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High School Students' Perceptions of School Climate in Relation to Discipline History and Discipline Approach

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HIGH SCHOOL STUDENTS' PERCEPTIONS OF SCHOOL CLIMATE IN
RELATION TO DISCIPLINE HISTORY AND DISCIPLINE APPROACH

A Dissertation Presented

by

KAYLA R. GORDON

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2018

College of Education
School Psychology

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A Dissertation Presented

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DEDICATION

To my parents, Bruce and Mary. Thank you for instilling in me a love of education and learning. Completing my dissertation and doctorate are such huge accomplishments for me - huge accomplishments that I owe undoubtedly to both of you.

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When I think about the people who have contributed to the completion of this dissertation and my success in graduate school, I feel that there would be no possible way to adequately recognize in just a few short pages all of those who have influenced and wholeheartedly supported me over the last five years. I am most fortunate to have some of the most amazing family members, friends, professors, supervisors, co-workers, teachers, and students. I appreciate how much I have learned from each of you, and I thank you all for that. I would also like to specifically acknowledge a few individuals who played key roles in making it possible for me to reach this milestone.

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ABSTRACT

HIGH SCHOOL STUDENTS' PERCEPTIONS OF SCHOOL CLIMATE IN
RELATION TO DISCIPLINE HISTORY AND DISCIPLINE APPROACH

MAY 2018

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High school is a unique period of time within students' educational careers where there are an increasing number of variables that can facilitate or impede their academic, social-emotional, and behavioral success. Previous research has demonstrated strong effects of school climate, or the quality of school life and experiences within the school building, on factors including students' academic performance, motivation to learn, and attendance. In addition, school climate has been negatively correlated with drop out rates as well as other short and long term negative outcomes for students. The purpose of this study was to examine student perceptions of school climate in grades 9-12 in two public school districts, and to investigate how factors including participant demographic characteristics as well as discipline history and discipline practices are able to predict perceptions of climate. Participants ($N=856$) completed the Delaware School Climate Survey (Bear, Yang, Mantz, et al., 2014). Discipline history was measured by asking each student to report how many times they have been sent to the office, given a detention, and the number of days that they have been suspended during one school year. Lastly, the present study assessed student perceptions of implementation of core

components of Positive Behavioral Interventions and Supports (PBIS), which is an evidence-based framework to inform school discipline practices. Students were asked about their perception of whether they feel core components of PBIS are in place in their school buildings. Using linear regression, the number of times that a student reported being sent to the office, and the total number of discipline infractions reported, were shown to significantly predict perceptions of school climate. Additionally, PBIS implementation was found to be a significant moderator of both of these relationships. Thus, students who reported more frequent discipline infractions also reported more negative perceptions of school climate unless they perceived that PBIS was in place in their school. Significant differences in perceptions of school climate by gender, race, and grades received during one school year were also found. Limitations of the study, implications for the field, and future directions will also be discussed.

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CHAPTER I

INTRODUCTION, BACKGROUND, AND PURPOSE

Overview

School climate has recently received increased national attention among researchers and educators as schools continue to refine practices to be more safe and engaging (Freiberg, 1999; Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). School climate has been defined as how students and staff perceive the quality of school life including their social, emotional, civic, ethical, and academic experiences (Thapa et al., 2013). Wang and Degol (2016) reported that school climate includes any features of a school that influence the individuals that work and learn within it. Furthermore, Caldarella, Shatzer, Gray, Young, and Young (2011) reported that school climate is what sets one school apart from other schools.

The literature available on school climate has been continuously linked to numerous positive academic, behavioral, and social-emotional outcomes (e.g. Bradshaw, Waasdorp, Debnam, & Johnson, 2014; Freeman, Simonsen, et al., 2016; Gage, Larson, Sugai, & Chafouleas, 2016; Mitchell, Bradshaw, & Leaf, 2010). Despite the research showing clear positive outcomes associated with school climate, there is considerably less research available to understand the key factors that influence perceptions of school climate (Cornell, Shukla, & Konold, 2015). In addition, previous literature in this area has focused more on school level predictors (e.g., school size or student to teacher ratios; McNeely, Nonnemaker, & Blum, 2002), instead of factors that may influence school climate at the classroom level (e.g., relationships with teachers; Koth, Bradshaw, & Leaf, 2008) or individual level (e.g., gender or race; Mitchell et al., 2010). Similarly, schools as

a whole have traditionally been used as a unit of analysis for measuring school climate rather than examining individual student perceptions (McNeely et al., 2002).

Preliminary research has begun to examine factors that may influence school climate, such as school discipline practices (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005) and the implementation of multi-tiered prevention frameworks such as Positive Behavioral Interventions and Supports (PBIS; Bradshaw, Koth, Thornton, & Leaf, 2009; Horner et al., 2009). PBIS is a multi-tiered system to provide a continuum of behavioral support to all of the students within a school building (Bradshaw et al., 2009; Sugai & Simonsen, 2012; Swain-Bradway, Pinkney, & Flannery, 2015). Many positive outcomes have been associated with the implementation of PBIS including reduced exclusionary discipline practices (Sugai & Horner, 2009), increased engagement (Horner et al., 2009), and increased academic performance (Horner, Sugai, & Anderson, 2010).

Although the literature continuously suggests that school climate and discipline practices are related (e.g. Anderson, 1982; Gottfredson et al., 2005), few studies were found that directly examined this relationship. For example, in a randomized controlled effectiveness trial using data from 37 elementary schools, Bradshaw, Koth, Bevans, Ialongo, and Leaf (2008) found a significant positive correlation between the implementation of PBIS and teacher perceptions of school climate. In addition, Horner et al. (2009) conducted a randomized controlled effectiveness trial to examine teacher perceptions of school safety, an important aspect of school climate, and found that there was a significant difference in teacher perceptions between schools implementing PBIS and comparison schools. While each of these studies found significant positive results in examining the relationship between school climate and PBIS as a discipline approach,

they were conducted in elementary schools and both articles solely focused on teacher perceptions of school climate. No studies were found that examined student perceptions of school climate at the high school level in relation to PBIS implementation.

The current research examining school climate, discipline history, and PBIS is even more limited in both breadth and depth at the high school level. While studies exist to examine these topics independently, there is a clear gap in the research available linking the three of them together. No studies were found that directly examined the relationship between these three variables. The present study adds to the limited existing literature on school climate and discipline at the high school level, while simultaneously examining how perceptions of PBIS implementation may influence the relationship between these variables. More specifically, the current project examines if student perceptions of the implementation of PBIS techniques can serve as a moderating variable influencing the strength of the relationship between a student's discipline history and their perception of school climate.

School Climate

Most early definitions and theories related to school climate focus primarily on the organizational features of a school including its size and structure (Anderson, 1982; Kuperminc, Leadbeater, Emmons, & Blatt, 1997). This has evolved through the years, and much of the current work has shifted to focusing on less tangible definitions of school climate, such as behavior of teachers and principals and shared values among members of the school community (e.g. Gage et al., 2016; Koth et al., 2008). Although there is not currently one agreed upon definition or theory of school climate among all practitioners and researchers, most agree that school climate is a complex and

multidimensional concept (Cohen, McCabe, Michelli, & Pickeral, 2009; Koth et al., 2008). It encompasses organizational, environmental, social-emotional, structural, and linguistic elements (Freiberg, 1999). School climate can be based on students' or staffs' experiences in school including interpersonal relationships, teaching and learning practices, and organizational structures (Cohen et al., 2009). For the present study, school climate is defined to reflect the individual and subjective nature of this concept.

Organizational variables are viewed for this study from the students' perspectives, such as their perceptions of safety, teaching and learning, and the expectations in their school.

The authoritative school climate theory is gaining support as an emerging model of school climate (Bear, Yang, Mantz, et al., 2014; Cornell et al., 2015). Authoritative school climate theory suggests that school environments are most positive when schools provide both structure and support (Bear, Yang, Mantz, et al., 2014; Gregory & Cornell, 2009; Gregory, Cornell, & Fan, 2012). This means that students would ideally perceive that fair rules and procedures are in place, but also that they feel connected to and supported by adults. Although the core features of the authoritative school climate theory seem to align with the important components of fair discipline practices and effective PBIS implementation (Gregory et al., 2012; Horner et al., 2004), research has not examined this theory of school climate directly in connection to PBIS implementation. While previous literature related to PBIS implementation (e.g. Bradshaw et al., 2009) has begun to look at school climate more broadly in terms of organizational health and school level factors such as resources available, no studies were found that examined individual student perceptions.

Measuring School Climate

School climate has been measured in a number of ways. Traditionally, measuring school climate has involved either examining the organizational features of a school, such as the size and number of students, or conducting teacher surveys (Anderson, 1982; Kuperminc et al., 1997). This has been expanded to incorporate student surveys, interviews with students and staff, and focus groups or discussions (Freiberg, 1999; Mitchell et al., 2010; Thapa et al., 2013). Although there has been an increase in the variety of ways school climate has been measured, the majority of the research still focuses on school level factors and analysis at the school level (e.g. Griffith, 1999; Griffith, 2000; McNeely et al., 2002). There is considerably less research available examining individual student perceptions of school climate.

