of the PBIS program that will generally be defined as elementary and secondary urban and suburban public schools that use PBIS with fidelity. For a school to implement PBIS with fidelity, data gathered through the SET must support this. The dependent variable of interest will be generally defined as the (SET). The SET is a 28-item research-validated instrument to assess the Positive Behavior Interventions and Supports program critical features reflected in seven subscales: expectations defined, expectations taught, reward system, violation system, monitoring and evaluation, management, and district support (Horner et al., 2004). The dependent variable is the perceptions of levels of implementation of teachers in the Missouri public schools that are implementing the Positive Behavior Interventions and Supports program.

Evolution to date of Positive Behavior Interventions and Supports in Missouri

To be in compliance, the state of Missouri adopted the Positive Behavior Interventions and Supports in 1999 when the Missouri Department of Elementary and Secondary Education awarded grants to districts if they attended training provided by the University of Missouri Center for school-wide positive behavior supports (Missouri Department of Elementary and Secondary Educations, 2015). Faculty member Dr. Lewis headed research projects with specific public schools. In 2006 the Missouri Department of Elementary and Secondary Education funded the positions of full PBIS consultants in six of the regional professional development centers (MO-SW-PBS, 2019). These consultants work in conjunction with the University of Missouri. In 2007 DESE created and funded the position of state coordinator for PBIS. Throughout the following years the initiative continued to grow adding the need for more consultants to work with the growing number of public schools. As of 2014 there were 790 participating public schools in 220 school districts across the state of Missouri (Pbismissouri.org, 2015). At the time of this study, in MO SW-PBS is the largest statewide program focused on character education with more than 800 participating public schools in 220 districts across Missouri. MO SW-PBS is supported through an active partnership with the DESA and the University of Missouri Center for SW-PBS (University of Missouri, 2020).

Research Questions

For the purpose of this study the researcher used two research questions with three sub-questions each. The following research questions were used to guide this study:

RQ1: What is the difference in SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program?

RQ1a: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ1b: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ1c: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

RQ2: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program?

RQ2a: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ2b: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ2c: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

Null Hypotheses

The researcher identified public elementary and secondary public schools in Missouri that have implemented the Positive Behavior Interventions and Supports program with fidelity through the use of the SET and examined data from schools gathered to test the following null hypotheses:

H01a: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

H01b: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

H01c: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

H02a: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

H02b: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

H02c: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

Significance of the Study

Prevention and intervention for students exhibiting behavioral or emotional problems has been shown to work in elementary public schools and yet that same level of success is not enjoyed at the secondary school level (MO-SW-PBS, 2019). No Child Left behind Act of 2001 has stressed that all public schools should adopt some form of intervention program (Goldhaber, 2019). While interventions have become a government mandate there have been few resources provided and little guidance (MO-SW-PBS, 2019).

While many public schools have adopted Response to intervention (RTI) models they have missed a piece that can develop the positive culture of the school. The school climate/culture is the product of social interactions among students and teachers influenced by educational and social values (Edgar-Smith & Palmer, 2015; Payne, 2018; Swindlehurst, 2015). The readiness for the school to be able to successfully adopt the PBIS model was shown in a large study performed in 2015 with over 23 states surveying 91 randomly selected public schools, (Fallon, O'Keeffe, Gage & Sugai, 2015). In the study the results suggested when the PBIS model was developed in a culturally and contextually relevant manner, the school personnel would likely support implementation (Fallon et al., 2015).

This study used the SET as the instrument used for measuring implementation of PBIS procedures (Horner et al., 2004). The SET is a 28-item psycho-metric research

instrument made up of seven subscales: behavioral expectations defined, behavioral expectations taught, on-going system for rewarding behavioral expectations, system for responding to behavioral violations, behavioral monitoring and decision-making, management of practices, and district level support (Flannery et al., 2013).

This study will explore if there is a statistically significant difference in the SET scores between public urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 schools. The study will also explore if there is a statistical difference in the SET scores between elementary public schools and secondary public schools that implemented the PBIS.

Definition of Key Terms

At-Risk. The At-Risk student is one that due to various issues may not successfully complete high school (Sugai et al., 2016).

Behavior. Behavior is the way in which a student acts in response to different situations, to different people, to outside and internal stimulus, and change (Freeman, Kern, Gambino, Lombardi, & Kowitt, 2019).

Cohort. A specific group of first-time public school ninth-grade students who graduate with a 4-year diploma established for tracking purposes (McFarland et al., 2019).

Culture. Culture is defined as the beliefs of a group of people. It is the way people in that group are expected to behave and carry on business Sugai et al., 2016).

Data-based decision. Data-based decision is a collection of information based on measurable and reliable criteria. This gathered information is then used to guide decisions

of how to improve and positively impact the school climate. The gathered information helps leaders see what is and is not effective. The purpose of using data-based decisions is to shape the culture of the school (Demchak & Sutter, 2019; Bennett, 2020)

Discipline rate. Discipline rate is the number of office referrals reported to the state in the Adequate Yearly Progress (AYP) report (Sugai et al., 2016).

Dropout rate. The dropout rate is defined for this study as the percent of students in Grades 9-12 who are not enrolled in school or have not earned a diploma or an equivalency credential (McFarland et al., 2019). Due to these students not attending school because of attendance issues, discipline issues, or through other circumstances they are then reported in the school's Adequate Yearly Progress (AYP) report as a drop.

Elementary school. For the purpose of this study Missouri PBIS defined elementary school as any span of grades not above Grade 6 (MO-SW-PBS, 2019; McFarland et al., 2019).

Graduation rate. The graduation rate is the number of students that graduate with their cohort. The Missouri Department of Elementary and Secondary Educations (2020b) defined graduation rate as the following:

The four-year adjusted cohort graduation rate is the number of students who graduate in four (4) years with a regular high school diploma divided by the number of students who form the adjusted cohort for the graduating class rounded to the tenth. From the beginning of 9th grade, students who are entering that grade for the first time form a cohort that is subsequently "adjusted" by adding any students who transfer into the cohort later during the 9th grade and the next three (3) years and subtracting any students who transfer out, emigrate to another country, or die during that same period. (p-1)

Intervention. Intervention in the high school is a strategy implemented to make a situation better. If a student has trouble in a subject or environment the school applies some kind of behavioral support. This could take the form of more assistance in a subject area to behavior modification programs (Sugai et al., 2016).

Low Socioeconomic. For the purpose of this study the term Low Socioeconomic is a composite of standardized components that are equally weighted. They include family income, mother and father's education, parent occupation, and other household information (McFarland et al., 2019).

Rural Areas. The Office of Management and Budget defines rural as population centers having less than 10,000 people (Office of Management and Budget, 2020.

Secondary school. For the purpose of this study Missouri PBIS defines Secondary school as 7-12 (MO-SW-PBS, 2019). It is any grades beginning with the next grade following elementary and ending with Grade 12 (McFarland et al., 2019).

SET. The SET is a 28-item psycho-metric research instrument used for measuring implementation of PBIS procedures (Horner et al., 2004). The SET is made up of seven subscales: behavioral expectations defined, behavioral expectations taught, on-going system for rewarding behavioral expectations, system for responding to behavioral violations, behavioral monitoring and decision-making, management of practices, and district level support (Flannery et al., 2013).

Social Climate. Social Climate refers to the feeling of the school and how people feel about the school. It is the emotional and physical aspects of the school (Sugai et al., 2016).

Success. Success for the school for the purposes of the study is defined as an increase in the graduation rate, a decrease in the dropout rate, and a decrease in the number of office referrals (Sugai et al., 2016).

Support. Support is the assistance given by school staff to help a student successfully complete high school (Sugai et al., 2016).

Tier Intervention. In the Positive Behavior Interventions and Supports program there are three levels of support. There is Primary/Universal that addresses 70-90% of the students in the school (Sugai et al., 2016). These are the students that need little support. The next level is called Secondary. This level addresses the 10-30% of the students that are not responsive to the primary level and need a little more support (Sugai et al., 2016). The final level is the Tertiary level. This is made up of 1-10% of the students that are not responsive to the first two levels and/or have mental health issues and/or significant issues outside of school (Sugai et al., 2016). A student can move in and out of each level of intervention depending upon the supports they need at a given time.

Urban Areas. The Office of Management and Budget defines urban areas as Metropolitan Statistical Area, a combined Metropolitan and Micropolitan area. Metropolitan population centers have at least 50,000 or more population. Micropolitan is the area that is outside of the Metropolitan area but still a part of it that has a population of at least 10,000 (Office of Management and Budget, 2020).

Limitations/Delimitations/Assumptions

Within any study there are factors that may negatively impact the study over which the researcher has limited control. At the same time there are factors the researcher does have control of and assumptions the researcher makes based on both. There are four

identified limitations to this study, two delimitations and two assumptions made by the researcher.

Limitations. The following limitations were present for this study:

1. The study will be limited to data collected by MO-PBIS for the 2017-2018, 2018-2019 and 2019-2020 school years in Missouri.
2. Due to the nature of the study not all public schools in Missouri will participate.
3. Results are based on a sample of staff taking the SET and may not define the whole population.
4. The study is limited in its ability to consider all factors that may influence the teachers' willingness to answer the way they truly feel.
5. Teachers' cultural bias and personal issues.
6. Local context creates variation in practices.

Delimitations. The following delimitations was present for this study:

1. The study focused on public schools in Missouri that were participating in the Positive Behavior Interventions and Supports program.
2. The theoretical frame of this study is Skinner's theory of operant conditioning.
3. The study did not cover the reason for a teacher's perception of the program.
4. This study is bound by the School-Wide Evaluation Tool 28-item psycho-metric research instrument used for measuring implementation of school-wide positive behavior support (PBS) procedures (Horner et al., 2004).
5. This study is bound by the SET seven subscales: behavioral expectations defined, behavioral expectations taught, on-going system for rewarding

behavioral expectations, system for responding to behavioral violations, behavioral monitoring and decision-making, management of practices, and district level support (Flannery et al., 2013).

6. The study will examine the SET score data turned into the state for award status with no causal results inferred.

Assumptions.

The following assumptions were present for this study:

1. The researcher made the assumption that all participants would answer the questionnaire in an honest and truthful manner.
2. The researcher made the assumption that if scores are consistent, it provides stronger evidence of an effect and of generalizability. The study will be limited in terms of its generalizability to the teacher population of Missouri.

Design Control

This quantitative causal-comparative study utilized the SET to collect data regarding differences in adapting positive behavior interventions and supports between elementary and secondary public schools located in urban and rural districts in Missouri. Research by Hornet et al. (2004) used Messick's (1988) unified construct validity framework to establish the validity of the SET tool. The anonymous survey is given to public schools in Missouri that participate in the Positive Behavior Interventions and Supports program. While each school is required to complete the survey to obtain an award-level status, based on post survey data, participation is voluntary. Staff participants are anonymous and only the school and district are identified in order to encourage honesty in questionnaire answers. The participation will not include all public schools in

Missouri or all staff. The information from the SET does not address why a staff member may respond and examines data with no causal results inferred.

Once identified, the researcher explored if there is statistically significant difference in implementation of Positive Behavior Interventions and Supports between urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 school years. The study will also explore if there is a statistical difference in the SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program.

Summary

This chapter contained an overview of Positive Behavior Interventions and Supports (PBIS) in Missouri. Elementary public schools have had a steady and marked decrease in office referrals since beginning the PBIS program. This success has not translated to the public high schools as one would expect based on the success experienced in the elementary public schools. Public high schools in Missouri have struggled with implementing PBIS with fidelity (Flannery et al., 2013).

The theoretical framework used for this study is Skinner's theory of operant conditioning as it relates to the implementation of the Positive Behavior Interventions and Supports program for public elementary and secondary public schools in Missouri (R. K. Day, 2016). The positive behavior interventions and supports model has its conceptual foundations in B. F. Skinner's behavioral theory and applied behavior analysis. In Skinner's view, organisms learn to manipulate and control their environment by their responses to it (R.K. Day, 2016). This became known as Skinner's theory of operant

conditioning and is the theoretical framework for this study. Skinner was convinced that immediate feedback or reinforcement was significant in learning a new skill or knowledge (R. K. Day, 2016). This is the foundation of PBIS. The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner et al., 2005).

This study will explore if there is a statistically significant difference in the SET scores between public urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 school years. The study will also explore if there is a statistical difference in the SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program. This study will fill a gap in the research as to if there is a statistical difference not addressed previously in the peer-reviewed literature. This study will offer insight and data to school leaders as they seek ways to introduce the Positive Behavior Interventions and Supports program to teachers.

Chapter Two will review literature surrounding Positive Behavior Interventions and Supports. Chapter Two begins with the theoretical framework used for this study. A review of historical literature on Positive Behavior Interventions and Supports follows next, then influences on the program, and an overview of the Positive Behavior Interventions and Supports program in Missouri. Chapter Three will include the research methodology of the study. In Chapter four the researcher will provide the results and findings of the study. In Chapter five the researcher will provide the summary and implications of the research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

While many public schools have adopted response to intervention (RTI) model, they have missed a piece that can develop the positive culture of the school. The school climate/culture is the product of social interactions among students and teachers influenced by educational and social values (Payne, 2018). The readiness for the school to be able to successfully adopt the PBIS model was shown in a large study performed in 2015 over 23 states surveying 91 randomly selected public schools, (Fallon et al., 2015). In the study the results suggested when the PBIS model was developed in a culturally and contextually relevant manner the school personnel would likely support implementation (Fallon et al., 2015). At present, of the 130,930 public schools within the United States there are over 25,911, approximately 20% of public schools, participating in PBIS initiatives. There are also many public schools in Canada, Australia, Japan, Singapore, and several countries (MO-SW-PBS, 2019). At the time of this study, in Missouri PBIS is the largest statewide program focused on Operant Conditioning with more than 800 of Missouri's 6045, participating public schools in PBIS, approximately 14% of MO public schools. The purpose of this causal-comparative study is to test Skinner's theory of operant conditioning as it relates to the implementation of the Positive Behavior Interventions and Supports program for elementary and secondary schools in Missouri.