Some researchers view school climate as something that is a part of the school itself rather than dependent on other factors (Anderson, 1982; James, 1982; Nunnally, 1967). According to this school level theory of climate, students and staff within the same school building experience school similarly and therefore should have similar perceptions of school climate (Anderson, 1982; James, 1982; Nunnally, 1967). Supporters of this theory suggest that there is more variability in perceptions of school climate across schools than within them. However, multiple studies have shown that there is actually a significant amount of variability in perceptions of school climate even among individuals within the same school building (e.g. Koth et al., 2008; Mok & McDonald, 1994; Vieno, Perkins, Smith & Santinello, 2005). The results from these studies suggest that up to 85% of the variability in perceptions of school climate may be related to individual level factors. Similarly, these studies demonstrated that as little as 2%-4% of variability in

perceptions of school climate may actually be accounted for due to school level factors. This provides a rationale for including individual level factors when examining perceptions of school climate instead of looking at school climate solely through a school level analysis.

Most of the literature suggests that some combination of how individuals perceive both school level factors and individual level factors influence perceptions of school climate. Additionally, it has been suggested that, specifically, individual level factors can have profound implications for practice. For example, if individual level factors have an influence on perceptions of school climate, this is encouraging as it suggests that a student's perception of school and their quality of life in school is not entirely tied to what school they attend or what that school's building level characteristics are (Mok & McDonald, 1994). In addition, focusing on individual student perceptions of school climate allows us to create interventions targeted toward different individuals within a school (e.g. males, students of ethnic minority groups, students receiving special education services) to alter their perceptions of school climate (Van Horn, 2003). In sum, most people would agree that it is not enough to just examine the school as a whole neglecting individual experiences of students or staff members within it, but unfortunately much of the previous research has done this (Griffith, 2000; McNeely et al., 2002; Stockard & Mayberry, 1992).

School Discipline

Despite new initiatives toward more proactive approaches in schools, suspension and other punitive discipline practices are still widely utilized methods of school discipline (Gregory, Clawson, Davis, Gerewitz, 2016). It is estimated that as many as one

in three students will be suspended at some point between kindergarten and 12th grade (Shollenberger, 2015). The widespread overuse of suspensions and expulsions has a tremendous cost for both schools and students (Girvan, Gion, McIntosh, & Smolkowski, 2016; United States Department of Education, 2014). In comparison to elementary and middle schools, high schools are even more likely to rely on exclusionary consequences for discipline (Flannery, Fenning, Kato, & Bohanon, 2011; Flannery, Fenning, Kato, & McIntosh, 2014).

Punitive school discipline practices have been continuously connected to various negative outcomes for students (e.g. Arcia, 2006; Girvan et al., 2016; Gregory, Allen, Mikami, Hafen, & Pianta, 2014; Marchbanks et al., 2015; Peguero & Bracy, 2015).

Previous research has indicated that students who have been suspended from school have a higher likelihood of both repeating grades as well as ultimately dropping out of school compared to their peers who have not been suspended from school (Balfanz, Byrnes, & Fox, 2015; Marchbanks et al., 2015). Additionally, students who have received suspensions during their 9th grade year in high school are less likely than their peers who did not receive suspensions during that year to enroll in postsecondary education (Balfanz et al., 2015). Similarly, students who are suspended or expelled from school have been shown to have a significantly higher chance of being arrested (Monahan, VanDerhei, Bechtold, & Cauffman, 2014). Finally, punitive discipline practices have been associated with negative academic outcomes for students. For example, Arcia (2006) found that students who had been suspended from school had significantly lower scores on a standardized reading achievement test compared to students who had never been suspended.

Bear (2010) suggests that one of the major problems with punitive consequence systems is that they often solely focus on teaching students what they are expected not to do and fail to teach them what they should do. Furthermore, there is not significant support for punitive discipline practices actually improving student behavior. More specifically, research has not demonstrated that harsh or punitive discipline consequences prevent students from engaging in problem behaviors or that their removal would create a more positive school climate for other students in the school (American Psychological Association Zero Tolerance Task Force, 2008). For example, Tobin and Sugai (1999) examined discipline records of 6th grade students ($N=526$), and found that discipline infractions in 6th grade were predictive of future referrals in 7th and 8th grade as well as in high school. This finding suggests that students who have received discipline infractions in the past are likely to continue to receive additional referrals in the future. The authors also found that discipline referrals received for physical fighting in school were a stronger predictor than 6th grade grade point average (GPA) for whether or not the students in the study graduated from high school when they examined data for the same students years later.

Another major concern about using exclusionary discipline practices is that students from minority groups and those with disabilities are often recipients of these procedures more often than their peers (Losen et al., 2015; United States Department of Education, 2014). According to the United States Department of Education (2014), African American students without disabilities are three times as likely to be suspended when compared to their White peers without disabilities. In addition, students receiving special education services represent 12% of the students in the country, yet they make up

19% of the students who are suspended in schools (United States Department of Education, 2014). In addition to the negative outcomes that are often associated with punitive school discipline practices, the concern over disproportionate contact with the discipline system for students of minority backgrounds provides a further rationale for change.

Previous studies examining school discipline have typically looked only at suspensions or expulsions from school as indicators of student discipline history (e.g. Losen et al., 2015; Monahan et al., 2014). In the present study, suspensions from school will be examined, but discipline history will also include whether a student has received a detention or been sent to the office during one school year. By conceptualizing discipline history more broadly, the present study seeks to determine whether any discipline infraction, including those that are more minor where out-of-school suspension may not be an appropriate consequence, affect student perceptions of school climate.

Positive Behavioral Interventions and Supports (PBIS)

As a result of the many negative outcomes associated with traditional punitive discipline practices in schools, many schools have turned toward new frameworks for managing behavior. Prevention focused systems, such as Positive Behavioral Interventions and Supports (PBIS), have been examined as an alternative to traditional exclusionary discipline practices (Fenning et al., 2012; Girvan et al., 2016; Netzel & Eber, 2003). While PBIS may look slightly different across school buildings or districts, there are some key components that have been suggested to guide implementation. Horner et al. (2004) outlined seven core components necessary to implement school-wide PBIS. These are: (1) developing school-wide expectations and rules for appropriate

behavior, (2) direct and active teaching of the expectations and rules, (3) acknowledgment for students who engage in appropriate and expected behavior, (4) clear consequences for when rules are violated, (5) use of data to guide decision making, (6) administrative support at the school level, and (7) support at the district level. Schools that are fully implementing PBIS display these components in both classroom and non-classroom settings (Sugai & Horner, 2002).

In the recent years, there has been a rapid increase in the number of schools implementing PBIS at all grade levels across the country (Sugai & Horner, 2002; Sugai & Simonsen, 2012). Both changes in law and new research have contributed to this increase (Sugai & Simonsen, 2012). The National Technical Assistance Center on Positive Behavioral Interventions and Supports was founded in 1998, and the number of schools implementing PBIS has increased at an exponential rate since the early 2000s (Sugai & Simonsen, 2012). Currently, PBIS is implemented in over 27,000 schools across the United States, but only in about 3,100 high schools (Freeman, Wilkinson, & Vanlone, 2016). While high school implementation has significantly lagged behind elementary and middle schools, the number of high schools that are implementing PBIS increases each year (Swain-Bradway et al., 2015).

Outcomes of Implementation of PBIS

With the increasing implementation of PBIS across the country, there has also been a push for research on the outcomes associated with this framework. Many studies have consistently documented positive outcomes such as decreased office discipline referrals (ODRs) and suspension rates. In a mixed methods study, Nocera, Whitbread, and Nocera (2014) found that the number of ODRs school-wide decreased by 36% over

three years of implementation of PBIS in a middle school. In addition, suspension rates declined by 39% for all students and 51% specifically for students receiving special education services. Qualitative reports from staff interviews that were conducted further confirmed that school personnel had seen an improvement in student behavior since they began implementing PBIS (Nocera et al., 2014). Similarly, in a randomized controlled effectiveness trial with 37 elementary schools, Bradshaw, Mitchell, and Leaf (2010) found that there was a significant decrease in ODRs and suspension rates in schools implementing PBIS compared to the control schools.

Horner et al. (2009) examined how PBIS implementation is connected to perceptions of school safety and levels of problem behavior. Using a randomized wait-list controlled effectiveness trial, the authors found that schools implementing PBIS ($n=30$) had staff who perceived their schools as safer than staff in non-PBIS comparison schools ($n=30$). In addition, schools implementing PBIS had lower office discipline referral rates indicating lower levels of problem behavior. This study also provided preliminary evidence of the implementation of PBIS being positively correlated with academic achievement.

PBIS in High Schools

Despite the rapidly increasing amount of research available on implementation of PBIS in elementary and middle schools, there is much less available literature related to PBIS at the high school level. Most of what is available solely relies on data from one school, and much of the research is exploratory in nature (Flannery et al., 2014). Case studies that have examined PBIS at the high school level have seen a reduction in office discipline referrals after implementation of PBIS (Bohanon et al., 2006). Similarly,

Flannery et al. (2014) expanded these findings in a study examining PBIS implementation in 12 high schools. While the schools were not randomly assigned to conditions, their study was the first known to utilize comparison high schools that were not implementing PBIS. The results showed that schools implementing PBIS had a significant decrease in problem behavior while the comparison schools did not have a significant change in problem behavior (Flannery et al., 2014). Although there are several studies in elementary and middle schools related to outcomes associated with PBIS implementation (e.g. Horner et al., 2009; Nocera et al., 2014), the evidence base in high schools is much more limited.