Theoretical Framework

The work of behaviorist B. F. Skinner from 1928 to 1974 led to the theory of operant conditioning (R. K. Day, 2016). Operant conditioning is a learning process

where behaviors are reinforced through consequences. Operant means influenced by the environment. There are four types of operant conditioning: positive reinforcement, negative reinforcement, negative punishment, and positive punishment. Reinforcement indicates a process that strengthens a behavior. Positive, positive or pleasant stimulus, reinforcement is used after a response to increase the frequency of the response. In short, Operant conditioning is the learning process where the strength of a behavior is modified by reinforcement or punishment (Hambel, 2020). Positive Behavior Interventions and Supports is solely based on reinforcing positive behavior (Horner & Macaya, 2018). Thus, PBIS in reinforcing positive behavior supports Skinner's operant conditioning.

In 1953 Skinner observed two significant issues with the school system: all students had to progress at the same pace and students had to wait at least 24 hours for feedback on work to see how they performed (R.K. Day, 2016). Skinner argued that immediate feedback contributed significantly to the learning of new tasks or skills (R. K. Day, 2016). While Skinner was applying this philosophy to general education like math and reading, these same principles would later be applied to the teaching of character education (Clark, 2018b). B. F. Skinner's theory of operant conditioning is a method of learning that occurs through rewards and punishments for behavior (Clark, 2018a). Through operant conditioning, an association is made between a behavior and a reinforcement or consequence for that behavior (Cherry, 2016).

Skinner used the term operant to refer to any behavior that occurs in an environment that generates consequences (Cherry, 2016). In other words, Skinner's theory explained how we acquire the range of learned behaviors we exhibit each and

every day (Cherry, 2016). Skinner argued that causes of behavior are to be found outside individuals, specifically in their interactions with the environment, which can be social and nonsocial. It is within these interactions that an individual can learn, or have a behavior change, based upon the reinforcement, positive or negative, they receive (Ginja, 2018; English, 2019).

In essence, an individual who performs the desired response would receive positive consequences such as receiving a reward or other positive reinforce while avoiding a punishment or a negative reinforcement (Hambel, 2020). Performing the wrong response would lead to negative consequences such as a punishment or not receiving a reward. An individual who successfully avoids punishment should exhibit reward-like behavioral responses (Andreatta, Michelmann, Pauli, & Hewig, 2017). Basic human behavior prompts individuals to avoid punishment and seek rewards. Operant conditioning relies on a fairly simple premise-actions that are followed by reinforcement will be strengthened and more likely to occur again in the future (Cherry, 2016). This is the basis of effective character education or educating students on correct social behaviors. The purpose of this causal-comparative study is to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS program for elementary and secondary public schools in Missouri. Public schools monitor the effeteness of PBIS through the use of a 28-item research-validated instrument called the SET. This instrument allows public schools to assess if operant conditioning is happening and if the reinforcement for actions is achieving the desired response in the future (Cherry, 2016).

Character Education

Skinner determined that reinforcers may be perceived as positive/pleasant or negative/unpleasant stimuli. The presence of positive or negative reinforcers directly increases the probability of a behavior (R.K. Day, 2016). McGrath Kato, Flannery, Triplett, and Saeturn (2018) suggested that character education is growth as a person. Character education is intended to increase prosocial behaviors (Benninga, & Berkowitz, 2018; Edmonson, Tatman, & Slate, 2009). The concept of character has historically been closely associated with concepts of morality and virtue (McGrath Kato et al., 2018; Pianezzi, Nørreklit, & Cinquini, 2020). In 340 BC, Aristotle explained in his Nicomachean Ethics Books II-IV, the differences between someone with deficient character and someone who exhibits strong character (Baehr, 2017). Aristotle defined character as the way a person acts, thinks, and feels in different situations (Yoder, 2019). If the person is inclined to lie, think of themselves as more important than others, or find happiness when others struggle, they are character deficient. Someone who displays compassion and caring toward others shows they are strong in character, or virtues (Baehr, 2017; Pianezzi et al., 2020). Baehr (2017) argued that there are four distinct character domains: moral, civic, performance, and intellectual. Moral character is free will based on moral judgement through the use of practical reason about decisions that have to be made. Moral principles are a summary of past decisions and experiences (Sedgwick, 2020). Civic character includes the qualities it takes to be a good citizen--tolerance and respect towards others' beliefs. Performance character pertains to the traits needed to achieve in performance environments like school, extracurricular activities, and work. These traits include tenacity, self-discipline, resilience, and patience. Traits like

these allow students to successfully complete complex tasks throughout a school day. Intellectual character refers to the character traits of a good thinker or learner-curiosity and attentiveness (Baehr, 2017). Lickona (2018) argued that it is a shared responsibility of all community stakeholders to impact the values and character of our children.

Character education in the United States can be traced back to the beginning of Colonial America where the majority of schooling consisted of Biblical and moral instruction (Lofton, 2016). In Colonial America, common public schools were brought into existence for an ostensibly moral purpose. Our Founding Fathers were profoundly aware that the health of the new democracy would rest on the virtues of its people. Worried that their fledgling experiment would fail, they called for the spread of education – an education that would instruct the young in the moral sensibilities and good habits needed to sustain not only their own lives, but also a healthy democracy (Edmonson, Tatman, & Slate, 2009, p.3).

As free public schools expanded in the 1830s, the importance of reinforcing home values at school by virtuous teacher was the first attempt at character education before textbooks (Khoury, 2017; Ramsey, 2013). Throughout the 19th century public schools widely taught elements of moral education that were included in the curriculum in readings like McGuffey Reader: Tales of Heroism and Virtue, through which children learned about virtues like honesty and loyalty (Khoury, 2017).

With the separation of church and state, this moral instruction was forced to change and a more secular movement of education was developed (Batalla, 2019). In the early 1900s William Hutchins developed the Morality Code (Gunn, 2018). The code focused on self-control, good health, kindness, truth, sportsmanship, teamwork, self-

reliance, duty, reliability, and good workmanship. According to Gunn (2018) the perceived moral crisis among American youth in the early 20th century caused educational reformers to seek new ways to address moral education. Bible reading was no longer adequate in instructing character education. From 1924 to 1929 a study was conducted to determine the effects of moral education on students' character. Hartshorne and May concluded there was no effect on the moral character of the student body studied (Gunn, 2018; McCarther, 2018).

Eventually in the late 1960s, there was a renewed interest in character education because of Kohlberg's theory regarding children's moral reasoning levels. Kohlberg (1976) suggested that children can transfer to higher levels of moral reasoning through discussion. This discussion was difficult for teachers to conduct during the school day and required a great deal of knowledge in how to assess students. As a result, in 1968 the Character Education Institute designed the Character Education Curriculum (McCarther, 2018). Sets of lessons were designed for Kindergarten through Grade 5. Grades 6-9 were added in the early 1980s. These lessons were mostly situational where students had to decide for themselves how to find alternative solutions for each problem. The Character Education Curriculum has been implemented in more than 60,000 classrooms. The Character Education Institute evaluation of the program found that of the 321 respondents, 74.3% reported that they would recommend the Character Education Curriculum to other teachers and 65.7% reported that character education is very effective (McCarther, 2018). There are other character education programs such as Building Decision Skills by the Institute of Global Ethics, Character Way by Ethics Resource Center, and Community of Caring to name a few, which public schools may

choose to help implement character education. The attention given to character education resulted in the formation of The Character Education Partnership in 1993 (McCarther, 2018).

During the two terms of President Bill Clinton the importance of character education was made clear by the tripling of funding for character education (Watz, 2011). During the term of President George W. Bush, it was made a mandatory part of the education process as it is part of No Child Left Behind (Congress.gov, 2001). Character education has been endorsed by Presidents Bush, Clinton, and Trump. President Trump issued a Presidential Proclamation on October 18, 2019, declaring the week of October 20 through October 26 as National Character Counts week. (Executive Office of the President, 2020). Federal funding for character education implementation and research increased during the 1990s (Berkowitz et al., 2017).

Foundation for Positive Behavior Interventions and Supports

Based on the need for cultivating character in our nation's youth, more effective behavior interventions were sought beginning in the 1980s. Public schools are valuable settings that can provide positive adult and peer interactions, daily chances to have academic and social achievement, and permanent peer and adult relations promoted by social exchanges (Ögülmüs & Vuran, 2016). Researchers at the University of Oregon began working on ways to accommodate the growing need. Their endeavors showed that attention should be focused on preventative measures using research-based practices, decisions backed up by data, school-wide systems, and explicit instruction of desired behaviors (Bambara & Kern, 2005; McIntosh et al., 2019; Sugai & Horner, 2020). Research by Lloyd, Bruhn, Sutherland, and Bradshaw (2019) found that management of

undesirable student behaviors tended to fall into the category of applied behavior analysis. They found that by teaching desired behaviors over time, the new socially acceptable behavior was learned. This is the foundation of positive behavior supports (Lloyd et al., 2019).

The U.S. Department of Education first used the term Positive Behavioral Interventions and Supports, (PBIS) in 1996. The term is used prominently in the Individuals With Disabilities Education Act (U. S. Department of Education, 2021). The Department of Education also indicated that PBIS is not a specific program or curriculum (Office of Elementary and Secondary Education, 2021). It is a multitiered framework for organizing and achieving capacity to implement effective academic and behavioral practices (Sugai & Horner 2020). In the 1970s and 1980s concerns began to arise in the practices of aversive procedures, exclusion, and limited participation by students with behavioral disabilities. During this same time there was a push to reduce corporal punishment in school. Teachers also began to realize the need for set expectations and consequences in the classroom (Sugai & Horner, 2020; Lloyd et al., 2019).

School-wide positive behavior support (SWPBS) was the leading approach to offering the reform needed to reach the intended impact on public schools based on these school reforms from The Individuals with Disabilities Act 1997, No Child Left Behind, and the Every Student Succeeds Act (Horner & Macaya, 2018; Test et al., 2015; U. S. Department of Education, 2021; Zirkel, 2017). Positive Behavior Interventions and Supports consists of the analysis of the behavior. One needs to understand why the behavior is happening in order to help the student. Utilized in this process is a Functional Behavioral Assessment (FBA). The Observational data collected during an FBA include

looking at the Antecedent, Behavior, and Consequence data collection. These data are important in determining the specific instances where the behaviors are happening and why it is happening (Pas, Johnson, Debnam, Hulleman, & Bradshaw 2019). Through the FBA process the student is taught the socially acceptable behavior to replace the undesired behavior he/she is displaying. The idea is to focus on why the behavior is happening and not the behavior itself (Reeves, Umbreit, Ferro, & Liaupsin 2017; Sugai & Horner, 2020). During the early stages of PBIS, tiered system of preventing problems offered an excellent framework for organizing, adapting, and delivering effective behavioral interventions to all students, especially students with disabilities or high risk for failure were found to be successful (Sugai & Horner, 2020).

The Individuals with Disabilities Act of 1997 included a grant to create a national Center on Positive Behavioral Interventions and Supports. The purpose was to provide assistance to public schools in supporting students with behavior disorders. Based on the work done by researchers from the University of Oregon, they were given the grant (Sugai, 2000). The original design of the center contained a partnership of researchers and implementers from the Universities of Oregon, Kansas, Kentucky, Missouri, and South Florida, and from leading providers of specialized supports such as the Illinois Wraparound Network, May Institute, Sheppard Pratt Health Systems (Sugai, 2000).

The goal of PBIS is to move from imposing punitive measures with students who display problem behaviors to supporting difficult behavior students with positive interactions with school staff and positive reinforcement of expected behaviors in school. Suspending and expelling students does not always lead to progressing a student's behavior in a positive manner (Gagnon, Gurel, & Barber, 2017; Valdebenito, Eisner,

Farrington, Ttofi, & Sutherland, 2019). According to Green, Maynard, & Stegenga, (2018), being proactive in teaching students clear expectations of behaviors in school is more effective than punitive disciplinary actions. Smith (2016) stated that professional educators should focus efforts on making supportive environments that create quality and purposeful lives. One should be concerned with the contexts in which problem behaviors happen not with the behavior itself or the person displaying the behavior.

Continuum of Supports

Public schools are required to adopt and implement a continuum of behavior support to address the needs of all students (Adamson, McKenna, & Mitchell, 2019; Stephan, Sugai, Lever, & Connors, 2015). This continuum of support is typically operationalized to include three levels of tiered interventions from the least to the most intense intervention in a pyramid form (Lewis, McIntosh, Simonsen, Mitchell, & Hatton, 2017). The tiered system is based on the continuum of behavior support detailed in Figure 1 in Appendix A "…we learned that tiered systems of preventing problems offered an excellent framework for organizing, adapting, and delivering effective behavioral interventions to all students, especially students with disabilities or high risk for failure" (Sugai & Horner 2020, p. 121).

The types of interventions and supports thought to be appropriate and consistent within the PBIS model are visually placed in the pyramid framework model (L.D. Johnson, 2017). The pyramid is divided into three sections that meet the needs of all students at a given time. There is Primary/Universal level that addresses 70-90% of the students in the school (Sugai & Horner, 2020). These are the students that need little support. The next level is called Secondary. This level addresses the 10-30% of the

students that are not responsive to the primary level and need a little more support (Sugai & Horner, 2020). The final level is the Tertiary level. This is made up of 1-10% of the students that are not responsive to the first two levels and/or have mental health issues and/or significant issues outside of school (Sugai & Horner, 2020). A student can move in and out of each level of intervention depending upon the supports they need at a given time.

The Primary/Universal tier is used for all students in all settings (Adamson et al., 2019; Bastable, Massar, & McIntosh, 2020; Groff, 2020; McDaniel, Bruhn, & Mitchell, 2015; McIntosh, Massar, Algozzine, George, Horner Lewis, & Swain-Bradway, 2017; Positive Behavior Support, Primary Tier, 2013; Sugai et al., 2016; Van Camp, Wehby, Copeland, & Bruhn, 2021). They are the base expectations of the school. An example of this would be hats are not to be worn in school, with this posted in the classrooms and on signs in the hall. Most public schools apply the Primary/Universal tier to discipline issues and how they do business (Johnson, 2017). The Secondary level focuses on students that need a little extra help (Adamson et al., 2019; Groff, 2020; McDaniel et al., 2015; McIntosh et al., 2017; Olsen, Foxx, & Flowers, 2020; Sugai et al., 2016; Van Camp et al., 2021). An example of this would be meeting with teachers for one-to-one help on a set schedule. The Tertiary is the most in depth of the three, focused on students that need an individualized program (Adamson et al., 2019; Groff, 2020; McDaniel et al., 2015; McIntosh et al., 2017; Olsen et al., 2020; Stephan et al., 2015; Sugai et al., 2016). Examples of this could be a cooldown spot for students, being removed from a certain class, and meeting with a counselor at set times (Adamson et al., 2019; Groff, 2020; McIntosh et al., 2017; Sugai et al., 2016; Van Camp et al., 2021).

B. F. Skinner's behavioral theory and applied behavior analysis suggested that immediate feedback or reinforcement is significant in learning a new skill or knowledge (R. K. Day, 2016). To provide this immediate feedback, implementation of PBIS interventions must be supported by regular fidelity checks (Horner et al., 2005). The Tiered Fidelity Inventory (TFI) was developed to measure the fidelity of implementation of the three tiers of support (McIntosh et al., 2017). By using the TFI for fidelity checks, public schools and districts are able to measure to what level PBIS interventions are being implemented using a valid and reliable metric (Groff, 2020).

Universal Practices and Supports

Positive Behavior Interventions and Supports is a process through which public schools improve services for *all* students by creating systems wherein intervention and management decisions are informed by local data and guided by intervention research (McIntosh et al., 2019; Van Camp, Wehby, Martin, Wright, & Sutherland 2020; Van Camp, 2021). At the universal level, or Tier 1, there is a set of agreed upon expectations that all students must follow. The basic, universal expectations of all students are taught to all students through direct instruction. Students practice the expected behaviors in all settings of the school. This instruction is a preventative measure that in essence will create learning environments in which students' learning and engagement will increase, and there will be a decrease in social and behavior problems (Van Camp et al., Wehby, Copland, & Bruhn, 2021). Tier 1 procedures include instructing all students in the school's expectations, providing a systematic reward system for meeting them, and explaining consequences for not meeting those (Kern & Wehby, 2014). Teachers and staff evaluate students' ability to follow these expectations and offer reteaching when

necessary to students who exhibit behaviors that are contrary to what is expected. Sugai and Horner (2020) found that Tier 1 is fully implemented when a school can define, teach, respond, and monitor a set of school-wide behavioral expectations.

Data are collected through ODRs to determine if a student needs more intensive help, a teacher needs more guidance, or more monitoring needs to be happening to reduce problems in an area (Simonsen et al., 2019). Students who need more intensive behavioral help become Tier 2 or Tier 3 students. These students receive more help in monitoring their behavior through programs and systems set up by the school. There is a variety of systems to use in Tier 2 such as Check-in/Check-Out and social groups provided by the counseling department (Weber, Rich, Gann, Duhon, & Kellen, 2019). Tier 2 involves students in the Check-in/Check-Out process, which includes regular monitoring of behavior throughout the day and with a trusted adult in the school for morning and end-of-the-day conversations (Kern & Wehby, 2014). Tier 2 core features focus on intensive structures to the daily routines as well as the rate of positive feedback. The instruction of behavioral expectations increases as does the lessening of prompts to get the desired behavior. The data collections of these students are looked at more frequently (Sugai & Horner, 2020).

Students who move into Tier 3 need a more individualized plan for behavior interventions. Tier 3 behavior supports include a broad team focused on the student, with more detailed behavior assessments and observations (Kern & Wehby, 2014). An FBA is needed for these students to determine the best strategies for the plan. Oakes et al. (2018) suggested that the use of FBA-based interventions for students with at- risk behaviors has

potentially positive effects. The assessment determines behavioral as well as academic and mental health needs. Sugai and Horner (2020) explained:

…design of comprehensive, individualized plans of support that incorporate student and family values and input and that organize school resources to teach and acknowledge appropriate behavior…collect and monitor both fidelity and student outcomes of behavior support and regularly adapt support practices in response to student performance." (p-125)

Positive Behavior Interventions and Supports World-Wide

Initial research conducted at the University of Oregon was followed by pilot programs in Canada and northwestern United States public schools (Sugai & Horner, 2020). In 1996 Dr. Lewis, one of the original researchers, joined the University of Missouri Special Education Department and began a research project in public schools in Columbia, Missouri (Zabel, Teagarden, & Kaff, 2019). By 1999 Dr. Lewis and his colleagues from the Center on Positive Behavioral Interventions and Supports were able to establish the first national SW-PBS Center, located at the University of Oregon, due to receipt of another grant through the Office of Special Educations Programs "Members Honored with Awards at CEC Convention" (2020).

At present there are over 25,911 public schools within the United States participating in PBIS initiatives. There are also many public schools in Canada, Australia, Japan, Singapore, and several countries in Europe including Hungary, Finland, The Netherlands, Turkey, and Portugal (Positive Behavior Support, 2020). The U.S. concept of PBIS based on Skinner's theory of operant conditioning is easily adapted to other countries' settings (MO-SW-PBS, 2019; Horner et al., 2005).

Benefits of Positive Behavior Interventions and Supports

Schools across the country have for years been allowed to have or not have character education as part of their curriculum. In 2001 the federal government required public schools to identify a method of character education that was research based and could provide data to meet the requirements of No Child Left Behind and the Every Student Succeeds Act (U. S. Department of Education, 2021; McIntosh et al., 2017; Test et al., 2015; Congress.gov, 2001; Zirkel, 2017). Elias and Yuan (2020) saw the importance of all stakeholders coming together and creating a common language. Common language provides the benefit of allowing all stockholders to have a common understanding of what is being said. Often, public schools will have separate terms for the same things, which is not an effective use of limited resources (Elias & Yuan, 2020). One of five principles of courageous leadership is to ensure constancy and consistency by providing and reinforcing common protocol/expectations (Blankstein, 2017). Positive Behavior Interventions and Supports provides consistent protocols when followed with fidelity. The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (McIntosh et al., 2019; Reeves et al., 2017; Sugai & Horner, 2020).

Educators today face many difficult challenges with high stakes testing and new government standards. However, one of the biggest obstacles in a classroom is meeting the diverse needs of all students, including those with behavior disorders (Göloğlu & Kaplan, 2021; Mintz & Kelly, 2021; Tefera, Hernández Saca, & Lester, 2019; Yiu, 2020). Federal mandates demand that students with disabilities receive reasonable accommodation in a safe environment (Bennett, 2014). This combined with federal and

state mandates that all learners meet or exceed certain curricular guidelines leads to taxing burdens on educators (Baker, 2005).

The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Sugai & Horner, 2020). Data are some of the most powerful tools to be used in driving decisions. Positive Behavior Intervention and Supports is designed to provide staff with data to drive decisions for the primary tier of PBIS. The primary tier of PBIS is designed to create positive, predictable environments for all students at all times of the day (Ross & Horner 2014). In scores of discussions with educators today, you will hear words such as burnout, retention, student behavior problems, poor working conditions, and teacher efficacy (Bottiani, Duran, Pas, & Bradshaw, 2019). Ross and Horner (2014) suggested that stress of teachers affects their relationships with students. Positive Behavior Intervention and Supports provide teachers with tools to reduce their stress (Hayes, 2020; Hollingshead, Kroeger, Altus, & Trytten, 2016; Ross & Horner, 2014).

Providing inclusion for all students requires significant training and expertise (Van Steen & Wilson, 2020). At its basic level, PBIS implementation involves behavioral science, practical interventions, social values, and a systems perspective (see Table 1; Sugai et al., 2000). Students who attend PBIS public schools have indicated that the program is more equitable and the environment is more inclusive for students with and without disabilities (Walker, Loman, Hara, Park, & Strickland-Cohen, 2018).

Data Driven for Decision Making

The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Sugai & Horner, 2020). Data

are some of the most powerful tools to be used in driving decisions. Positive Behavior Interventions and Supports provides consistent and reliable data as a powerful tool to be used in driving decisions. Simply obtaining and going over data is not what makes it worthwhile. Data need to be shared with staff to create a powerful story of the school so staff realizes the need for modifications for the betterment of all (Aderet-German & Peretz, 2020). It is also important that data collected are used (Bastable et al., 2020; Gage & Stevens, 2018; Ing, Chinen, Jackson, & Smith, 2021; Schrock, 2017). There are five core areas of data collected in a PBIS school. These are referred to as the Big Five and include: referrals by day, referrals by time, referrals by location, referrals by student, and referrals by behavior (Sugai & Horner, 2020). By using this data staff can determine problem areas in a school that may need more monitoring or could identify students who need more intensive behavioral instructions (Simonsen et al., 2019).

Professional Development

Educators need to have the opportunity to engage in professional development that is collaborative and authentic to the school setting. This type of professional development is an alternative approach emphasizing process and content along with collaboration and inquiry learning (Palmer & Noltemeyer, 2019). Professional development needs are inherently different at the elementary and secondary levels; however, both need to address the following: the impact of PBIS on teacher behavior, and the impact of PBIS on student engagement (Feuerborn & Tyre, 2016).

Richter (2006) suggested the need for principals to engage in PBIS professional development as well to develop the skills needed for understanding the unique issues of their school and effectively addressing them. The principals must focus on a targeted

professional development that stresses incremental changes that are tied to the public schools' goal of student and staff success Effective Behavioral and Instructional Support Systems (EBISS, 2020). Professional development should focus on measurable goals and identified gaps. Public schools need to focus on making application of the PBIS model as simple as possible. Principals must look at what they can combine and/or replace if they truly want the program to be adopted in their school (Wood, Goodnight, Bethune, Preston, & Cleaver, 2016).

To effectively instruct students, teachers must receive instruction in evidence-based management strategies (Gupta & Lee, 2020). Flower, McKenna, & Haring (2017) suggested that a lack of teacher professional development may lead to ineffective practices resulting in a loss of student learning. To avoid loss of learning time and teacher stressors that may result in teachers leaving teaching, public schools must provide professional development in working with students who have challenging behavior, particularly for new teachers (Flower et al., 2017). McDaniel et al. (2015) explained that when teachers receive quality professional development and are able to implement PBIS with fidelity at least 80% of the student population should have their behavioral needs met.

Factors Influencing the Decision to Adopt Positive Behavior Interventions and Supports

School Culture. School climate/culture is the product of social interactions among students and teachers influenced by educational and social values (Edgar-Smith & Palmer, 2015; Koth, Bradshaw, & Leaf, 2008; Payne, 2018; Potter, H., Boggs, B. and Dunbar, 2017; Schein & Schein, 2018). Readiness for schools to successfully adopt the PBIS model was shown in a large study performed in 2015 in over 23 states surveying 91

randomly selected public schools, (Fallon et al., 2015, p. 252). The study results suggested when the PBIS model was developed in a culturally and contextually relevant manner, school personnel would likely support implementation (Fallon et al., 2015, p. 255).

In order to achieve positive change in a school the school climate must encourage students and staff to identify with the positive aspects of the school (Gülşen & Çelik, 2021). If the school offers a creative/challenging and safe climate that allows students to participate in decision making, students are more likely to engage in academics and attend school (English, 2019; Virginia Department of Education, 2005). It is important that leaders in the school listen to what is being said. A true leader will take the information gathered about the school's culture and use it to guide the direction (Bennett, 2020; Matta, Volpe, Briesch, & Owens, 2020).

School culture may play a vital role in a public school's dropout and graduation rates (Perry, 2017; Potter et al., 2017). When implemented with fidelity PBIS has been associated with improvements in the overall school culture by developing the ability to address individual student needs (Freeman et al., 2015). A sample of 883 public high schools from 37 states suggested that implementation of PBIS across time may result in better high school attendance that could bring about a lower dropout rate (Freeman et al., 2015). Attendance in both the elementary and secondary level is an important indicator for students' long-term success. PBIS as part of a public school's culture has the potential to create an effective framework for improving student outcomes (Freeman et al., 2016).

School counselors are often overlooked when addressing a public school's culture/climate. However, a public-school counselor can have a major impact on a public

school's culture/climate as a school's implements PBIS (Betters-Bubon & Donohue, 2016). Betters-Bubon and Donohue (2016) found that when school counselors become leaders of PBIS they can accomplish the following:

- Coordinate a comprehensive school counseling program through common language and behavioral expectations.
- Develop and plan grade-level practices at the elementary, middle, and high school levels.
- Instruct staff on how to use behavioral data gathered through PBIS universal reporting and coordinate building-wide efforts surrounding multi-tiered systems of support.
- Lead professional development regarding how PBIS links social/emotional skills and academic success.
- Use data-based decision making to construct small group interventions.

There is growing evidence supporting the impact of a school's counseling program on a public school's culture/climate when counselors align their programs with Skills Survey for Multi-Tiered Systems of Support (Betters-Bubon, Brunner, & Kansteiner, 2016; Olsen et al., 2020). When determining whether a school is successful or not an important variable to consider is the school climate. To improve school climate Positive Behavior Intervention and Supports introduces interventions that target part of the of school climate (Sooter, 2014). Implementing PBIS at both the elementary and the secondary level may improve both the school climate and academic achievements. Ryoo, Hong, Bart, Shin, and Bradshaw (2018) theorized that by implementing PBIS, opportunities for learning and academic achievement improve due to a lower rate of

behavioral issues in the classroom. Reduction in the numbers of ODR's results in teachers being better able to meet student academic needs (Gage, Sugai, Lewis, & Brzozowy, 2015; Marchbanks et al., 2015; Ryoo et al., 2018).

Attitudes Toward Positive Behavior Interventions and Supports/Buy-In.

The most frequent theme revealed as important to the sustainability of PBIS was staff buy-in (Jolivette, Swoszowski, Boden, Ennis, Allen, Williams, & Dana, 2020). Staff buy-in describes the commitment of teachers and staff in supporting PBIS implementation. A lack of staff buy-in is the most common barrier for PBIS (Atasoy, 2020; DeMarco & Gutmore, 2021; McDaniel, Kim, & Guyotte, 2017). Consistent leadership and a strong PBIS team are needed to implement an effective PBIS approach. Clayton, Robertson, and Sotomayor (2020) suggested a need for several components for successful implementation. Public schools need a committed leadership team, rules designed for easy recall, and it needs to be interwoven across every area of the school. A strong consistent principal that believes in PBIS and shows all stakeholders why it is so important and beneficial by modeling PBIS is extremely important (Pinkelman et al., 2015). Without a strong leader and staff buy-in the PBIS program will fall apart (Jolivette et al., 2020). Day, Qu, and Sammons (2016) described patterns and common leadership strategies used by principals to be effective in effecting change in a school. They suggested that by building the leadership capacities of staff, using data to enhance teaching and learning, and clearly articulating shared moral and ethical values, staff will be invested and buy in (C. Day, Qu, & Sammons, 2016).