The Current Study

The current study examined the relationship between discipline history and high school students' perceptions of school climate. In addition, key participant characteristics were examined to determine if significant differences in school climate perceptions existed. The Delaware School Climate Survey (Bear, Yang, Mantz, et al., 2014) was administered to students in the present study to gauge their perceptions of school climate. This measure was selected because it is based on the authoritative school climate theory, which also takes a social-ecological perspective (Bear, Yang, Mantz, et al., 2014). In order to measure discipline history, students were asked toward the end of a school year to report how many discipline infractions they had received during the year. Three indicators of discipline infractions were used. Students were asked to indicate the number of times they had been sent to the office for their behavior, the number of detentions that they had received, and the number of days that they had been suspended either in or out of school. Additionally, it has been demonstrated in the literature that PBIS

implementation in schools may influence school climate (Bradshaw et al., 2009). For the present study, student perceptions of PBIS techniques used in their schools were also assessed to determine if this would play a moderating role that may change the strength of the relationship between student discipline history and perception of school climate.

Specifically, this study examined the following research questions:

- (1) To what extent does student report of being sent to the office during a school year predict their perception of school climate?
 - a. Does student perception of PBIS implementation affect the strength of this relationship?
- (2) To what extent does the number of detentions that a student reports having received during a school year predict their perception of school climate?
 - a. Does student perception of PBIS implementation affect the strength of this relationship?
- (3) To what extent does the number of days that a student reports being suspended during a school year predict their perception of school climate?
 - a. Does student perception of PBIS implementation affect the strength of this relationship?
- (4) Is student perception of PBIS implementation at their school predictive of their perception of school climate?
- (5) To what extent does the total number of discipline infractions that a student reports receiving during a school year predict their perception of school climate?
 - a. Does student perception of PBIS implementation affect the strength of this relationship?

(6) Are there significant differences in perceptions of school climate by gender, race, grade in school, and grades received?

Preliminary research has indicated that students who have had more frequent discipline infractions have more negative perceptions of school climate compared to their peers (Fefer & Gordon, in preparation). In addition, more frequent discipline infractions and negative perceptions of school climate have been associated with a variety of negative outcomes for students (Peguero & Bracy, 2015; Shirley & Cornell, 2012; Thapa et al., 2013). Thus, it was hypothesized that students who reported higher numbers of ODRs, detentions, and days suspended from school would also report less positive perceptions of school climate. A more limited research base has also demonstrated a significant association between school climate and PBIS implementation (e.g. Bradshaw et al., 2008; Horner et al., 2009). Therefore, it was predicted that students who perceive more PBIS techniques in place at their school would also report more positive perceptions of school climate. Finally, it was predicted that the relationship between discipline history and perceptions of school climate would be weaker when students perceive higher PBIS implementation in their schools. It was expected that when students perceive lower PBIS implementation in their schools, their discipline history would have a more profound effect on their perceptions of school climate. Core components of PBIS implementation include setting clear expectations for behavior at school and having well communicated policies related to discipline (Horner et al., 2004). Thus, when students do receive discipline infractions in schools where PBIS is implemented, it was expected that they would be more likely to understand the expectation or rule that was broken and feel that their consequence is both expected and fair. Furthermore, PBIS emphasizes praise

and acknowledgment, which have been shown to increase teacher-student relationships and motivation in school (Bear, Yang, Mantz, et al., 2014; Horner et al., 2004; Wentzel, 1997). Thus, it was predicted that if students are regularly praised and reinforced by their teachers, this relationship is likely to buffer the harsh outcomes typically associated with punitive discipline practices. Therefore, it was hypothesized that perception of PBIS implementation would serve as a moderator influencing the strength of the relationship between discipline history and school climate. Specifically, it was predicted that students who perceived that PBIS components were in place would have more positive perceptions of school climate than their peers who did not perceive components of PBIS in place regardless of discipline infractions received.

Lastly, previous research has shown that the majority of the variability in perceptions of school climate is accounted for by individual level factors compared to school level factors (Koth et al., 2008; Mok & McDonald, 1994; Vieno et al., 2005). Additionally, previous work has found significant differences in school climate perceptions by gender (Mitchell et al., 2010) and by race (Bear, Yang, Mantz, & Harris, 2017). It was hypothesized in the current study that there would be significant differences in perceptions of school climate among students depending on gender, race, grade in school, and the grades they reported primarily receiving.

CHAPTER II

REVIEW OF THE LITERATURE

Overview

The background and history related to school climate and discipline practices in high schools is critical to understanding the need for the present study. This chapter reviews theory and research related to school climate broadly as well as literature specifically focused on school climate at the high school level. Additionally, the literature discussed will specifically focus on the authoritative theory of school climate and individual student perceptions of school climate at the high school level. The history of discipline practices with a focus on high schools is also discussed. More specifically, the evolution of discipline from solely punitive consequence based systems, such as zero tolerance policies, to proactive frameworks, such as Positive Behavioral Interventions and Supports (PBIS), is reviewed. While the research connecting these topics is limited, particularly at the high school level, an understanding of each of these three important constructs independently is critical, as is understanding connections between school climate and discipline.

School Climate

Despite school climate receiving recent attention in schools, it is not a new topic. Perry (1908) was the first researcher to explicitly write about school climate, and he noted that the culture of a school affects both students' abilities to learn and their overall functioning. Dewey and Brooks (1927) also discussed the importance of the experiences that students have within their educational careers, but they did not explicitly reference school climate. Furthermore, Walker (1932) discussed how many personalities make up a

school and can influence the experiences that individuals within it have. As school climate has become an increasing focus in schools, both researchers and practitioners have shifted their attention to factors that influence school climate and outcomes that are associated with it.

While there has been a rapid increase in emphasis placed on school climate in both practice and in research, there is still a fair amount of variability in how school climate is defined. Wang and Degol (2016) suggested that school climate encompasses everything that makes up a school's environment and that it impacts each aspect of student development. Similarly, Thapa et al. (2013) stated that school climate is how students experience life at school. Additionally, Stockard and Mayberry (1992) noted that relationships with other students and teachers, as well as attitudes, norms, and values of a school also play a role in school climate.

Most early definitions of school climate (e.g. James, 1982; Sargent, 1967; Walker, 1932) focused solely on organizational features present at the school level rather than taking into account individual student perspectives. According to this theory of school climate, factors such as school size or school leadership primarily make up the climate or personality of a school (Halpin & Croft, 1963). However, more recent research suggests that although this is what is typically looked at when assessing school climate, it may not be the most effective way to actually measure students' and staffs' experiences in a school building (Stockard & Mayberry, 1992).

A few studies have examined what proportion of variability in perceptions of school climate is accounted for at the individual student level compared to the school level (Koth et al., 2008; Vieno et al., 2005). These studies further outline why it may not

be sufficient to solely assess school level factors when measuring school climate. For example, in a study conducted in 50 schools in Australia ($N=5,932$), Mok and McDonald (1994) found that only 2%-3% of variance in student ratings of climate was accounted for by school level factors (such as the schools' curricula, the schools' values and beliefs, etc.). In addition, the authors suggested that there was actually very low consistency among students' responses within the same schools (Mok & McDonald, 1994). In another study conducted in Italy, Vieno et al. (2005) administered school climate surveys to 4,092 students ages 10 through 18 in 134 different schools. The authors found that 84% of the variability in responses was accounted for by individual level factors while just 4% was accounted for by school level variables.

In the only study found in the United States that directly examined what proportion of variance in school climate perceptions comes from individual level factors, Koth et al. (2008) looked at different predictors of school climate across 2,468 students in 37 elementary schools. These authors also found that the greatest proportion of variance came from individual level factors. Individual level factors accounted for between 65% and 85% of the variance in student perceptions of school climate. This study was done at the elementary level, and no studies found have attempted to replicate this at the secondary level. Results from the studies described above suggest that there is significantly more variability in perceptions of climate that is accounted for at the individual level compared to either classroom level or school level factors (Koth et al., 2008; Mok & McDonald, 1994; Vieno et al., 2005).

There are multiple theories that extend beyond school climate yet emphasize the importance of the environment and relationships with others. These include ecological

systems theory, risk and resilience perspective, attachment theory, social control theory, social cognitive theory, and stage-environment fit theory (Wang & Degol, 2016). The ecological systems theory suggests that human development is influenced by the environment and that this includes both immediate settings and those further away from the individual (Bronfenbrenner, 1977). Schools have many layers within each environment that students are a part of including rules or expectations within a classroom environment, hallways, or time spent in the cafeteria during lunch. Each of these settings may influence development. While these settings may have features that seem to be common for all students (e.g. school size), the essential characteristic of them is how they are perceived by students and how each individual student accesses them. This emphasizes the importance of individual student perceptions of their environment as key to understanding how individuals interact, grow, and adapt (Bronfenbrenner, 1979; Kuperminc et al., 1997).