To ensure successful implementation of PBIS, leaders must be aware of the potential for teacher burnout and help staff understand that PBIS will help leaders meet

their responsibility for making a safe and effective learning environment (Bottiani et al., 2019; Moss, 2020; Wohlever, 2020). Leaders through analysis of data must target toxic conditions that are contributing to staff negativity and burnout (Kennedy, Peters, & Thomas, 2011; Moss, 2020). A strong supportive principle is important to avoid burnout. Wohlever (2020) defined burnout as a syndrome that evolves over time as a response to chronic stress characterized by cynicism toward the job, feelings of ineffectiveness, and overwhelming exhaustion. Schlicht (2020) recommended that to sustain PBIS beyond 3 years leadership must nurture cultures of collective responsibility and implement deliberate action steps to develop leadership capacity in their school's staffs. The study provided information that suggested developing leadership capacity within the school was essential for the PBIS model to be successfully implemented (Schlicht, 2020). Ultimately, the perceptions of a school's teachers are the driver to implement and sustain PBIS (Ayers, 2017). In a small study conducted in Missouri results indicated there was a significant difference in the perceptions of teachers in PBIS public schools versus teachers in non-PBIS public schools related to a positive school culture (Quackenbush, 2017). Staff buy-in can be a crucial piece for the successful implementation of PBIS intervention (Filter, Sytsma, & McIntosh, 2016).

The Effective Behavior Support Self-Assessment Survey, (SAS), provides a measure of school staff's perception of PBIS both initially and then annually (Rice, Srisarajivakul, Meyers, & Varjas, 2019). The survey asks teachers to check one of three areas: "in place," "partially in place," or "not in place" (Solomon, Tobin, & Schutte, 2015). Using the date from the SAS, leaders are able to focus on specific issues and develop action plans to address deficiencies (Griffiths et al., 2019). Edger-Smith and

Palmer (2015) suggested that it is important to focus on staff buy-in and education before beginning implementation.

Sugai and Horner (2020) suggested the importance of securing commitment from all stakeholders, families, school and community leaders, and board members to be involved in developing policy and setting initial goals to help develop buy-in. To achieve the initial goals stakeholders must identify a problem behavior by type, location, and, time, agreeing on a course of action (Evanovich & Terrance, 2016). Communication networks within the school will influence implementation of PBIS and teachers' ability to consistently promote the public school's core values to students (Whitcomb, Woodland, & Barry, 2017).

The clientele of the school system must also have a voice. Student buy-in is just as important as staff buy-in (Sooter, 2014). Public schools often forget the crucial information they can obtain through asking students their opinion. When making decisions related to implementation of PBIS, student voice is extremely important in developing interventions, rewards, and strategies.

Public schools must remember to involve their students in the development of teaching and reinforcement practices if they want to continue to improve school climate (Freeman et al., 2019). Teachers are able to gain student buy-in when they allow them to be a part of the process. Skinner's theory of operant conditioning supports that the positive reinforcers of feeling are directly a part of the process (R. K. Day, 2016; Benninga, 2018; Johnson, 2016; McGrath, 2018; Edmonson, 2009).

Economic Reasons.

In a time when public schools are expected to do more with decreasing funds the PBIS model makes good economic sense (Marchbanks et al., 2015; Swain-Bradway et al., 2017). Through a process called asset or resources mapping a school can identify, target, integrate, and align all programs in the school related to behavior and academic success (Kingston, Mattson, Dymnicki, Spier, Fitzgerald, Shipman, Goodrum, Woodward, Witt, Hill, & Elliott, 2018). This process of the PBIS model saves money and teacher frustration by cutting away redundant, ineffective, or unnecessary programs (Flannery & Sugai, 2009). Horner and Macaya (2018) stated that never before has the collection and use of data for making decisions about behavior support been so available for such a low cost. The challenge faced today is not in the identification of what is needed in public schools in order for them to be effective learning environments, but instead about understanding the political, fiscal, and organizational aspects that affect the program being used with high fidelity and sustainability (Horner & Macaya, 2018; Melekoğlu, Bal, & Diken, 2017). When PBIS is implemented with fidelity it can be cost-effective and efficient in managing disruptive behavior as interventions are generalized across settings (Ramirez, Hawkins, Collins, Ritter, Haydon, & Codding, 2019). Baehr (2017) found data suggested that the implementation of PBIS in a school appears to have had a positive impact on the number of suspensions resulting in a higher ADA for the school.

Gage, Grasley-Boy, Lombardo, and Anderson (2020) found that the reduction in out-of-school suspension (OSS) associated with the implementation of PBIS with fidelity in California saw the reduction in long-term economic burden. Their data showed if all public schools in California implemented PBIS with fidelity it could be a $264,417,300

reduction in lifetime costs to the state for the negative student outcomes associated with suspension events. Swain-Bradway et al. (2015) examined data from 21 K-2 intervention public schools and found that by reducing the out-of-school suspension rate by 1.7% points in the intervention public schools the estimated savings was over $27,575,058.80. This number was based on a $12,400 cost per school to implement PBIS for the four-year duration of the study. Keeping students in school and learning are the ultimate goal, but there is a correlation to economics (Gage et al., 2020; Marchbanks et al., 2015; Swain-Bradway et al., 2015). Skinner's theory of operant conditioning supports that if there are positive reinforcers connected to the students' learning then the student will be more likely to continue seeking those positive reinforcers and continue in school (R.K. Day, 2016; Horner & Macaya, 2018; Benninga, 2018; Johnson, 2016; McGrath Kato et al., 2018; McIntosh et al.,2017; Sugai & Horner, 2020; Edmonson, 2009).

Discipline rate.

The office student discipline rate is the most common way to gage a student's projected level of success (Alavosius, 2015; Childs, Kincaid, George, Gage, 2016; Gage et al., 2015; Marchbanks et al., 2015; McGrath Kato, 2018; Ryoo et al., 2018; Simonsen, 2019: Sooter, 2014; Sugai & Horner, 2020). Research has shown a clear correlation between office referrals and a student's behavioral issues reduction in lifetime costs to the state for the negative student outcomes associated with suspension events (Alavosius, 2015; Childs et al., 2016. Swain-Bradway et al. (2015) examined data from 21 K-2 intervention public schools and found that by reducing the out-of-school suspension rate by 1.7% points in the intervention public schools the estimated savings was over $27,575,058.80. This number was based on a $12,400 cost per school to implement PBIS

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A larger study by Spaulding et al. (2010) used 1,510 public schools across the country and found that in public schools implementing the PBIS model with fidelity for middle school students 72% of students averaged zero to one office referral. In high schools, the average was 67% (Becker, 2013). Noltemeyer, Palmer, James, & Petrasek (2019) suggested that PBIS Ohio public schools that scored 70% implementation or higher on the PBIS TFI experienced higher performance index scores when compared to Ohio public schools that scored below 70% implementation of PBIS. A study involving 593 Florida public schools that had implemented PBIS with fidelity and 593 Florida public schools that have PBIS schools that did not train their faculty found statistical significance regarding fewer suspensions with an effect size of −0.55, indicating meaningful improvements (Gage, Grasley-Boy, Peshak, Childs, & Kincaid 2019; Gage,

Leite, Childs, & Kincaid, 2017). Valdebenito et al. (2019) found that nationally of the 49 million elementary and secondary students enrolled in public schools 7.4% (3.5 million) were suspended using in-school suspension, 7% (3.4 million) were suspended out-of-school, and less than 1% were expelled (130,000 students). These punitive school discipline practices negatively affect student academic growth and have created an inequitable system of education that is reflected in the school-to-prison pipeline (Potter et al., 2017).

Efforts to reverse school-to-prison pipeline include PBIS as an alternative to zero tolerance discipline practices (Okilwa, Khalifa, and Briscoe, 2017; Baule, 2020). During the 2009-2019 school year, 85% of elementary and secondary public schools reported a criminal incident. Criminal incident was defined as weapons possession, serious violent crime, theft, vandalism, drug/alcohol possession, or a less serious violent crime such as a fight/assault (Snyder, de Brey, Dillow, 2016). A large sample of archival data from the state of South Carolina's juvenile justice agency examined variables that accounted for group differences in persistence of juvenile offenders and found that early adverse experiences including mental health issues, family/home issues, IEP disabilities, IEP development delays in school, and juvenile recidivism accounted for more than 20% of the variance in adult offending (Barret & Katsiyannis, 2016). This percent was derived using the Cox Proportional Hazards Regression analysis. Several time-dependent covariates including age at first offense, repeat versus one-time offenders, and gender showed that this group of offenders differed significantly from non-delinquents on every category of risk of committing a felony as an adult (Barret & Katsiyannis, 2016). The Department of Education and the Department of Justice launched the Supportive School

Discipline Initiative to encourage public schools to move away from suspensions and toward alternative strategies (Baule, 2020; Edgar-Smith & Palmer, 2015; Gregory, Skiba, & Mediratta, 2017; Steinberg & Lacoe, 2017). Gregory et al. (2017) based their framework for eliminating disparities on the Supportive School Discipline Initiative. Losen, Hodson, Keith, Morrison, and Belway (2015) suggested that efforts for eliminating excessive and disproportionate discipline will depend on the commitment to changing practices and policies by focusing on three areas: data, support and school climate accountability.

B. F. Skinner's theory of operant conditioning suggested that an association is made between a behavior and a reinforcement or consequence for that behavior (Cherry, 2016). Immediate feedback may be perceived as positive or negative stimuli. The presence of positive or negative reinforcers in the school climate is the product of commitment to changing interactions among students and teachers (R. K. Day, 2016; Edgar-Smith & Palmer, 2015; Payne, 2018; Swindlehurst et al., 2015).

Effectiveness in the High School

There is a wealth of evidence supporting the positive impact of PBIS; however, the majority of the data stems from public elementary and middle schools, but the number of public high schools implementing PBIS has grown and now spans 35 states and represents 13% of all U.S. public schools implementing PBIS (Freeman et al., 2019). Evidence collected suggests it may take public high schools longer to implement with fidelity and sustaining implementation may be more challenging than in public elementary schools due to school size, student development level, and a school culture geared more toward academic successes (Pas, Waasdorp, & Bradshaw, 2015). The larger

the size of public high schools, the more difficult to teach the Tier 1 expectations and collect data (English, 2019; Flannery Frank, McGrath Kato, Doren, & Fenning, 2013; Flannery & McGrath Kato, 2017; University of Missouri College of Education & Human Development, 2020; MO-SW-PBS, 2020).The development level of students requires the leadership team to seek student input and participation in developing the teaching and reinforcement practices (Bennett, 2020). Teacher buy-in is more difficult due to the focus on academic success, and teaching behavioral skills reduces academic time (Bottiani et al., 2019; Chitiyo, May, Mathende, & Dzenga 2019; Demchak & Sutter, 2019).

Secondary public schools are extremely complex with many layers to consider when implementing PBIS (Bohanon, Fenning, Eber, & Flannery, 2015; English, 2019; Evans, Borriello, & Field, 2018; Flannery et al., 2013; Flannery et al., 2017; Gulsen & Celik, 2021; Neal, Rice, Ng-Knight, Riglin, & Frederickson 2016; Office of Elementary and Secondary Education, 2021; Sooter, 2014). Leaders must address the large number of students, staff, directors, and administrators. Also, as the school districts have different academic expectations related to successful graduation rates (Flannery & Sugai, 2009). Implementation is further complicated by factors such as graduation requirements, supporting the transition from high school to colleges and/or employment, and the unique needs of adolescents (Malloy, Bohanon, & Francoeur, 2018). The most widely used tool for monitoring evidence for effectiveness in the high school of any behavior program is ODR's. This is because they are a continual source of empirically relevant data (Sugai & Horner 2020). Office discipline referrals have been linked to juvenile offences, student dropouts, and low success in school (Alavosius, 2015; Childs et al, 2016; Marchbanks et al, 2015).

Flannery, Fenning, Kato, & McIntosh (2014) found the majority of ODRs at the high school level included tardiness, defiance/disrespect, and truancy; freshman was more likely to receive ODRs; and students receiving excessive ODRs typically receive several at the beginning of the school year. This suggests that early intervention is key (Melekoğlu et al., 2017). Freeman et al. (2015) reported public schools that implement PBIS with fidelity can expect to see a decline in ODR rates and an increase in average daily attendance. A study that examined 153 Ohio public schools that implemented PBIS found evidence that public schools with high PBIS implementation fidelity had significantly less ODR's than public schools with lower implementation fidelity (Noltemeyer et al., 2019).

To further show the importance of reducing ODR's McGrath Keto et al. (2018) found when PBIS leadership teams disaggregated their data, they often discovered that freshmen students had the most ODR's, most failing grades, and drops in attendance rates. They also found that more students fail their freshman year than any other grade in high school; additionally, the dropout rate is highest for students who were held back in ninth grade. At its basic Tier 1 level PBIS offers support to students in their first year of high school to provide a consistent, predictable, positive, and safe environment where students can focus on learning (Noltemeyer et al., 2019). Data show that by investing time in the younger students and teaching them the expectations, problem behaviors that impede learning can be prevented (Horner et al., 2005; Noltemeyer et al., 2019; Simó-Pinatella, Mumbardó-Adam, Alomar-Kurz, Sugai, & Simonsen, 2019; Smith et al., 2016).

Malloy, Bohanon, and Francoeur (2018) through a New Hampshire high school case study regarding fidelity in implementation of PBIS found a drop in the dropout rate and out-of-school suspensions between the first and second year of implementation. Office referrals per 100 students dropped from 1.34 in the first year to 0.77 by the fifth year of implementation. Continued implementation with fidelity in public high schools is important as a model for improving school outcomes as well as helping in the transition to adult life outside of school (Gage et al., 2018). Wienen et al. (2019) found when PBIS is implemented with fidelity in special need public schools, while slower to implement, can be very successful.

Implementation Issues

There are topics that emerge as possible issues with the implementation of School wide Positive Behavior Interventions and Supports. Yeung et al. (2016) cited the factors most frequently influencing sustainability are administrator support, high-quality professional development, and technical coaching. While implementation fidelity may appear to be school wide there is a lack of assessments of individual classrooms. This can make evaluating interventions with fidelity difficult (Bastable et al., 2020; Childs et al., 2016; English, 2019; Flannery & Sugai, 2009; Flannery et al., 2014; Flannery & McGrath Keto, 2017; Freeman et al., 2015; Griffiths et al., 2019; Johnson, 2016; Johnson, 2017; Jolivette, 2020; Pas et al., 2015; Sooter, 2014; Yeung et al., 2016).

There is an issue regarding implementation between elementary and secondary on how PBIS is approached. Students at the secondary level do not respond to the same interventions they did in elementary school. Factor in that many students are not prepared for the transition and it compounds the issue (Neal et al., 2016). Neal et al. (2016) found

there are inconsistent interventions from elementary to secondary, however, they found there are generally positive outcomes for students that transition from a school that prepares them for the differences they may encounter at the secondary school level and the interventions there.

Public schools are not required, nor do they have the ability to impute fidelity data for years prior to report fidelity measures (Freeman et al., 2015). Some public schools face the issue of trying to attempt more than they can realistically implement and support over long periods of time (Atasoy, 2020; Chitiyo et al., 2019; DeMarco & Gutmore, 2021; Pinkelman et al., 2015; Sugai & Horner, 2020; Yeung et al., 2016). Public schools also have the challenge of changes in educational leadership, teacher turnover, funding issues, and political policy changes (Sugai & Horner 2020). Low staff buy-in is a barrier to implementation and sustainability (Atasoy, 2020; DeMarco & Gutmore, 2021; Sugai & Horner, 2020). Staff buy-in describes the commitment of all teachers and staff in supporting PBIS. It does not include administration (Pinkelman et al., 2015).

Tyre and Feuerborn (2017) found that some nonsupportive staff members were concerned about the commitment and participation levels, while others had philosophical disagreements with the PBIS model. Some staff members feel that extrinsic reinforcements are a form of bribery and do not feel that their job description includes teaching behavior expectations (Atasoy, 2020; Chitiyo et al., 2019; DeMarco & Gutmore, 2021; Feuerborn & Tyre, 2016; Filter et al., 2016; Jolivette, 2020; Evanovich & Terrance, 2016; Pinkelman et al., 2015; Sugai & Horner, 2020; Tyre & Feuerborn, 2017; Yeung et al., 2016). Elementary staff were concerned for negative school climate and specific areas of implementation (Gupta & Lee, 2020; Khoury, 2017; Reno, Friend, Caruthers, &

Smith, 2017; Ryoo et al., 2018). Middle school staff concerns focused on student support (Akos & Orthner, 2015; Bottiani et al., 2019; DeMarco & Gutmore, 2021; Khoury, 2017; Ryoo et al., 2018). In the high school setting Tyre and Feuerborn (2017) found nonsupportive staff members' concerns to include philosophical differences, administrative support, and student involvement.

School administrator support also has the potential to be an issue with implementation. Administrator support is crucial for PBIS to be effective (Atasoy, 2020; Bennett, 2020; Blankstein, 2017; Clayton et al., 2020; C. Day, 2016; DeMarco & Gutmore, 2021; Evanovich & Terrance, 2016; Schein & Schein, 2018; Schlicht, 2020). It takes a principal who believes in the program and presents it to the staff demonstrating the importance and benefits to students and teachers for PBIS to be successfully implemented (Pinkelman et al., 2015). McDaniel et al. (2017) through focus groups found the most consistent barrier to implementation was administrator buy-in followed by teacher buy-in. Further challenges include lack of parent involvement, lack of community involvement, and a culture of poverty in some public schools (McDaniel, 2017; Potter et al., 2017).

According to Pinkelman et al. (2015), resources is a common theme that arises when looking at implementation issues. The resource of time is a barrier (Hoagwood et al., 2017; Pinkelman, 2015). Many public schools implementing PBIS indicate there is a significant time commitment in order to plan, meet, and review data, as well as the time needed to instruct students in expectations and train staff (Hoagwood et al., 2017). The resource of money in order to fund the program, buy rewards and incentives, and purchase necessary materials is almost nonexistent (Pinkelman et al., 2015). PBIS faces

challenges being implemented with fidelity in areas outside of the school building due to lack of personnel in these areas to observe and collect data. Collection such as on school buses due to prohibitive long observation periods, seatbacks, and overcrowding (King, Kennedy, & Powelson, 2019).

According to Chitiyo et al. (2019), sustaining PBIS over time is the biggest issue for many public schools (Betters-Bubon & Donohue, 2016; Jolivette, 2020; Payne, 2018; Pinkelman et al., 2015; Schlicht, 2020; Sugai & Horner, 2020; Yeung et al., 2016). This is caused by many factors including leadership support or turnover, lack of parent engagement, other priorities, and lack of resources and funding (Becker, 2013; Chitiyo et al., 2019; Koth et al., 2008; Sugai & Horner, 2020; Swain-Bradway et al., 2015; Van Steen & Wilson, 2020). Despite the widespread implementation of PBIS, research has found that most public schools are likely to abandon the program within the first 3 years of implementation, and urban public schools are more likely to abandon PBIS than rural public schools (Baule, 2020; Bottiani et al., 2019; Holland, 2019; Hollingshead et al., 2016; Swindlehurst et al., 2015; Yiu, 2020). Verschuur, Huskens, & Didden (2015) suggested that other factors such as cognitive abilities and IQ may account for students' misbehavior and not PBIS interventions. When PBIS is not implemented with fidelity public schools that seek to avoid punitive disciple may trade a disciplinary system of control for a medicalized system identifying unwanted behavior as evidence of possible behavioral disability (Bornstein 2017). Skinner's operant conditioning supports the importance of consistency behavior modification by reinforcement or punishment (Hambel, 2020). Positive Behavior Interventions and Supports is solely based on reinforcing positive behavior (Horner & Macaya, 2018).

Differences between elementary and secondary implementation

Two significant differences that secondary public schools must address that elementary public schools do not are at-risk/delinquent/dropout behaviors of students and the unique pressures for public high schools to provide improved academic outcomes (Bohanon et al., 2015). It is more difficult to get older students to buy into the expectations of PBIS than it is with elementary-aged students, and giving them a voice helps in this process (Flannery & McGrath Kato, 2017). The principles of PBIS are the same at all levels, but the high school environment impacts the process of implementation. The core principles of PBIS are to: (a), Effectively teach socially acceptable behavior to all students; (b), Intervene early before behaviors become ingrained or worsen; (c), Use research-based, scientifically validated interventions whenever possible; and (d), Monitor student progress (Office of Special Education, 2021). All four of the base principles are easier to implement with fidelity in elementary public schools due to the fact that students are typically self-contained with one teacher throughout the day and younger students are less likely to resist teacher involvement (Andreou, McIntosh, Ross, & Kahn, 2015). Public high schools must rely on leadership, data related to needs, and effective communication plans due to their size in comparison to elementary public schools (Flannery & McGrath, 2017). The transition from elementary to secondary education can interrupt students' academic growth during the transition year (Akos et al., 2015). Many researchers see the change as a stressful event (Akos et al.,2015; Bottiani et al., 2019; DeMarco & Gutmore, 2021; Evans et al.,2018; Hayes et al., 2020; Khoury, 2017; Moss, 2020; Neal et al., 2016; Pas et al., 2015; Ryoo et al., 2018; Wohlever, 2020). Students report being concerned about fitting in, being lost,

fear of older students and anxiety over increased expectations, and workload (Evans et al., 2018). When implemented with fidelity PBIS has been associated with improvements in the overall school culture by developing the ability to address individual student needs (Freeman et al., 2015).

Positive Behavior Interventions and Supports was initially designed for the elementary and middle school settings (Sugai, 2008). Variables that are unique to the high school setting have influenced the implementation at this level. For example, public high schools have a physically larger building, a larger number of students compared to public elementary and middle schools, and a larger faculty (Akos et al., 2015; Flannery & Sugai, 2009; Flannery et al., 2013; Khoury, 2017; High-Schools.com, 2021). Public high schools rely greatly on the department structure of the building where input on school decisions is made through department chairs (Flannery & McGrath, 2017).

In the elementary setting a teacher's role is not only to focus on academic content across all areas, but it is also their role to support learning in the areas of social skills and introduce strategies to help students improve (Gupta & Lee, 2020; Khoury, 2017; McDaniel et al., 2018; Reno et al., 2017; Ryoo et al., 2018). Flannery & McGrath (2017) suggested that at the high school level teachers place a higher value on the instruction of their specific content area. The developmental level of high school students also is unique as they are moving into adulthood. This decreases their desire to please teachers and moves towards wanting to please peers and be part of decision making.

Positive Behavior Interventions and Supports implementation is guided through a leadership team. In the lower grades this is done usually through staff representation from each grade level making a small team that can easily discuss with the rest of their

grade-level colleagues important information (Bastable et al., 2020; Betters-Bubon et al., 2016; Childs et al., 2016; Flannery, Frank, McGrath Kato, Doren, & Fenning, 2013; Flannery & McGrath Kato, 2017; Flannery, Sugai, & Anderson, 2009;; Freeman et al., 2015; Griffiths et al., 2019; Johnson, 2016; Jolivette, 2020; Kim, McIntosh, Mercer, & Nese, 2018; Pas et al., 2015; Simonsen et al., 2019; Sugai & Horner, 2020). It takes planning to keep communication open at all level of public school. At the high school level there is a need to develop a student leadership team where students have a voice in planning and implementing decisions (Feuerborn, Tyre, & Beaudoin, 2018; Freeman et al., 2019; Gage et al., 2020; Gagnon, Barber, & Soyturk, 2018; Sugai & Horner, 2020). Many, elementary buildings do this through Leader in me (Leaderinme.org, 2018). A study of 860 public schools found that staff buy-in and implementations with fidelity is often easier to achieve in elementary public schools than in secondary public schools (Reno et al., 2017). Scheuermann & Nelson (2019) found the importance of providing students with incentives in a sampling of elementary teacher. However, due to the unique pressures for secondary public schools those incentives that worked in elementary do not work at the secondary level (Bohanon et al., 2015). The implication of a 2018 study was that all stakeholders, students, staff, teachers, parents, and families must be a part of designing any character development programs (Zurqoni et al., 2018). School leaders and staff must consistently implement role modeling of desired behavior, clear description and goals of interventions, and consistently reinforce desired behaviors (McDaniel et al., 2018; Zurqoni, Retnawati, Arlinwibowo & Apino. 2018).

There is often limited to no communication between elementary and secondary public schools and limited common language as elementary uses language that is

elementary sensitive. Most interventions that work well in elementary do not smoothly transfer to the secondary level (Andreou et al., 2015). Neal et al. (2016) found there are generally positive outcomes for students that transition from a school that prepares them for differences they may encounter at the secondary level.

Differences Between Rural and Urban Public Schools.

The Office of Management and Budget (2010a, 2020b) defined urban areas as Metropolitan Statistical Area, and a combined Metropolitan and Micropolitan area. Metropolitan population centers have at least 50,000 or more people. Micropolitan is the area outside of the Metropolitan area but still a part of it that has a population of at least 10,000 (Office of Management and Budget, 2020). The Office of Management and Budget defined rural areas as population centers having less than 10,000 people (United States Department of Agriculture, 2020). A school is considered rural according to the population of the geographical area. However, the geographical location can make determining an area rural or urban difficult. Location can be important when determining the quality of school districts and the ability of the school to provide as opportunities to students (Holland, 2019).

Public schools adopting PBIS in urban areas had lower rates of adoption when compared to public schools in rural areas. Factors such as the large number of public schools in a district, competing initiatives, and limited resources can affect adoption (Kittelman, McIntosh & Hoselton 2019). Rural public schools do not have to contend with the level of institutional, structural, and social inequities and challenges that urban public schools do (Hatchimonji, Linsky, & Elias 2017). Rural public schools are more homogeneous than urban public schools (Dupere, Goulet, Archambault, Dion, Leventhal & Crosnoe

2019; Hatchimonji, Linsky, & Elias 2017). There are a number of issues that are unique to the urban settings: large student population, diverse communities, and poverty issues (Bohanon et al., 2015; Dupere et al., 2019; Hatchimonji, Linsky, & Elias 2017). Hunter and Haydon (2019) found it is often much easier to have trainers for PBIS to come to urban buildings and monitor implementation and coach than it is to go to rural public schools. Due to large student population, diverse communities, poverty issues, large number of public schools in a district, competing initiatives, and limited resources in an urban setting it is important for trainers to be more involved to provide guidance and ensure fidelity (Baule, 2020; Bottiani et al., 2019; Hollingshead et al., 2016). Rural public schools do not have to contend with the level of institutional, structural, and social inequities and are more able to define the direction of their school (Holland, 2019; Swindlehurst et al., 2015; Yiu, 2020). These factors are important to understand when looking at success rates and fidelity of implementation.

Summary

Elementary public schools in Missouri have had a steady and marked decrease in office referrals since beginning the PBIS program. Public high schools in Missouri have struggled with implementing PBIS with fidelity (Flannery et al., 2013). The PBIS model has its conceptual foundations in B.F. Skinner's behavioral theory and applied behavior analysis. In Skinner's view, organisms learn to manipulate and control their environment by their responses to it (R.K. Day, 2016). Skinner's theory of operant conditioning is the foundation of PBIS and is the theoretical framework for this study. The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner et al., 2005). In Chapter Two the researcher

explored the pros and cons of PBIS including possible benefits, continuum of supports and practices, how data are used for decision making, and professional development. The researcher reviewed literature that demonstrated factors that influenced the decision to adopt PBIS. Public schools are required to use a method of character education that is research based and could provide data to meet the requirements of No Child Left Behind (Congress.gov, 2001). There are five core areas of data collected in a PBIS school: referrals by day, referrals by time, referrals by location, referrals by student, and referrals by behavior (Sugai & Horner, 2020). By using this data staff can determine problem areas in a school or identify students who need more intensive behavioral instructions (Simonsen et al., 2019). In a time when public schools are expected to do more with ever decreasing funds the PBIS model makes good economic sense. Through a process called asset of resources mapping a school can identify, target, integrate, and align all programs in the school related to behavior and academic success (Kingston et al, 2018). This process of the PBIS model saves money and teacher frustration by cutting away redundant, ineffective, or unnecessary programs (Flannery & Sugai, 2009). This study will fill a gap as to whether there is statistically significant difference not addressed previously in the peer-reviewed literature.

Chapter Three will include the research methodology used to determine if there is statistical difference in SET scores between urban K-12 public schools and rural K-12 public schools and in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program. Chapter Four contains the results and findings of the study. Chapter Five includes the summary and implications of the research.