The risk and resiliency perspective focuses on factors in a child's environment that may put them at risk for negative outcomes as well as those that may serve as protective factors facilitating positive outcomes despite negative risk factors (Finn & Rock, 1997; Rutter, 2006; Wang & Degol, 2016). Schools are in a unique position to foster resiliency among students, which is their ability to adapt to adverse conditions and experience success and positive outcomes both in school and life (Finn & Rock, 1997).

Several theories related to school climate emphasize the social components of the school environment as playing an important role in development. Attachment theory suggests that social bonds are critical to an individual's overall functioning, development, and success at school (Bowlby, 1969; Wang & Degol, 2016). At school, students have the

potential to form relationships with others as they are in contact with teachers, peers, and other individuals (Wang & Degol, 2016). Similarly, social control theory is centered around the idea that individuals are more likely to comply with rules from individuals they have social bonds with (Agnew, 1993; Hirschi, 1969). Therefore, students may be more likely to comply with rules and expectations when schools have a positive climate that encourages involvement in the school community and positive relationships with others (Wang & Degol, 2016). Social cognitive theory emphasizes that individuals learn from others in their environment (Bandura, 1986). This theory may be particularly important for influencing school climate as staff in schools can model appropriate and expected behavior as well as encourage and motivate students to succeed (Wang & Degol, 2016). The consideration of the social components of a school environment and their influence on development is perhaps even more critical in high schools as research suggests that the influence of peers and social relationships are particularly important during these years (Flynn, Felmlee, & Conger, 2017).

Lastly, stage-environment fit theory suggests that the behavior, emotions, and cognitions of individuals are influenced by the environment (Eccles, Lord, & Roeser, 1996; Eccles & Midgley, 1989; Wang & Degol, 2016). Further, this theory states that individuals experience more positive outcomes when their environments align with their developmental needs (Wang & Degol, 2016). For example, it is problematic that students at the secondary school level tend to have a stronger need and desire for autonomy compared to elementary school students, yet this is not often a consideration in the design of secondary schools (Eccles et al., 1993; Eccles & Roeser, 2009). When schools provide a climate that takes developmental needs into account, individuals have higher motivation

and success in school (Eccles et al., 1993; Eccles et al., 1996; Eccles & Roeser, 2009; Wang & Degol, 2016).

Authoritative School Climate Theory

The authoritative school climate theory is gaining increasing attention in both research and practice (e.g. Gregory & Cornell, 2009; Gregory, Cornell, & Fan, 2012). This theory of school climate originated from research on parenting styles (Baumrind, 1966,1968). Baumrind (1966) identified three main parenting styles centered around the idea of the structure or demands placed on children by parents well as the support or responsiveness provided by parents. These styles are authoritarian, authoritative, and permissive. Baumrind (1966) stated that authoritarian parents believe that they should hold high authority and set and enforce rules for children. While this parenting style provides a lot of structure and responsibilities for children, it does not provide the same high level of support. In contrast, Baumrind (1966) suggested that permissive parents provide both low structure and low support. They make few demands and requests of their children, and allow children to guide their own activities. Finally, Baumrind (1966,1968) suggests that the authoritative parenting style is the most effective and leads to the most positive outcomes for children. Parents who have an authoritative parenting style have high expectations for their children, and these expectations are clearly communicated. In addition, they share their reasoning behind rules and expectations, and encourage conversation and give and take with their children. Authoritative parents also provide a safe environment that is warm and supportive to help children reach these expectations. Thus, parents utilizing the authoritative parenting style provide high structure and high support (Baumrind, 1966).

The authoritative school climate theory is based on the idea that both structure and support are essential components of a positive school climate (Bear, Yang, Mantz, et al., 2014; Gregory & Cornell, 2009; Gregory et al., 2012). Much like an authoritative parenting style (Baumrind, 1966,1968), authoritative school climate emphasizes structure in the form of clear rules and expectations that are consistently enforced as well as support and a warm and responsive environment (Pellerin, 2005; Gregory & Cornell, 2009). Gregory and Cornell (2009) suggest that students, particularly adolescents, need structure to feel safe and supported, but they also need to feel that they are respected at school and that they have a sense of autonomy.

Measuring School Climate

In addition to a variety of definitions and theories related to school climate, research has used multiple methods of measuring school climate. School climate can be measured both directly and indirectly (Freiberg, 1999). Direct measures of school climate include surveying students (e.g. Aldridge & Ala'l, 2013; Bear, Yang, Mantz, et al., 2014), surveying teachers and other staff (Bear, Yang, Mantz, et al., 2014), surveying parents with children in various grades (e.g. Schueler, Capotosto, Bahena, McIntyre, & Gehlbach, 2013), conducting classroom observations (e.g. Pas, Cash, O'Brennan, Debnam, & Bradshaw, 2015), interviews with individuals within a school (e.g. Booth & Gerard, 2014), and focus groups (Hanson, Polik, & Cerna, 2017). Some examples of indirect measures of school climate include examining organizational features of a school including the layout of the hallways, bulletin boards, or noise levels (Freiberg, 1999). Freiberg (1999) suggests that looking at school records, such as nurse's visits, can also provide an indication of school climate and student stress levels at school.

School climate surveys administered to individuals working and learning within a school have become an increasingly popular way of measuring school climate. One of the first known school climate surveys was developed by Halpin and Croft (1963). This 64-item measure was designed to assess teachers' and principals' perceptions of school climate. Since this initial survey, many school climate surveys have been developed and validated (e.g. Bear, Yang, Mantz, et al., 2014; Cornell et al., 2014; Gottfredson, 1999; Guo, Choe, & Higgins-D'Alessandro, 2011). While there are numerous tools available to gauge perceptions of school climate of students, teachers, and other staff, the National School Climate Center (2017) outlines four main areas that should be included: safety, relationships, teaching and learning, and the external environment.

The majority of previous research examining school climate perceptions utilize either student or staff surveys. Cohen, Pickeral, and McCloskey (2009) suggested that this is likely the best way to assess school climate perceptions of students or staff. This method captures individual differences and factors that influence perception of school climate, which has a more significant influence on school climate than classroom-wide or school-wide factors (e.g. Mok & McDonald, 1994; Vieno et al., 2005). For the present study, the Delaware School Climate Survey (DSCS; Bear, Yang, Mantz, et al., 2014) was selected to gauge student perceptions of school climate. This tool is validated for use at the high school level, has high reliability and validity, and is aligned with the four core components suggested by the National School Climate Center (2017). Additionally, the DSCS is based on ecological systems theory (Bronfenbrenner, 1977) and the authoritative school climate theory (Gregory & Cornell, 2009). It also highlights the importance of relationships in connection to school climate (Bear, Yang, Mantz, et al., 2014).

As states begin to adopt policies that require schools to include initiatives to improve school climate and provide technical assistance around school climate, it has become even more important to measure school climate and associated outcomes (Piscatelli & Lee, 2011).

Outcomes Associated with Positive School Climate

Previous research has consistently documented a variety of positive outcomes associated with a positive school climate. Across numerous studies at the elementary and middle school levels, school climate has been linked with student success and overall wellbeing. For example, in a longitudinal study conducted by Wang and Dishion (2012) positive school climate was associated with a decrease in behavior problems in school. This study followed 1,030 students in grades 6 through 8. Students were administered a 16-item school climate measure once per year throughout middle school. The items were selected from Dishion and Stormshak's (2002) School Climate Measure, and asked students about perceived academic support, school behavior management, and perceived social support from both teachers and peers (Wang & Dishion, 2012). When student responses were examined in relation to teacher reports of problem behaviors in school, it was determined that higher positive student perceptions of school climate were related to a decrease in teacher-reported behavior problems. Additionally, the authors found that perceptions of school climate had a moderating effect influencing the relationship between negative peer affiliation and problem behaviors in school. Specifically, students who self-reported deviant peer affiliations (e.g. hanging out with friends who get in trouble, fight, steal from others) had significantly higher levels of teacher-reported problem behavior. However, this relationship was weaker when students also self-

reported more positive perceptions of school climate. Thus, when students reported deviant peer affiliations and positive perceptions of school climate, their teachers reported lower levels of problem behavior compared to students who reported deviant peer affiliations and negative perceptions of school climate.

Ryan and Patrick (2001) also examined classroom climate in relation to disruptive behaviors in the classroom. Classroom climate surveys were administered to middle school students in eighth grade ($N=233$). These surveys focused on perceptions of the classroom's social environment and were adapted from both the Patterns of Adaptive Learning Survey (Midgley et al., 1996) as well as the Classroom Environment Scale (Moos & Trickett, 1974). The survey administered to students included items about teacher-student relationships, peer interactions around academic tasks, mutual respect of classmates, and competition as well as comparison of students to each other around academic tasks (Ryan & Patrick, 2001). Students were also asked five items that specifically pertained to their perception of their own disruptive behavior in class (e.g. whether they follow directions, disrupt others, or behave in ways that annoy the teacher). Results from this study suggest that positive perceptions of teacher support, peer interactions around academic tasks, and mutual respect of classmates were associated with lower reports of disruptive behavior. Additionally, the items on the survey that asked students about competition and comparison of students to each other around academic tasks were positively associated with higher perceptions of disruptive behavior in the classroom. In sum, this study suggests that students who report more positive perceptions of the social climate of their classrooms, evidenced by support from teachers and from other students, also report lower levels of disruptive behavior in the classroom

compared to peers with more negative perceptions of the social climate of their classrooms.