CHAPTER THREE

METHODOLOGY

Introduction

There is inconsistent success of the Positive Behavior Interventions and Supports program on the secondary school level in Missouri (MO-SW-PBS, 2019). While there are many studies of PBIS in elementary public schools there are few studies that address PBIS in secondary schools (Vancel et al., 2016). This leads administrators to question why elementary public schools have a higher success rate with the program. Flannery and McGrath Kato (2017) suggested that the underlying principles of implementation for PBIS are the same for elementary and secondary public schools. The difference is in the context secondary public schools use to approach implementation. Flannery and McGrath Kato suggested that secondary public schools must provide their leadership with data that support secondary teachers teaching behaviors. Sugai et al. (2020) believed it is a crucial step to have commitment from leaders in the school and stakeholders to the implementation of the program in securing staff buy-in. Without commitment from leaders, staff will revert to old ways and influential teachers that have not bought into the program will make it all but impossible to implement the program (Yeung et al., 2016). Secondary public schools must rely on their leadership believing in the program and be able to communicate that to staff. They must be able to provide the stakeholders with data as to why the program is worthwhile (Swain-Bradway et al., 2015). This study is an attempt to extend existing research to explore differences between urban and rural implementation and elementary and secondary implementation.

The study explored if there is a statistical difference in the SET scores between elementary public schools and secondary public schools that implemented the PBIS

program and suburban/rural public schools that implemented the PBIS program. This study will explore if there is a statistically significant difference in the SET scores between public urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 school year.

Purpose of the Study

The purpose of this causal-comparative-study is to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS model for elementary and secondary public schools in Missouri. The independent variable is public schools in Missouri that are implementing the components of the PBIS program that will generally be defined as elementary and secondary urban and suburban public schools that use PBIS with fidelity. The dependent variable of interest will be generally defined as the SET as it is turned in for award-level status. The SET is a 28-item research-validated instrument to assess the PBIS program's critical features reflected in seven subscales: Expectations Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support (Horner et al., 2004). The dependent variable is the perceptions of levels of implementation of teachers in the Missouri public schools that are implementing the PBIS program.

Research Questions

For the purpose of this study the researcher used two research questions with three sub-questions each. The following research questions were used to guide this study:

RQ1: What is the difference in SET scores between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program?

RQ1a: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ1b: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ1c: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

RQ2: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program?

RQ2a: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ2b: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ2c: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

Null Hypotheses

The researcher identified public elementary and public high schools in Missouri that have implemented the Positive Behavior Interventions and Supports program with and examined data from schools gathered to test the following null hypotheses:

$H_0$1a: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

$H_0$1b: will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

$H_0$1c: will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

$H_0$2a: will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

$H_0$2b: will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

$H_0$2c: will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

Settings

All participants in this study were from Missouri public school districts. The participants are all certificated public-school staff in Missouri that are a part of the PBIS program and provide data to the state through the 28-item research-validated SET. In the state of Missouri there are 518 school districts, 912 public high schools, and 1,221 public elementary public schools (DESA, 2020a; High-Schools.com, 2021). In 2017-2018 school year there were 631 public schools participating in the PBIS model. These 631

Participants

The participants in this study were all certificated public-school staff in Missouri public schools. There are 2,133 public schools in Missouri; 889 public schools are known to be participating in PBIS (University of Missouri College of Education & Human Development, 2020). Of that 889 public schools in the 2017-2018, 631 reported using PBIS. Of those 94 took the set; 225 took the TFI and the rest did not report. In 2018-2019 school year 70 public schools took the SET and provided data to the state; 245 to the TFI and the rest did not provide data. In 2019-2020 school year there were 6 that took the SET and provided data to the state; 201 that took the TFI and the rest did not provide data. Result revealed a variety of demographic characteristics (MO-SW-PBS, 2020a).

For the purpose of this study, the researcher excluded all Missouri public schools that did not complete and submit SET data to the state. Of the 2133, public schools in Missouri in the 2017-2018 school year sample, 2,039 public schools were excluded and 94 were included. In the 2018-2019 school year sample, 2,063 public schools were excluded and 70 were included. In the 2019-2020 school year sample 2,127 public schools were excluded and 6 were included (MO-SW-PBS, 2020).

The researcher analyzed data derived from the anonymous SET survey turned into the state and is a part of the DESE open access database and the pbismissouri.org open access database. The risk to humans from data collected was minimized due to the SET surveys responses being anonymous. Ethical considerations for anonymity and confidentiality were made to ensure there was no potential risk for participants from whom research data were collected.

Sampling

A list of public schools that participated in PBIS was obtained from the Missouri Department of Elementary and Secondary Education. Stratified sampling was utilized by researcher to divide the total into elementary, high school, suburban, and rural groups to understand the existing relationship between different groups. Data were obtained from the University of Missouri and DESE from SET survey data (DESE, 2020a; University of Missouri College of Education & Human Development, 2020; MO-SW-PBS, 2020). Of the 2,133 public schools in Missouri in the 2017-2018 school year sample, 1,502 public schools were excluded and 631 were included. In the 2018-2019 school year sample, 1,544 public schools were excluded and 589 were included. In the 2019-2020 school year sample, 1,586 public schools were excluded and 547 were included (MO-SW-PBS, 2020). Names of public schools used in the data were removed from the report.

To achieve a medium effect size of 0.5 and a power of 0.8, a minimum sample size of participating public schools was required for this study for the 2017-2018 school year sample with a confidence level of 90% and margin of error of 5%. A minimum sample size of participating public schools was required for this study for the 2018-2019 school year sample with a confidence level of 90% and marge of error of 5%. A

minimum sample size of participating public schools was required for this study for the 2019-2020 school year sample with a confidence level of 90% and marge of error of 5% (Funder & Ozer, 2019).

Research Design

In this quantitative causal-comparative-study the researcher utilized a preexisting survey called the SET to collect data. The goal of this study was to determine if differences in adapting PBIS between elementary and secondary public schools located in urban and rural districts in Missouri had statistically significant difference. This quantitative causal-comparative-research study compared the differences between SET scores. The researcher selected quantitative causal-comparative method because there can be a large sample population and the participants are surveyed only once (Frey, 2018).

Research by Horner et al. (2004) used Messick's (1986) unified construct validity framework to establish the validity of the SET tool. The anonymous survey is given to public schools in Missouri that participate in the Positive Behavior Interventions and Supports program. While each school is required to complete the survey to obtain an award-level status, participation is voluntary. Staff participants are anonymous and only the school and district are identified. Participation will not include all public schools in Missouri or all staff. Information from the SET does not address why a staff member may respond and examines data with no causal results inferred.

Causal-comparative research was used to determine if a statistically significant difference existed in the SET scores between elementary public schools and secondary public schools that implemented PBIS model. Causal-comparative research was used to determine if a statistical difference existed in implementation of Positive Behavior

Interventions and Supports between urban K-12 public schools and suburban K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018, 2018-2019 and 2019-2020 school year. The researcher used preexisting groups and did not randomly assign groups. Variables are not manipulated, the data, relationships, and distributions of variables are all that were studied. Causal-comparative research attempts to establish cause-effect relationships among the variables. Effects of independent variables on the dependent variables are examined.

Instrumentation

The instrument used in this study was the SET, created by Horner Todd, Lewis-Palmer, Irvin, Sugai, and Boland in 2004 (Horner et el., 2004). The SET is a 28-item psycho-metric research instrument used for measuring implementation of school-wide PBIS procedures (Horner et al., 2004). The SET is made up of seven subscales that measure the percentage of PBIS implementation in the following areas: behavioral expectations defined, behavioral expectations taught, ongoing system for rewarding behavioral expectations, system for responding to behavioral violations, behavioral monitoring and decision-making, management of practices, and district level support (Flannery et al., 2013). Permission to use the instrument's data was granted via e-mail on June 8, 2020. Implementation fidelity according to the SET is a summary score of 80% or higher across all seven subscales (Pas, Johnson, Debnam, Hulleman, & Bradshaw, 2019). Implementation fidelity according to the Benchmarks of Quality (BoQ) assesses high-fidelity implementation at 70% of points in the summary score (Pas et al., 2019).

The SET scoring guide is used for scoring responses to 28 research questions configured to offer the evaluation question and the measures for scoring each question.

Information for the SET is gathered through a review of school records, observations, and staff and student interviews. The process for SET involves these steps: interview with the administrator; interviews with at least 10 randomly selected staff members and at least 15 randomly selected students; a tour of the school building for activities; and a review of discipline records, handbooks, action plans for meeting PBIS goals, social skills materials, the school improvement plan, and other relevant artifacts. The SET evaluator determines a 0-, 1-, or 2-point score for each question. The responses needed for scoring the SET evaluation questions guide the process of preparing for and conducting the SET (Aderet-German & Ben-Peretz, 2020; Pbisapps.org, 2020).

The SET is used in the state of Missouri as a measure of implementation fidelity of PBIS. Horner et al. (2004) reported report strong psychometric properties for measuring fidelity of PBIS implementation. The SET was developed as a research-validated tool to measure the fidelity of PBIS implementation. Horner et al.'s research demonstrated a strong internal consistency of overall alpha of .96 and test–retest reliability of the SET total score averaged 7.3%. The average interobserver reliability on SET items had a mean of 99%, and construct validity using a Pearson r = .75 (Kim et al., 2018).

This instrument was chosen by the researcher for this quantitative causal-comparative-research due to the instrument using preexisting groups and not randomly assign groups. Variables are not manipulated, and the data, relationships, and distributions of variables are all that were studied. Causal-comparative-research attempts to establish cause-effect relationships among the variables. Effects of independent variables on the dependent variables are examined.

Procedures

Approval from the Institutional Review Board (RRB) of SBU was granted on December 11, 2021 for this study. Once SBU approved the research, the researcher then gathered data from Missouri School-wide Positive Behavior Support website and DESE website open access data and did not require permissions to use. The data used were reported by each school for the school years of 2017-2018, 2018-2019 and 2019-2020. After the data were cleaned, a sample size of 190 for the 2017-2018 school year, 186 for the 2018-2019 year, and 182 participating public schools was required for this study for the 2019-2020 school year with a confidence level of 90% and a margin of error of 5%.

The dependent variable of interest was generally defined as the SET. The independent variable is public schools in Missouri that were implementing the components of the Positive Behavior Interventions and Supports program that was generally be defined as elementary and secondary urban and suburban public schools that used PBIS with fidelity. A paired *t*-test was used in analysis of gathered data to analyze if there was a significant statistical difference between groups. This study used the mean scores and standard deviations to determine if a statistically significant difference was present. Cohen's *d* was used to indicate the standardized difference between two means. Statistical significance is the probability that the difference between variables is not due to random chance (Cohen, 1992; Cohen, 2013; Cohen, J., Cohen, P, West, & Aiken, 2003).

Data Analysis

This quantitative study was conducted using two research questions with three sub-questions each. The following research questions were used to guide this study:

RQ1: What is the difference in SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program?

RQ1a: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ1b: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ1c: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

RQ2: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program?

RQ2a: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ2b: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ2c: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

In this study the researcher examined SET data to learn if statistically significant differences exist in implementation of PBIS between elementary public schools and secondary public schools that implemented PBIS and urban K-12 public schools and suburban K-12 public schools that implemented the PBIS program in the 2017-2018, 2018-2019 and 2019-2020 school years. The independent sample *t*-test was selected as the statistical treatment as it compares the means of two groups to determine if they are significantly different. This study used descriptive statistics to describe a large number of public schools in Missouri. The demographic data used were student enrollment to determine categories of rural or urban, if the school was elementary or secondary, and percent of returned informed consent forms.

Assumptions that were met in order for validity in results through SPSS statistics include measurement of the dependent variable on a continuous scale defined as the SET. For this study the independent variable includes two groups independent of each other, public schools in Missouri that are implementing the components of the PBIS program that are defined as elementary and secondary urban or suburban public schools that use PBIS with fidelity. There is independence of observations: each building in a school district takes the SET separately from other buildings in the district. There are no significant outliers as the SET is an established instrument. There is a normal distribution of assessment percentages, and homogeneity of variances should be present (Laerd Statistics, 2018).

The researcher made the assumption that the null hypothesis was correct until there was evidence to refute this. Medium effect size, alpha of 0.05, and a power of .8 a minimum sample size of 190 participating public schools was required for this study for the 2017-2018 school years. A minimum sample size of 102, (51 for each group) participating public schools was required for this study for the 2018-2019 school year sample (Faul, Erdfelder, Lang, & Buchner 2007; Faul, Erdfelder, Buchner & Lang, 2009). A minimum sample size of 102 participating public schools was required for this study for the 2019-2020 school year (Funder & Ozer, 2019). After administration of the independent samples *t*-test for two research questions with three subquestions each. Cohen's *d* was used to indicate the standardized difference between two means. Statistical significance is the probability that the difference between variables is not due to random chance (Cohen, 1992; Cohen, 2013; Cohen, J., Cohen, P, West, & Aiken, 2003).

An independent samples *t*-test was used in analysis of gathered data to analyze if there is a significant statistical difference between groups and to determine if the null hypothesis was rejected or not. The independent samples *t*-test used the mean scores and standard deviations to determine if a statistical significant difference was present. Cohen's *d* was used to indicate the standardized difference between two means. Statistical significance is the probability that the difference between variables is not due to random chance (Cohen, 1992; Cohen, 2013; Cohen, J., Cohen, P, West, & Aiken, 2003). Cohen's *d* was calculated to investigate the differentiation between elementary and secondary groups, and then the result was divided by the standard deviation. The dependent variable of interest will be generally defined as the SET. The SET is a 28-item research-validated instrument to assess the Positive Behavior Interventions and Supports program's critical

features reflected in seven subscales: Expectations Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support (Horner et al., 2004). P-value ID was used to reject or fail to reject the null hypotheses or not. The dependent variable is the perceptions of levels of implementation of teachers in the Missouri public schools that are implementing PBIS. The effect size will be calculated for statistically significant results. All participants in this study were certificated public school staff in Missouri public schools.

Summary

This quantitative causal-comparative study examined data collected from elementary and secondary public schools located in urban and rural districts in Missouri and explored if there was a statistically significant difference in the SET scores between elementary public schools and secondary public schools that implemented the PBIS program. Chapter Four of this study contains an analysis of the findings. Finally, Chapter Five provides a summation of the study as well as recommendations, limitations, and implications for future research.

CHAPTER FOUR

ANALYSIS

Introduction

The purpose of this causal-comparative study was to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS model for elementary and secondary public schools in Missouri. The independent variable is public schools in Missouri that are implementing the components of the Positive Behavior Interventions and Supports program that will generally be defined as elementary and secondary, and urban and suburban public schools that use PBIS with fidelity. The dependent variable of interest will be generally defined as the SET. The SET is a 28 item research-validated instrument to assess the Positive Behavior Interventions and Supports program's critical features reflected in seven subscales: Expectations Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support (Horner et al., 2004). The dependent variable is the perceptions of levels of implementation of teachers in the Missouri public schools that are implementing the Positive Behavior Interventions and Supports program.

Data was uploaded in SPSS for analysis. Descriptive statistics were utilized to present quantitative data in a manageable way. Data presented in this chapter will provide information related to the following research questions:

RQ1: What is the difference in SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program?

RQ1a: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ1b: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ1c: What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

RQ2: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program?

RQ2a: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year?

RQ2b: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year?

RQ2c: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year?

In order to address these research questions, the follow null hypotheses were established:

H01a: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

H01b: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

H01c: There will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

H02a: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year.

H02b: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2018-2019 school year.

H02c: There will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the 2019-2020 school year.

An independent samples *t*-test was used in analysis of gathered data to analyze if there is a significant statistical difference between groups and to determine if the null hypothesis was rejected or not. The independent samples *t*-test used the mean scores and standard deviations to determine if a statistically significant difference was present. Cohen's *d* was used to indicate the standardized difference between two means. Statistical significance is

the probability that the difference between variables is not due to random chance (Cohen, 1992; Cohen, 2013; Cohen, J., Cohen, P, West, & Aiken, 2003). Cohen's *d* was calculated to investigate the differentiation between elementary and secondary groups and then the result was divided by the standard deviation.

Data Analysis and Findings

In this study, the researcher examined SET data to learn if statistically significant differences exist in implementation of PBIS between elementary public schools and secondary public schools that implemented PBIS and urban K-12 public schools and suburban K-12 public schools that implemented the PBIS program in the 2017-2018, 2018-2019 and 2019-2020 school years. The independent samples *t*-test was selected as the statistical treatment as it compares the means of two groups to determine if they are significantly different. This study used descriptive statistics to describe a large number of public schools in Missouri. The demographic data used were student enrollment to determine categories of rural or urban and if the school was elementary or secondary. The researcher examined data from public sources. Due to the phasing out of the SET and replacing it with the TFI there was very limited data in the 2017-2018, 2018-2019 school years and no reportable data for the 2019-2020 school year. Schools are moving to the TFI because the TFI guides initial implementation and sustained use of PBIS. Each administration of the TFI results not only score how the school is doing, but also provides information for developing action plans to guide next steps. The SET evaluates the critical features of school-wide effective behavior support across over each academic school year.

Research Question One

Research question one, sub questions one a, b, and c sought to analyze the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the school years 2017-2018, 2018-2019 and 2019-2020.

Table 2 reflects the group statistics of the study for the 2017-2018 school year. The table includes the number of participants and the mean percentage of implementation fidelity for urban schools and rural schools. The table presents the standard deviation of scores and standard error mean.

Table 2

SET score 2017/18

Variable	*N*	*Mean*	*Std. Deviation*	Std. Error Mean
Urban	38	87.11	18.44	2.991
Rural	56	88.57	17.728	2.369

Table 3 reflects the significance of the difference in urban and rural schools for the 2017-2018 school year. An independent samples *t*-test was used in analysis of gathered data to analyze if there is a significant statistical difference between groups and to determine if the null hypothesis was rejected or not. The independent samples *t*-test used the mean scores and standard deviations to determine if a statistical significant difference was present. Cohen's *d* was used to indicate the standardized difference between two means. Statistical significance is the probability that the difference between variables is not due to random chance (Cohen, 1992; Cohen, 2013; Cohen, J., Cohen, P, West, & Aiken, 2003). Cohen's *d* was calculated to investigate the differentiation between elementary and secondary groups, and then the result was divided by the

standard deviation. The dependent variable of interest will be generally defined as the SET. The SET is a 28 item research-validated instrument to assess the Positive Behavior Interventions and Supports program's critical features reflected in seven subscales: Expectations Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support (Horner et al., 2004). P-value ID was used to reject or fail to reject the null hypotheses or not. The dependent variable is the perceptions of levels of implementation of teachers in the Missouri public schools that are implementing PBIS. The effect size was calculated for statistically significant results. All participants in this study were certificated public school staff in Missouri public schools.

An independent samples *t*-test was completed to determine if differences between urban and rural SET scores were present. The assumption of homogeneity of variances being violated, was assessed by Levene's test for equality of variances (p = 0.05). The independent samples *t*-test two-sided p of 0.702 was not statistically significant. A small effect size existed with the Cohen's $d = (88.57 - 87.11) / 18.087504 = 0.080719$. Thus, the null hypothesis (H01a) was not rejected.

Table 3

Independent Samples t-test

SET score 2017/18	***t***	***df***	***p***	**Mean Difference**	**SE Difference**	**Cohen's *d***
drp	-0.387	77.466	0.702	-1.466	3.816	0.080719

Table 4 reflects the group statistics of the study for the 2018-2019 school year. The table includes the number of participants and the mean percentage of implementation fidelity for urban schools and rural schools. The table presents the standard deviation of scores and standard error mean.

Table 4

SET score 2018/19

Variable	*N*	*Mean*	*Std. Deviation*	Std. Error Mean
Urban	32	95.94	4.990	0.882
Rural	38	96.32	4.889	0.793

Table 5 reflects the significance of the difference in urban and rural schools for the 2018-2019 school year. An independent samples *t*-test was completed to determine if differences between urban and rural SET scores were present. The assumption of homogeneity of variances being violated, was assessed by Levene's test for equality of variances (p = 0.05). The independent samples *t*-test two-sided p of 0.750 not statistically significant. A small effect size existed with the Cohen's *d* = (96.32 - 95.94)/4.939758 = 0.076927. Thus, the null hypothesis (H01b) was not rejected.

Table 5

Independent Samples t-test

SET score 2018/19	***t***	***df***	***p***	**Mean Difference**	**SE Difference**	**Cohen's *d***
drp	-0.319	68	0.750	-0.378	1.186	0.076927

Research Question Two

Research question two, two a, two b, and two c sought to analyze the difference in SET scores between elementary public schools and secondary public schools that implemented the Positive Behavior Interventions and Supports program in the school years 2017-2018, 2018-2019 and 2019-2020.

Table 6 reflects the group statistics of the study for the 2017-2018 school year. The table includes the number of participants and the mean percentage of implementation

fidelity for elementary and secondary. It also presents the standard deviation of scores and standard error mean.

Table 6

SET score 2017/18

Variable	*N*	*Mean*	*Std. Deviation*	Std. Error Mean
Elementary	73	85.75	19.644	2.299
Secondary	21	95.71	5.071	1.107

Table 7 reflects the group statistics of the study for the 2017-2018 in elementary and secondary public schools. An independent samples *t*-test was completed to determine if differences between elementary and secondary public schools. SET scores were present. The assumption of homogeneity of variances being violated was assessed by Levene's test for equality of variances (p = 0.05). The independent samples *t*-test two-sided $t(92) = -0.387$, $p = 0.24$ was not statistically significant. No effect size existed with the Cohen's $d = (-9.961 - -9.961) / 3.561906 = 0$. Thus, the null hypothesis (H02a) failed to be rejected.

Table 7

Independent Samples *t*-test

SET score 2017/18	***t***	***df***	***p***	**Mean Difference**	**SE Difference**	**Cohen's *d***
drp	-0.387	92	0.24	9.961	4.3443	0

Table 8 reflects the group statistics of the study for the 2018-2019 school year. The table includes the number of participants and the mean percentage of implementation fidelity for elementary and secondary. The table presents the standard deviation of scores and standard error mean.

Table 8

SET score 2018/19

Variable	*N*	*Mean*	*Std. Deviation*	Std. Error Mean
Elementary	46	96.30	4.880	0.720
Secondary	24	95.83	5.036	1.028

Table 9 reflects the group statistics of the study for the 2018-2019 in Elementary and Secondary public schools. An independent samples *t*-test was completed to determine if differences between elementary and secondary public schools. SET scores were present. The assumption of homogeneity of variances being violated, was assessed by Levene's test for equality of variances (p = 0.05). The independent samples *t*-test two-sided p of $t(68) = 0.379$, $p = 0.706$ was not statistically significant. No effect size existed with the Cohen's $d = (-9.961 - -9.961) / 3.561906 = 0$. Thus, the null hypothesis (H02b) failed to be rejected.

Table 9

Independent Samples *t*-test

SET score 2018/19	***t***	***df***	***p***	**Mean Difference**	**SE Difference**	**Cohen's *d***
drp	**0.379**	**68**	**0.706**	**.471**	**1.242**	**0**

Research question 1a (2017-2018)

What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the Positive Behavior Interventions and Supports program in the 2017-2018 school year? The independent samples *t*-test two-sided p of 0.700 was not statistically significant difference in the urban K-12 public

schools and rural K-12 public schools that implemented the PBIS program. The null hypothesis (H01a) was not rejected.

Research question 1b (2018-2019)

What is the difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program in the 2018-2019 school year? The independent samples t-test two-sided p of 0.750 was not statistically significant difference in the urban K-12 public schools and rural K-12 public schools that implemented the PBIS program. Thus, the null hypothesis (H01b) was not rejected.

Research question 2a (2017-2018)

What is the difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2017-2018 school year? The independent samples *t*-test two- sided $t(92) = -0.387$, $p = 0.24$ was not statistically significant. No effect size existed with the Cohen's $d = (-9.961 - -9.961) / 3.561906 = 0$. Thus, the null hypothesis (H02a) failed to be rejected.

Research question 2b (2018-2019)

What is the difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2018-2019 school year? The independent samples *t*-test two-sided p of 0.706 was statistically significant. No effect size existed with the Cohen's $d = (-9.961 - -9.961) / 3.561906 = 0$. Thus, the null hypothesis (H02b) failed to be rejected.

Summary

Chapter Four provided the analysis and findings of the study. Independent samples *t*-tests were conducted for Research Questions 1a and 1b. Analysis of the data

revealed that there was no statistically significant difference between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program. The null hypothesis in Research Question 1a and 1b was not rejected due to no statistically significant differences found in the data analysis. Independent samples *t*-tests were conducted for Research Questions 2a and 2b.

Analysis of research Question 2a data revealed there was not a statistically significant defense in SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2017-2018 school year. Cohen d analysis revealed that the mean is less than 0.2 standard deviations suggestion the difference is negligible even if statistically significant. Thus, the null hypothesis (H02a) was supported and the researcher failed to reject the null hypothesis.

Analysis of research Question 2b data revealed there was a statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2018-2019 school year. Cohen *d* analysis revealed that the mean is less than 0.2 standard deviations suggesting the difference is negligible even if statistically significant. Thus, the null hypothesis (H02a) was supported and the researcher failed to reject the null hypothesis. Chapter Five provides a summation of the study as well as recommendations, limitations, and implications for future research.

Chapter Five

Conclusion

Introduction

The purpose of this causal-comparative study was to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS model for elementary and secondary public schools in Missouri. This quantitative causal-comparative study examined data collected from elementary and secondary public schools located in urban and rural districts in Missouri and explored if there was a statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools and between elementary public schools and secondary public schools that implemented the PBIS program. By collecting data and comparing it, the researcher was able to determine the relationship between factors and make recommendations regarding the implications within the education system. This chapter includes: a summary of the findings, discussion, professional implications, and recommendations for future research, and conclusions.

Summary of Findings

The research was conducted to test Skinner's theory of operant conditioning as it relates to the implementation of PBIS for elementary and secondary and for the implementation of PBIS urban and rural public schools in Missouri. The conceptual framework used for this study is behavioral theory and applied behavior analysis. The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner Sugai, Todd, & Lewis-Palmer, 2005).

The two research questions were investigated through a quantitative analysis to test the corresponding hypothesis. Each research question was broken into three sub-questions by the school year. An independent samples *t*-test was used to measure if there was statically significance. Cohen's *d* was used to measure the effect of the differences. The questions and data were organized by school year. Research questions were used to investigate whether a difference in implementation existed between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program and between elementary public schools and secondary public schools that implemented the PBIS program.

Research question one (a) for the 2017-2018 school year reported no statistically significant difference between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program using independent samples *t*-test two-sided p of 0.700. A small effect size existed with the Cohen's $d = (88.57 - 87.11) / 18.087504 = 0.080719$. Thus, the null hypothesis (H01a) was not rejected. Research question one (b) for the 2018-2019 school year reported statistically significant difference between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program using independent samples *t*-test two-sided p of 0.750 not statistically significant. A small effect size existed with the Cohen's $d = (96.32 - 95.94) / 4.939758 = 0.076927$. Thus, the null hypothesis (H01b) was not rejected.

Research question two (a) for the 2017-2018 reported the independent samples *t*-test two-sided $t(92) = -0.387$, $p = 0.24$ was not statistically significant between elementary public schools and secondary public schools that implemented the PBIS program. No effect size existed with the Cohen's $d = (-9.961 - -9.961) / 3.561906 = 0$.

Thus, the null hypothesis (H02a) failed to be rejected. Research question two (b) for the 2018-2019 school year reported the independent samples *t*-test two-sided p of 0.706 was statistically significant between elementary public schools and secondary public schools that implemented the PBIS program. No effect size existed with the Cohen's d = (-9.961 - -9.961)／3.561906 = 0. Thus, the null hypothesis (H02b) failed to be rejected.

Upon examination of the data, the researcher failed to reject the null hypotheses for questions (H01a) and (H01b). There were no significant differences between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program during the 2017-2018 and 2018-2019 school year. Upon examination of the data for (RQ2a) and (RQ2b), the researcher failed to reject the null hypotheses. No effect size existed with the Cohen's *d*. Thus, the null hypothesis (H02a) and (H02b) failed to be rejected.

Discussion

The purpose of this study was to gain a better understanding of Skinner's theory of operant conditioning as it relates to the implementation of the PBIS program in public elementary and secondary public schools in Missouri. Public schools in Missouri monitor the effectiveness of PBIS through the use of a 28-item research-validated instrument called the SET. The SET allows public schools to assess if operant conditioning is happening and if the reinforcement for actions is achieving the desired response in the future (Sugai & Horner, 2020).