Middle school students' perceptions of school climate have also been linked to other social outcomes in school (Wang, 2009). In a study with 1,042 students in grades 7 and 8, positive perceptions of school climate were associated with higher ratings of social competence as well as lower levels of problem behavior in school (Wang, 2009). Another study conducted in 10 middle schools with 2,212 students demonstrated that more positive school climate perceptions were associated with fewer emotional problems, fewer conduct problems, and less victimization by peers (Hung, Luebke, & Flaspohler, 2015). Finally, school climate has also been linked to more positive student self-concept, higher motivation in school, and other enhanced emotional and psychological outcomes for students (Kupermic et al., 1997; Thapa et al., 2013). While outcomes associated with school climate are not new topics in either research or practice, the vast majority of information currently available in this area comes from studies conducted in elementary schools (e.g. Koth et al., 2008; Mitchell et al., 2010).

Bear, Yang, Pell, and Gaskins (2014) examined the relationship between teacher perceptions of school climate and suspension and expulsion rates as well as teacher perceptions of school climate and academic achievement. Bear, Yang, Pell, et al. (2014) administered the teacher/staff version of the Delaware School Climate Survey to teachers, administrators, and other staff ($N=5,781$) in 132 elementary, middle, and high schools. Data aggregated at the school level was also collected for suspensions, expulsions, and academic achievement. The authors found a significant negative correlation between suspension and expulsion rates and school climate as well as a significant positive

correlation between academic achievement and school climate. These results are promising as they suggest that significant positive outcomes of school climate are demonstrated across grades. This study is one of the few currently available that examines the effects of school climate across all grade levels.

Although research about outcomes related to school climate focused on the high school level is scarce, a few studies have begun to examine this. In one of these studies, Suldo, McMahan, Chappel, and Loker (2012) examined student perceptions of school climate and associated outcomes using three self-report measures with 415 high school students from three public high schools. Students were administered the Students' Life Satisfaction Scale to assess their global satisfaction with life, the youth self-report form of the Child Behavior Checklist as a measure of psychopathology including both internalizing and externalizing symptoms, and a school climate survey. The School Climate Survey - High School Student Version, Revised (Haynes, Emmons, & Ben-Avie, 2001) was administered to students to gauge their perceptions of school climate. The authors found that student responses on the school climate survey were significantly and positively associated with their responses on the global life satisfaction measure as well as negatively correlated with both internalizing and externalizing symptoms of psychopathology. These findings emphasize the link between student perceptions of school climate and their overall wellbeing and satisfaction with life.

School climate has also been shown to be related to academic outcomes at the high school level. In a study conducted by O'Malley, Voight, Renshaw, and Eklund (2015), the California Healthy Kids Survey (WestEd, 2014) was administered to students ($N=490,000$) in grades 9 and 11 in 902 high schools. This survey is a state-adopted

measure that assesses risk and protective factors including those related to family structure, academic achievement, and school climate (O'Malley et al., 2015). Items ask about each student's school connectedness, relationships with adults at school, opportunities for meaningful participation in school, and perceived school safety (Hanson, 2012; O'Malley et al., 2015; WestEd, 2014). O'Malley et al. (2015) specifically examined the relationship between family structure (e.g. one-parent, two-parent, foster-care, or homeless households) and student self-reported GPAs. This study also found that perceptions of school climate significantly moderated the relationship between family structure and academic achievement. Thus, students with higher perceptions of school climate reported higher GPAs regardless of their family structure. Given this result, the authors suggested that school climate may serve as a protective factor against challenging home environments.

A core component of almost all definitions of school climate is relationships with students and staff within a school building (Bear, Yang, Mantz, et al., 2014; Thapa et al., 2013). In one study conducted by Eliot, Cornell, Gregory, and Fan (2010), the authors examined the influence of student perceptions of school climate specifically focused on relationships with staff in the school building. An 8-item Supportive School Climate score (Austin & Duerr, 2005) was used which included items asking about whether students perceived that adults listen to them, pay attention to them, treat all students with respect, and work together to improve the school. The sample included 7,318 ninth grade students from 291 high schools. In this study, students who reported having more positive and supportive relationships with teachers and other school staff were more likely to seek help when needed. This specific study focused primarily on seeking help when threats of

either bullying or violence occurred in school. While this study only focused on one critical component of school climate (i.e. teacher-student relationships), it provides evidence that students with more positive perceptions of this component of school climate may demonstrate more positive outcomes compared to students with negative perceptions of relationships with staff at school.

Although previous research has shown that school level variables and analyses may not be the strongest indicators of school climate (Mok & McDonald, 1994; Vieno et al., 2005), a few studies have examined school climate in high schools with a focus on school level data and variables. In a meta-analysis including 36 studies, positive school climate, measured by organizational characteristics, interpersonal relations within the school, and sense of belongingness and attachment to the school, was negatively correlated with school violence (Steffgen, Recchia, & Viechtbauer, 2013). Thus, schools that had more positive school climates had fewer occurrences of violent events at school. In another review, Fletcher, Bonell, and Hargreaves (2008) examined school climate in relation to drug use at the school level and found that high schools with more positive school climates had lower rates of drug use. While these school level studies can provide insight into some potentially promising influences of school climate, they fail to account for data at the individual student level and therefore do not account for all factors that are known to influence perceptions of school climate.

Outcomes Associated with Authoritative School Climate

While the studies above assess outcomes associated with many theories related to school climate, the present study focuses on the authoritative school climate theory. Research demonstrates clear positive outcomes associated with authoritative school

climate. In the first known study to apply Baumrind's (1966) parenting styles to school climate perceptions of secondary school students, Wentzel (2002) surveyed students in grades 6 through 8 ($N=452$) in two public middle schools. Students were asked to complete a questionnaire about their experiences in school including how fair their teachers are, teacher motivation, rule setting, feedback given, and expectations in the classroom. The items that students were administered included items adopted from the School Motivation Scale (Ford & Tisak, 1982) as well as a mastery goal orientation scale (Nicholls, Cobb, Yackel, Wood, & Wheatley, 1990) and Connell's (1985) Multidimensional Measure of Children's Perception of Control. Their academic motivation and classroom behavior was also assessed using teacher questionnaires and peer nominations. Wentzel (2002) found that student reports of the five teaching dimensions identified above accounted for significant amounts of variability in teacher reports and peer nominations related to academic motivation and behavior in the classroom. This was true even after controlling for demographic variables such as race and gender. This study provides preliminary evidence of an association between structure and support provided by teachers and student academic motivation and behavior in the classroom. However, this study solely focused on structure and support that each student perceived from their classroom teacher rather than other adults in the school or school-wide practices in general.

In another study conducted by Pellerin (2005), data was drawn from the High School Effectiveness Study administered as part of the National Educational Longitudinal study of 1988. The final sample included 164 public high schools with 4,743 total student participants. Schools were divided into four groups based on student and administrator

responses about their schools' responsiveness and demandingness: authoritarian, authoritative, permissive, and indifferent. While Baumrind's (1966,1968) original work only outlines three different parenting styles, Pellerin (2005) stated that it is important to differentiate between parents, or staff in schools in the case of this study, that provide low levels of demands or structure for children. In this study, the permissive style was identified as one where there are few demands placed on children, but a high level of support is provided. In contrast, the indifferent style was characterized by both low demands placed upon children and a low level of support or responsiveness. Two outcome variables were considered: (1) disengagement measured using student's self-reports of being tardy to or skipping class as well as absences recorded on transcripts, and (2) dropout information obtained from student records. Pellerin (2005) found that schools in the authoritative group had significantly lower levels of disengagement than all other types of schools. In addition, results showed that authoritarian schools had significantly higher dropout rates compared to the other three groups, but no significant difference was found between the authoritative, permissive, and indifferent schools. Pellerin (2005) hypothesized that students at the permissive and indifferent schools may have had low dropout rates due to the more lenient and undemanding style of the school. This study also concluded that authoritative schools held their students to the highest discipline standards while maintaining a focus on responsive and supportive relationships. Pellerin (2005) further suggests that it becomes even more critical to promote an authoritative style in the secondary grades to align with the developmental needs of adolescents. Adolescents may question rules and only comply if they feel they are supported and the

rules are fair (Pellerin, 2005). This study provides a rationale for promoting an authoritative approach to school climate at the secondary level.

In more recent years, research has continued to demonstrate the connection between an authoritative school climate and outcomes for students and staff in high schools. Cornell and Huang (2016) examined the authoritative school climate theory and the relationship between perceptions of authoritative school climate and high-risk behavior in high school students. Their study utilized data from 323 high schools ($N=52,012$) obtained through the Virginia Secondary School Climate Survey (Cornell et al., 2014). Cornell and Huang (2016) specifically focused on whether student perceptions of school climate were related to self-report of high risk behaviors including fighting, weapon-carrying, alcohol and marijuana use, and considering or attempting suicide. The school climate items were about student perceptions of discipline structure and student support to align with authoritative school climate theory, while items for the high-risk behaviors were taken directly from the Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2015). Overall, students in schools with lower authoritative school climate ratings were more likely to engage in high risk behaviors. More specifically, 1.26% of students in high authoritative schools reported bullying others compared to 3.68% of students in low authoritative schools. Similarly, there were significantly lower prevalence rates in schools with high authoritative climate compared to schools with low authoritative climate for each of the other high risk behaviors which included alcohol use (18.66% compared to 29.58%), fighting (4.64% compared to 11.54%), weapon carrying (2.09% compared to 6.37%), marijuana use (9.04% compared to 19.43%), suicidal thoughts (10.66% compared to 13.58%), suicide attempts (4.26%

compared to 7.81%), and considering joining a gang (1.53% compared to 4.75%).

Regression analyses also showed that student perception of authoritative school climate was a significant predictor of each of these risk behaviors.

In a similar study, Jia, Konold, and Cornell (2016) analyzed data from the Virginia Secondary School Climate Survey ($N=52,012$; Cornell et al., 2014) about disciplinary structure, academic expectations, and student support. The disciplinary structure items asked about student perceptions of the fairness and strictness of their school discipline practices. The academic expectations questions asked about teacher expectations of their work in school, and the student support items were related to teachers and other adults caring and being willing to help students. Results indicated that the lowest dropout rates were found in schools where students felt that there were the highest expectations and the highest level of support. This study contributes two main ideas to the authoritative school climate theory literature: (1) that high expectations are critical to student success and to lower dropout rates, and (2) that student perceptions of level of support moderates the relationship between expectations and dropout rates. Thus, Jia et al. (2016) conclude that holding students to high expectations is not enough. Other school factors, such as perceived support, also play a role in student outcomes.

School Discipline

Schools are tasked everyday with teaching and educating all students while simultaneously maintaining safety and order in the school (American Psychological Association Zero Tolerance Task Force, 2008; Mayworm & Sharkey, 2014). To do this, a variety of school discipline practices and approaches have been used. Since the early 1990s, many schools have taken a zero tolerance approach to discipline. Zero tolerance

policies originated as an approach to enforcing drug free schools (American Psychological Association Zero Tolerance Task Force, 2008; Skiba & Rausch, 2006). They have since expanded to encompass not only rules related to drugs but also to violence, weapons, and even more minor offenses (American Psychological Association Zero Tolerance Task Force, 2008; Gregory & Cornell, 2009). The American Psychological Association Zero Tolerance Task Force (2008) defines zero tolerance policies as those that mandate "...the application of predetermined consequences, most often severe and punitive in nature, that are intended to be applied regardless of the gravity of behavior, mitigating circumstances, or situational context" (p. 852). Thus, zero tolerance policies are highly structured. They do not offer flexibility in what consequences are applied for breaking one of the school rules (American Psychological Association Zero Tolerance Task Force, 2008; Gregory & Cornell, 2009).

Despite the increased use of zero tolerance policies in schools since the 1990s, research on outcomes of these policies does not show that they are effective in managing behavior and therefore increasing safety in schools (American Psychological Association Zero Tolerance Task Force, 2008; Gregory & Cornell, 2009; Martinez, 2009). Instead, research suggests that they may do more harm than good for students and schools (American Psychological Association Zero Tolerance Task Force, 2008). In addition to the nonexistent empirical basis backing the effectiveness of zero tolerance policies in general, there is no evidence to show that these policies are even consistently applied to all students in all schools, which is one of the reasons that schools often select to implement these policies in the first place. Despite the attempts of zero tolerance policies to increase consistency in school discipline, the American Psychological Association

Zero Tolerance Task Force (2008) reported that rates of suspension and expulsion continue to greatly vary, and that this may be due to variability in how staff and schools handle a violation of these policies rather than actual student behavior. Furthermore, data also show that students of ethnic minority groups and students with disabilities are more likely than their peers to be recipients of these punitive discipline practices under zero tolerance policies (American Psychological Association Zero Tolerance Task Force, 2008; Martinez, 2009). Thus, it has been shown that zero tolerance policies are not consistently applied to each student within a school or district, and can lead to the overuse of punitive discipline practices, such as suspension or expulsion, even for minor offenses.

Despite concerns about zero tolerance policies in schools, many punitive discipline practices have remained primary strategies for managing student behavior in schools (Gregory et al., 2016; Nelson, 2014; Skiba & Knesting, 2001). These practices may include detention, suspension, or expulsion. However, research has found that these practices are associated with many negative outcomes for students. Marchbanks et al. (2015) conducted a study examining the relationship between suspensions and a students' likelihood to drop out or repeat a grade. Their longitudinal study used data for students in grades 7 through 12 from the Texas Education Agency's Public Education Information Management System. The authors found that after one in-school suspension, students were on average 23.7% more likely to drop out of high school compared to their peers who did not receive any suspensions. When specifically examining the influence of in-school suspensions for high school students, the authors found that students who were given an in-school suspension in ninth grade were 46.2% more likely than their peers to

be retained in grades 10-12. Marchbanks et al. (2015) further reported that 10% of students in their study who received any type of discipline infraction, defined as in or out of school suspension, expulsion, or alternative school placement due to behavioral concerns, ended up dropping out of school in comparison to 2% of their peers with no previous discipline infractions.

Similar findings were demonstrated in a longitudinal study conducted by Balfanz et al. (2015) which examined data from 181,897 grade nine students. More than one in four students in their sample had received an out-of-school suspension at least once in their ninth grade school year, and students were twice as likely to drop out of high school once they received their first suspension in ninth grade. Similarly, 16% of students with zero out-of-school suspensions dropped out, compared to 32% of those who had been suspended once. These rates increased slightly with students who received two or three suspensions during 9th grade, and 53% of students with four or more 9th grade suspensions dropped out of school. Furthermore, Balfanz et al. (2015) reported that less than a quarter of students who received four or more suspensions during their 9th grade year enrolled in postsecondary education.

Punitive discipline practices in schools have also been linked with other negative outcomes. For example, Arcia (2006) examined the relationship between punitive discipline practices and academic outcomes using a matched sample of students who had been suspended at least once ($n=49,327$) and students who had never been suspended ($n=42,809$). Arcia (2006) found that there was a significant difference between groups on a standardized reading achievement test; students who had been suspended had significantly lower scores compared to those who had not been suspended. In addition,

Monahan et al. (2014) examined the relationship between student suspensions and expulsions from school and likelihood of a student being arrested. They obtained data from 1,354 adolescents between the ages of 14 and 17 and found that adolescents who were suspended or expelled from school were twice as likely to be arrested during that same month (Monahan et al., 2014). Age, race, or sex were not found to change this relationship.

In sum, punitive discipline practices have been associated with many negative outcomes for students. These outcomes include disengagement from school (Shirley & Cornell, 2012), grade retention (Marchbanks et al., 2015), an increased risk for dropping out (Marchbanks et al., 2015; Peguero & Bracy, 2015), and other long-term effects, such as an increased likelihood of being arrested, that may persist into adulthood (Kupchik & Catlaw, 2014; Monahan et al., 2014). As a result of this, many schools have begun to look at alternative ways to manage discipline (Gregory & Cornell, 2009).

Positive Behavioral Interventions and Supports (PBIS)

Positive Behavioral Interventions and Supports (PBIS) is a discipline approach that utilizes a multi-tiered system of behavioral support to provide a continuum of research based prevention and intervention techniques to all students that are matched to their needs (Sugai & Simonsen, 2012; Swain-Bradway et al., 2015). PBIS has been proposed as an alternative discipline framework to more punitive practices, such as zero tolerance policies (Skiba, 2010). PBIS is a framework based on four core principles: behavioral science, practical interventions, social validity, and a systems perspective (Sugai et al., 2000). Sugai and colleagues (2000) emphasize that behavior is influenced by the environment. Behavior is learned rather than innate, and an individual's behavior

can be changed with direct instruction and intervention (Sugai et al., 2000). PBIS focuses on practical interventions that emphasize teaching positive behavior expectations and using data based decision making to inform practices. PBIS centers around changing socially significant behaviors that will make a real difference in the lives of the students, staff, and families that are involved such as decreasing problem behaviors and increasing prosocial behavior. These strategies and foundations are applied through a systems perspective, as PBIS emphasizes the use of school-wide prevention in addition to individual student support (Sugai et al., 2000).

PBIS focuses on three tiers of support and with an emphasis on prevention across tiers (Horner et al., 2010). These tiers are referred to as primary prevention or Tier 1, secondary prevention or Tier 2, and tertiary prevention or Tier 3. Each tier consists of practices and systems that are established to guide implementation (Horner et al., 2010). At Tier 1, school-wide practices include teaching behavioral expectations, ensuring that students know and understand rules, routines, and consequences, and training staff to use positive and corrective feedback as appropriate (Sugai & Horner, 2002).

Students who exhibit behavioral concerns despite receiving school-wide or Tier 1 support are identified for support at Tiers 2 and 3. At these advanced tiers, students receive more support including more frequent teaching of the expectations, supervision and monitoring, and feedback on their behavior (Sugai & Horner, 2009). In addition, further assessments are conducted to identify factors contributing to the problem behavior, and the information gathered through these assessments is used for behavior support planning (Sugai & Horner, 2002). It is estimated that Tier 1 supports are enough to prevent problem behavior and establish appropriate behavior for approximately 80% of

the students in a school, while approximately 10-15% may require Tier 2 supports in addition to Tier 1 supports and up to 5% of students may require Tier 3 supports as well (Horner & Sugai, 2015). One of the key components of PBIS is the emphasis on data based decision making at all tiers to ensure that students are appropriately identified and their responsiveness to the level of support provided is evaluated (Carr et al., 2002; Sugai & Horner, 2002).