The researcher identified public elementary and secondary public schools in Missouri that have implemented the PBIS program with fidelity through the use of the SET and examined data from schools gathered to test the following research questions:

RQ1: What is the difference in SET scores between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program? With its sub questions: RQ1a: …. in the 2017-2018 school year? RQ1b: …in the 2018-2019 school year? RQ1c: …in the 2019-2020 school year? In RQ1a and RQ1b the null hypothesis that there will be no statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program in the 2017-2018 and the 2018-2019 school years failed to be rejected. There was not enough data to answer RQ1c.

RQ2: What is the difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS program? With its sub questions: RQ2a: …. in the 2017-2018 school year? RQ2b: …in the 2018-2019 school year? RQ2c: …in the 2019-2020 school year? In RQ2a and RQ2b the null hypothesis that there will be no statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2017-2018 and the 2018-2019 school year failed to be rejected. There was not enough data to answer RQ2c.

I believe the reason that the null hypotheses failed to be rejected is supported by research that states PBIS is implemented with fidelity. Fidelity means critical features of the SET's seven subscales: Expectations Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support are closely monitored while implementing PBIS (Bastable et al., 2020; Betters-Bubon et al., 2016; Childs et al., 2016; Flannery, Frank, McGrath Kato, Doren, & Fenning, 2013; Flannery & McGrath Kato, 2017; Flannery, Sugai, & Anderson, 2009; Freeman et al.,

2015; Griffiths et al., 2019; Horner et al., 2004; Johnson, 2016; Jolivette, 2020; Kim, McIntosh, Mercer, & Nese, 2018; Pas et al., 2015; Simonsen et al., 2019; Sugai & Horner, 2020). B. F. Skinner's behavioral theory and applied behavior analysis suggested that immediate feedback or reinforcement is significant in learning a new skill or knowledge (R. K. Day, 2016). To provide this immediate feedback, implementation of PBIS interventions must be supported by regular fidelity checks (Horner et al., 2005). The Tiered Fidelity Inventory (TFI) was developed to measure the fidelity of implementation of the three tiers of support (McIntosh et al., 2017). Historical research supports that if it is implemented with fidelity there should not be a significant difference between schools (Bastable et al., 2020; Betters-Bubon et al., 2016; Boden et al., 2020; Childs et al., 2016;English., 2019; Evanovich., 2016; Flannery et al., 2014; Flannery & Sugai., 2009; Flannery, Sugai, & Anderson, 2009; Freeman et al., 2015; Gagnon, Barber, & Soyturk., 2018; George et al 2018; Griffiths et al., A. J., 2019; Johnson., 2016;Kim, McIntosh, Mercer, & Nese, 2018; Pas et al., 2015; Simonsen et al., 2019; Sugai & Horner, 2020). It is possible that the null hypotheses failed to be rejected in the state of Missouri due to the low number of schools taking the SET and that the schools taking the SET appear to have taken it to receive an award. Schools using PBIS but did not take the SET were not included. I believe that it would be interesting to compare all the schools taking the new TFI.

A replication of this study using the TFI would enhance the field of study. Using the TFI instead of the SET would add hundreds, possibly thousands, more schools to the research. Using a larger number of schools would possibly provide a better understanding of implementations of PBIS (Groff, 2020; Jolivette et al., 2020; McIntosh et al., 2017).

Due to the fact the state of Missouri is phasing out the SET, the number of schools was dramatically limited. The new TFI had over 600 public schools over the same three years that this study examined the SET. Using the SET only to measure implementation is incomplete. The SET is only reported if the school applies for recognition. The new TFI is an ongoing measure that gives information on all the schools that do not apply for recognition. I believe this will give a more accurate representation of implementation in a school as it is more consistent with the conceptual framework of this study using Skinner's theory of operant conditioning. The TFI ensures that the schools implementing PBIS uses school data to drive systems change within the whole school context to improve social and academic outcomes (Groff, 2020; Horner et al., 2005; McIntosh et al.,2017). Skinner was convinced that immediate feedback or reinforcement was significant in learning a new skill or knowledge, and the TFI would provide this and be on going throughout the year (R. K. Day, 2016).

There were at least six potential limitations recognized in this study. The first limitation concerning this study was being limited to data collected by MO-PBIS for the 2017-2018, 2018-2019 and 2019-2020 school years in Missouri. Due to the SET being phased out, data for the 2017-2018, 2018-2019 school years was very limited and the 2019-2020 sample was too small to be used. For future studies, the limitation of this study only using data from Missouri public schools might compare PBIS schools to all public schools in MO. The data shows that the SET not using the whole population, their willingness to answer the way they truly feel, teachers' cultural bias and personal issues, and local context don't appear to have any significant impact on implementation.

The theoretical frame of this study is if Skinner's theory of operant conditioning was supported. Further research might explore the reason for a teacher's perception of the program. Due to the delimitation of the study being bound by the School-Wide Evaluation Tool 28-item psycho-metric research instrument used for measuring implementation of school-wide positive behavior support (PBS) procedures (Horner et al., 2004) the sample sizes was limited. This study fills a gap in research comparing the SET scores between public urban K-12 public schools and suburban K-12 public schools and the SET scores between elementary public schools and secondary public schools that implemented the PBIS program in the 2017-2018, 2018-2019 and 2019-2020 schools.

Professional Implications

The intent of this study was to test Skinner's theory of operant conditioning as it relates to the implementation of the PBIS program for public elementary and secondary public schools in Missouri. Public schools monitor the effectiveness of PBIS through the use of a 28 item research-validated instrument called the SET. This instrument allows public schools to assess if operant conditioning is happening and if the reinforcement for actions is achieving the desired response in the future (Sugai & Horner, 2020).

The data failed to reject there being a statistically significant difference in the SET scores between urban K-12 public schools and rural K-12 public schools that implemented the PBIS program in the 2017-2018 or the 2018-2019 school year. The data suggests that while implementation is an important first step there is no statistically significant difference between implementation in urban or rural public schools. The data failed to reject there being a statistically significant difference in SET scores between elementary public schools and secondary public schools that implemented the PBIS

program in the 2017-2018 or the 2018-2019 school year. The data suggests that while implementation is an important first step there is no statistically significant difference between implementation in elementary public schools and secondary public schools.

School leaders can reference this study to provide data for a school to simply implement the PBIS program and then resources can be better spent focusing on maintenance and alignment of policies and practices to support PBIS implementation across all content areas (Gage et al, 2015; George, H., Cox, K., Minch, D., & Sandomierski, T., 2018; Freeman et al, 2016; Leithwood K., Azah V., 2017; Sugai, & Horner, 2020). The data suggests that when implemented with fidelity there was no significant difference between elementary and secondary or urban and rural. The data suggest that while the issues that affect implementation are real, they can be easily overcome by simply implementing the program and then adapting and maintaining. The value of these findings is to help leaders have one more piece of information to help them through the inertia of reasons to not do the program for fear of failure. The data suggest that PBIS can be implemented consistently in any public school.

The findings of this study are consistent with the theoretical framework of Skinner's theory of operant conditioning. Skinner was convinced that immediate feedback or reinforcement was significant in learning a new skill or knowledge (R. K. Day, 2016). The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner et al., 2005). This study showed that schools that implemented the PBIS program with fidelity were able to drive change through the immediate feedback the program provides.

Recommendations for Future Research

The following recommendations from the researcher may assist in future research studying the effeteness of implementation of PBIS in urban, rural, elementary, and secondary:

1. A replication of this study using the TFI would enhance the field of study. Using the TFI instead of the SET would add hundreds more schools to the research. Using a larger number of schools would possibly provide a better understanding of implementations of PBIS.
2. A replication of this study from different states using the SET would enhance the field of study. This would add hundreds, even thousands more schools to the research. Using a larger number of schools would possibly provide a better understanding of implementations of PBIS.
3. A replication of this study from different states using the TFI would enhance the field of study. Using the TFI instead of the SET would add hundreds, possibly thousands more schools to the research. Using a larger number of schools would possibly provide a better understanding of implementations of PBIS.
4. Develop a survey that ask students what the pros and cons of the PBIS program.
5. Compare numbers of students involved in extracurricular actives as a connective piece to see if there is a significant different between schools with PBIS and school without.
6. Exam other factors that may affect implementation.
7. A survey to exam teacher's perception of the program.

8. Exam schools that use the PBIS program did not submit to a SET and reasons why they did not.
9. This study could also be replicated to determine the perceptions of administrators and how their perceptions of PBIS may or may not affect implementation.

Conclusion

Previously there was limited information comparing urban and rural and elementary and secondary public schools' implementation of the PBIS program. This study sought to fill a gap in the research as to if there is a statistical difference not addressed previously in the peer-reviewed literature. This study offers insight and data to school leaders as they seek ways to introduce the PBIS program to teachers.

The purpose of this causal-comparative study is to test Skinner's theory of operant conditioning as it relates to the implementation of PBIS for elementary and secondary public schools in Missouri. The findings of this study are consistent the theoretical framework of Skinner's theory of operant conditioning. Skinner was convinced that immediate feedback or reinforcement was significant in learning a new skill or knowledge (R. K. Day, 2016). The goal of PBIS is to use school data to drive systems change within the whole school context to improve social and academic outcomes (Horner et al., 2005).

The data suggest that when implicated with fidelity there was no significant difference between elementary and secondary or urban and rural. The null hypothesis failing to be rejected is supported by research that states PBIS is implemented with fidelity. Fidelity means critical features of the SET's seven subscales: Expectations

Defined, Expectations Taught, Reward System, Violation System, Monitoring and Evaluation, Management, and District Support are closely monitored while implementing PBIS (Bastable et al., 2020; Betters-Bubon et al., 2016; Childs et al., 2016; Flannery, Frank, McGrath Kato, Doren, & Fenning, 2013; Flannery & McGrath Kato, 2017; Flannery, Sugai, & Anderson, 2009; Freeman et al., 2015; Griffiths et al., 2019; Horner et al., 2004; Johnson, 2016; Jolivette, 2020; Kim, McIntosh, Mercer, & Nese, 2018; Pas et al., 2015; Simonsen et al., 2019; Sugai & Horner, 2020).

In my personal experience, PBIS is extremely impactful when implemented with fidelity in a high school. PBIS is a critically important tool in a school to align all the committees and programs already in place. PBIS helps save resources by streamlining. Often in a school there are a number of committees/groups doing the same thing but calling it something different. In my involvement we took PBIS and made it the way we do business. It is a part of our culture, it is not seen as a separate initiative, it is the expectations for all of us every day. All staff devote themselves to creating a culture of learning and safety as students seek to uphold the school code to be respectful, responsible, safe, and learners. By establishing universal expectations in all settings, emphasis is placed upon maintaining acceptable behavior. Implementation of PBIS is paramount in achieving the goal of a positive school culture, and PBIS is an integral cog in the expectations machine of our high school.

I have observed what I believe to be a key reason that PBIS functions well in a school is due to strong administrative support and the overriding philosophy that everyone can have a positive impact on students. All administrators advocate for and are active on the team; these individuals take on tasks, support initiatives, communicate with

faculty and go beyond individual duties in establishing PBIS programs. Specifically, they normalized PBIS as the school code, and all interventions and programs fall under PBIS. By making it simply the way we do business, not something extra, and open communication with all staff members, we have observed high levels of staff buy-in.

Communication is another key component to PBIS. Because of continuous, open communication with all staff members there is greater buy-in from faculty. School data is communicated to all staff each month through email news, behavioral data, and recognition of outstanding students and staff. Students and staff are also recognized on the morning and afternoon announcements, radio spots, bill boards, local paper and eight full pages in the yearbook is dedicated to PBIS programs. PBIS has established incentives to reward students and staff members who exceed expectations. These programs are driven by staff involvement; therefore, every adult in the building maintains success of these programs via personal participation. Such comprehensive involvement results in individual ownership of the PBIS practices while guided by the PBIS team. Our school has been a using PBIS for over 17 years. We have seen our attendance average 93-95% and our office referrals have gone from approximately 4700 before PBIS to averaging around 1200 over the last eleven years, with 25 to 30% of those being tardies. One of the greatest strengths of our PBIS team is its ability to use data to seek out and address concerns through faculty, student, and community feedback.

We learned that the utilization of all initiatives in combination and under the umbrella of PBIS addresses our culture and climate. When all resources our working together in the same direction the school can focus on improving academic success. This then has a positive impact on decreasing negative social behaviors and by improving

social behaviors. Interventions focus and are not redundant. They are streamlined under PBIS connecting them with students who require extra interventions, and the data tracked on these students shows a solid success rate in improvement of problem behavior.

We have learned that data analysis and established goals for the building using all staff are critical. School goals must be evaluated monthly, compared with previous years to measure trends and to formulate plans to address issues. During the school year, the PBIS team has analyzed and shared data monthly to help determine the needs of our students that might be missed elsewhere, as well as the correct placement for each individual student. Data collected for placement includes the number of office conduct referrals, attendance, and academic grades. Data collection is a simple process of obtaining from school/student input data.

PBIS is a complex program with many facets, implementation alone is not sufficient to gauge efficacy (Bastable et al., 2020; Betters-Bubon et al., 2016; Boden et al., 2020; Childs et al., 2016; Deltour, Dachet, Monseur, & Baye, 2021; English., 2019; Evanovich., 2016; Flannery et al., 2014; Flannery & Sugai., 2009; Flannery, Sugai, & Anderson, 2009; Freeman et al., 2015; Gagnon, Barber, & Soyturk., 2018; George et al 2018; Griffiths et al., A. J., 2019; Johnson., 2016;Kim, McIntosh, Mercer, & Nese, 2018; Kincaid, & Horner,2017; Pas et al., 2015; Schaper, McIntosh, & Hoselton, 2016; Simonsen et al., 2019; Sugai & Horner, 2020). I believe this study suggest that PBIS can be implemented in any school. When I began this study, I thought the issue with lack of success with implementation in the secondary setting would be significantly different from elementary and between urban and rural. This study suggests there is not a significant difference. The results of this study were very specific to Missouri. It is what

happens after that implementation that seems to provide for success or failure. Student behavior, especially at the class/school level is a difficult topic, but very vital; this study has added literature to it.

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APPENDIX A

Appendix A (Sugai, 2008):