In recent years, there has been a rapid increase in both the implementation of PBIS and research on the outcomes and effectiveness of PBIS in schools. While high schools continue to implement PBIS at rapidly increasing rates (Swain-Bradway et al., 2015), they still lag behind the implementation rates in elementary schools. Practitioners and researchers at the high school level have suggested that there may be many reasons for this difference. First of all, the structure of a high school is vastly different than an elementary school. High schools are bigger, teachers are very focused on one academic content area, and students interact with many more adults on a daily basis as they often have a different teacher for each content area (Bohanon et al., 2006; Flannery et al., 2014; Swain-Bradway et al., 2015). Each of these barriers that present at the high school level may be obstacles to implementation. In addition, two key components of PBIS are the explicit teaching of behavioral expectations and an acknowledgment system for students (Horner et al., 2004). At the high school level, many adults feel that students should have already been taught how to behave and follow expectations by the time they reach this point in their lives (Bohanon et al., 2006; Flannery et al., 2014). Similarly, it has been noted that some people feel that it is not developmentally appropriate to reward or acknowledge students for appropriate behavior at the high school level (Bohanon et al.,

2006; Swain-Bradway et al., 2015). Lastly, it has been suggested that high school students may want larger prizes which presents a challenge due to lack of resources in schools (Swain-Bradway et al., 2015). The discrepancy between PBIS at the elementary and middle school levels compared to the high school level is reflected in the literature as well, as there is significantly less research available on PBIS at the high school level compared to elementary schools.

PBIS and School Discipline

At the elementary and middle school levels, many well-controlled research studies have consistently demonstrated that PBIS implementation has led to fewer students receiving office discipline referrals as well as suspensions (e.g. Bradshaw et al., 2008; Bradshaw et al., 2010; Horner et al., 2009; Nocera et al., 2014). However, at the high school level, much of the research available solely relies on data from one school, and much of it is exploratory in nature (Flannery et al., 2014). For example, in a case study, Bohanon et al. (2006) conducted one of the first studies to implement and evaluate PBIS at the high school level. The study was conducted over a 3-year period in one ethnically diverse high school. Office discipline referral (ODR) data was collected for all three years of the study. While the school began implementing PBIS in year one of the study, they did not reach 80% implementation of PBIS on the School-Wide Evaluation Tool (SET; Horner et al., 2004) until year three. During the third year of implementation, the school also saw a 20% reduction in ODRs as well as a decrease in the number of students requiring more intensive supports compared to the first two years when they were not implementing PBIS with at least 80% implementation fidelity. In another study conducted in one similar urban high school, Bohanon et al. (2012) also examined ODR

rates in relation to PBIS implementation and found similar results. Although both of these studies provide preliminary evidence for the effectiveness of PBIS at the high school level, both took place in only one school each with no comparison data.

Flannery et al. (2014) conducted one of the first studies to use comparison school data to evaluate PBIS at the high school level. Their sample included 36,653 students across 12 high schools. The schools were not randomly assigned to either a PBIS or comparison condition, but there were eight schools that began implementing PBIS as well as four comparison schools. The authors examined ODR rates in both intervention and control schools at baseline and during year three, which was when 80% implementation on the SET was reached in intervention schools. During baseline, ODR rates were higher in control schools than intervention schools. However, ODR rates did not change year to year in control schools. In the intervention schools, there was a significant decrease in ODR rates by year three, which was when they reached full implementation of PBIS.

In a more recent study that utilized a quasi-experimental interrupted time series design, Freeman, Simonsen, et al. (2016) assessed the effects of PBIS at the high school level using data from a sample of 946 high schools. The Benchmarks of Quality (BOQ; Cohen, Kincaid, & Childs, 2007; Kincaid, Childs, & George, 2005) as well as the SET were used as indicators of fidelity of implementation to group schools by implementation level (i.e. not implementing, partially implementing, fully implementing). Freeman, Simonsen, et al. (2016) examined three main outcome variables: ODRs, attendance, and academic performance. Results showed that schools implementing PBIS had significant reductions in ODRs as well as increases in attendance, but the authors did not find a

significant effect for academic performance. Like the Flannery et al. (2014) study, the authors of this study did not use random assignment. While other authors have attempted to examine outcomes related to PBIS implementation at the high school level, many of these studies have had significant limitations in addition to not using comparison schools, such as schools dropping out prior to completion of the study (e.g. Muscott, Mann, & LeBrun, 2008).

PBIS and School Climate

In addition to positive outcomes associated with PBIS related to school discipline practices, research has begun to examine how PBIS implementation may influence school climate (Horner et al., 2009; Lassen, Steele, & Sailor, 2006; Nocera et al., 2014). In one study, Bradshaw et al. (2009) examined teacher reports ($N=2,596$) of school climate in 37 elementary schools. The authors found that PBIS had a significant influence on overall school climate. This was measured by having staff complete the Organizational Health Inventory for Elementary Schools (OHI; Hoy & Feldman, 1987). This measure consists of 37 items that focus on the school's ability to cope with challenges that arise (institutional integrity), staff interactions with each other and commitment to students (staff affiliation), students drive to improve their skills (academic emphasis), the principal's friendliness and openness (collegial leadership), and the principal's ability to acquire resources for the school (resource influence; Bradshaw et al., 2009). This study found that schools implementing PBIS with fidelity had significantly more positive teacher reports overall on the OHI as well as on three subscales of this measure: resource influence, academic emphasis, and staff affiliation. While this study provided evidence for the link between PBIS implementation and school climate, the school climate survey

was administered to teachers rather than students and only elementary schools were included in the study.

Similarly, in a randomized controlled effectiveness trial, Horner et al. (2009) administered a survey to staff in 60 elementary schools, half of which were implementing PBIS and half of which were comparison schools. The authors found that there was a significant difference in perceptions of school safety, which is one of the core components of school climate, between schools implementing PBIS and comparison schools. Specifically, staff in the intervention schools implementing PBIS had significantly more positive perceptions of school safety compared to staff in comparison schools. Perceptions of school safety were determined by administering the School Safety Survey (SSS; Sprague, Colvin, & Irvin, 1996) to five individuals of different roles within each of the schools participating in this study. This survey calculates a total risk factor score which asks about the physical layout of the school, quality of student-adult and student-student interactions, level of supervision, sensitivity to cultural differences, and perceived fairness of school rules (Sprague et al., 1996). The SSS also calculates a protective factor score, which examines clarity of behavioral expectations, opportunities for student participation in activities and skill development, and systems to manage conflict when it arises (Sprague et al., 1996).

Lastly, Bear et al. (2017) conducted a study to examine how praise and rewards, teaching of social emotional learning techniques, and punitive rules and consequences relate to student perceptions of school climate. This study included 30,071 students in grades 3-12 from 118 schools. Students were administered the standard subscales of the Delaware School Climate Survey, along with the Delaware Positive, Punitive, and SEL

Techniques Scales (Bear et al., 2016). The authors found that as students perceived more praise and rewards in place as well as more teaching of social emotional learning techniques, they had significantly more positive perceptions of school climate. Additionally, student perceptions of punitive rules and consequences were significantly negatively associated with perceptions of school climate. Thus, the results from this study suggest that there is an association between the key components of PBIS implementation and perceptions of school climate across all grade levels.

These studies are critical to begin to understand the connection between PBIS and school climate, but more research is needed to understand how these findings may apply to high school settings. Two of the three studies were conducted specifically in elementary schools, and used teacher reports of perceptions of school climate rather than asking students. The present study directly examines whether student perceptions of PBIS implementation is associated with perceptions of school climate in two high schools.

School Climate, School Discipline, and PBIS

While there has been a fair amount of research on the topics of school climate, school discipline practices, and PBIS, no previous research has directly looked at the relationships between these three important variables. Anderson (1982) was one of the first authors to report that school climate is affected by student behavior and that student behavior is affected by school climate. Similarly, Pang (1992) hypothesized that there is a link between climate and behavior and administered a survey both teachers ($N=691$) and principals ($N=24$) in 29 schools. The surveys administered for this study asked staff to indicate both their perceptions of school climate as well as their attitudes about rewards and punishment in order to manage behavior in school. Results showed that teachers in

schools with positive school climates were more likely to report reward-oriented discipline while teachers in schools with less positive school climates were more likely to report valuing punishment procedures for discipline. The article also did not explicitly reference PBIS, but Pang (1992) suggested that reward-based discipline also helps to build trust within a school and foster a positive school climate.

Similarly, in a critical study conducted by Gottfredson et al. (2005), surveys were administered to students and staff in 254 public secondary schools to measure perceptions of school disorder and school climate. School disorder was defined as teacher or student victimization, which included any uncivil act experienced by a student or teacher, and student delinquency, which asked about students getting in trouble for offenses committed in school (Gottfredson, et al., 2005). The items used to measure school climate asked about whether students and staff perceived the school rules to be fair and clear, whether everyone was working toward the same goal, and if people felt like they were supported and their ideas were valued. The student and teacher scales were adopted from the Effective School Battery (Gottfredson, 1999), and the student measures drew from the What About You student questionnaire (Gottfredson, 1999). Self-report data from students demonstrated that their perceptions of school climate were significantly associated with their perceptions of school disorder. More specifically, students who reported more positive perceptions of school climate responded significantly lower on student victimization items that asked whether they had another student steal from them, threaten them, or hurt them. In addition, results showed that there were fewer discipline offenses in schools where students perceived that the rules were both clear and fair (Gottfredson et al., 2005). These results provide a preliminary association between the

three factors of interest in the present study. While Gottfredson et al. (2005) did not directly reference PBIS, the authors did examine school discipline, climate, and features of the school that are core components of PBIS (e.g. clear discipline). No other studies were found that directly linked all three of these concepts.

While the research has examined outcomes associated with school climate, there is much less literature currently available that directly examines factors influencing school climate (Cornell et al., 2015). Additionally, it has been suggested that many of these factors, such as school size, poverty, or student race, are out of our control (Griffith, 2000; National Research Council Institute of Medicine, 2003). Freiberg (1999) stated that we must focus on the factors that are within our control and those that we can alter. Discipline practices in schools are one of these factors.

The Current Study

This study explores high school students' discipline histories in relation to their perceptions of school climate. Given what has been consistently demonstrated in the literature about positive outcomes related to positive perceptions of school climate, and the national push for school climate initiatives and improvement in schools, it has become imperative to further examine variables that influence school climate. Additionally, as discipline practices in high schools continue to shift from solely punitive consequence based systems to more preventative approaches, it has become even more important to further understand how PBIS implementation may relate to both school discipline and school climate perceptions (Horner et al., 2010; Sugai & Horner, 2009). The present study examines student perceptions of PBIS implementation in high schools to provide a rationale for the importance of continuing to use proactive and preventative

approaches to school discipline at this level. Lastly, the present study also seeks to fill this gap in existing literature and contribute to our understanding of practical and preventive methods that may mitigate factors that negatively influence school climate.

CHAPTER III

METHOD

Setting and Participants

This study took place in two public high schools in Western Massachusetts. Each of the schools that participated serve students in grades 9-12. In the 2016-2017 academic year, according to the Massachusetts Department of Elementary and Secondary Education (MA DESE, 2016), school A had 1,219 total students enrolled, and school B had 1,222 total students enrolled. Between the two schools, 52% of the students were male, and 48% were female. In school A, 1.2% of the students were African American, 2.2% were Asian, 5.8% were Hispanic, 0% were Native American, 88.8% were White, 0.1% were Native Hawaiian, and 1.9% were Multi-race (Non-Hispanic). For school B, 3.6% were African American, 6.8% were Asian, 14.4% were Hispanic, 0.1% were Native American, 73.2% were White, 0.1% were Native Hawaiian, and 1.9% were Multi-race (Non-Hispanic). In school A, 1.3% of the students were English Language Learners and 14.1% of the students had a diagnosed disability compared to 6.7% and 18.9% in school B, respectively (MA, DESE 2016). In school A, 22.7% of the students met the Massachusetts Department of Elementary and Secondary Education's criteria for being economically disadvantaged compared to 38.5% of the students in school B (MA DESE, 2016). In order for a student to meet the criteria for being economically disadvantaged, they must receive assistance from a state-administered program including Supplemental Nutrition Assistance Program (SNAP), the Transitional Assistance for Families with Dependent Children (TAFDC), the Department of Children and Families' (DCF) foster care program, or MassHealth (Medicaid; MA DESE, 2016). A total of 856 students

participated in the present study across the two schools. The demographic information from the participants in the present study is aligned with the school totals detailed above suggesting that the current sample is representative of the students who attended both schools. The one exception to this is participation among grade 12 students. These students make up 24.9% of the school population yet only 11.7% of the sample. See Table 3.1 for specific demographic information of the participants in the present study.

Table 3.1
Participant Demographics

| | School A Sample (<i>n</i> = 475) | | School B Sample (<i>n</i> = 381) | | Total Sample (<i>N</i> = 856) | |
|------------------------------|---|------|---|------|--------------------------------------|------|
| | <i>n</i> | % | <i>n</i> | % | <i>N</i> | % |
| Gender | | | | | | |
| Male | 220 | 46.3 | 194 | 50.9 | 414 | 48.4 |
| Female | 239 | 50.3 | 174 | 45.7 | 413 | 48.2 |
| Other | 6 | 1.2 | 5 | 1.3 | 11 | 1.3 |
| Grade | | | | | | |
| 9 | 145 | 30.5 | 139 | 35.7 | 284 | 33.2 |
| 10 | 169 | 35.6 | 111 | 29.1 | 280 | 32.7 |
| 11 | 106 | 22.3 | 75 | 19.7 | 181 | 21.1 |
| 12 | 49 | 10.3 | 51 | 13.4 | 100 | 11.7 |
| Race | | | | | | |
| African-American | 13 | 2.7 | 9 | 2.4 | 22 | 2.6 |
| Asian | 24 | 5.1 | 41 | 10.8 | 65 | 7.6 |
| White | 359 | 75.6 | 247 | 64.8 | 606 | 70.8 |
| Hispanic | 33 | 6.9 | 33 | 8.7 | 66 | 7.7 |
| Native American | 3 | 0.6 | 2 | 0.5 | 5 | 0.6 |
| Native Hawaiian | 0 | 0 | 0 | 0 | 0 | 0 |
| Multi-Race (Non-Hispanic) | 14 | 2.9 | 9 | 2.4 | 23 | 2.7 |
| Other | 16 | 3.4 | 23 | 6.0 | 39 | 4.6 |

In school A, 475 students participated in the survey yielding a response rate of 38.9%. In school B, 381 students participated in the study for a response rate of 31.2%. The combined response rate across both schools was 35.1%. While the response rate for the current study is lower than what was predicted based on past studies (Clark et al.,

2014; Shaw, Cross, Thomas, & Zubrick, 2014; You et al., 2014), many factors may have influenced this. For example, administrators and teachers reported that the end-of-year survey administration time was particularly busy, and that students who chose not to participate in the survey may have had access to free time. Additionally, participation was particularly low for grade 12 students; this could have been due to the fact that the last day of school for seniors was 1 week prior to the end of survey administration in school A, and a week after the survey administration date in school B. Furthermore, the study was framed as something that could inform future school practices. Both of these aspects could have influenced participation of students nearing graduation.

With regards to current PBIS implementation, the administrative teams in both schools reported different stages of implementation. In school A, the administrative team reported that their school is actively implementing PBIS. In school B, the administrative team reported that they are not currently actively implementing PBIS, but that they have had PBIS in place in the past. The administrative team reported that over the last seven to eight years they have gone back and forth with active implementation of PBIS multiple times. They were last actively implementing PBIS three years ago. Thus, the 12th grade students in school B were 9th grade students in that school when PBIS was last actively implemented.

Recruitment Method

Passive consent was used for this study. Parents were notified about the study and asked to respond only if they did not want their child to participate. In both schools, a phone call with a recorded message went out to all parents/guardians one week prior to survey administration. The call informed them of the study, the purpose, how their child

would be involved, and directed parents to the school's main webpage to a link to more detailed written information about the study, any potential risks or benefits to children participating, and the researcher's contact information for any questions or concerns. Parents were asked to contact a point person for each school by phone or email only if they did not want their child to participate. For school A, the point person was the researcher for this study, and for school B, the point person was a guidance counselor who worked in the school. Two parents of students in school A opted out of their children participating in the study. These two students were given passes to the library during the time that all other students in their class were taking the survey. No parents of students in school B contacted the school to request that their child not participate.

All students who attended the participating high schools were eligible for participation in this study. Specific exclusion criteria were determined collaboratively with school administrators of each school on a case by case basis to ensure that students did not participate in the study if it would be inappropriate for them to do so. Students who are primarily served in a special education setting, those whose primary language is not English, and those who may have been unable to complete the survey online for any other reason were discussed with school administrators to determine their ability to participate in this study. In addition, if it was determined through these conversations with school administrators that there was any elevated risk for any student to participate due to any of these or other circumstances, the student did not participate in the study.

Measures

Student Perceptions of School Climate

Student perception of school climate was the dependent variable in the present study. Students participating in this study were administered the eight standard subscales of the Delaware School Climate Survey (Bear, Yang, Mantz, et al., 2014) to assess their perception of school climate at their school. The Delaware School Climate Survey was selected because of the strong psychometric properties that have been demonstrated with this measure, and because it was developed based off of the authoritative school climate theory.

Bear, Yang, Mantz, et al. (2014) assessed the reliability and validity of the Delaware School Climate Survey by administering the 34-item survey to a sample of 34,323 students across 133 public elementary, middle, and high schools in Delaware. Cronbach's alpha reliability estimates for the total score and each of the subscales ranged from .69 to .95 when examining the coefficients by gender as well as race and ethnicity (Bear, Yang, Mantz, et al., 2014). It is suggested that Cronbach's alpha scores of over .7 are considered to have adequate reliability (Cronbach, 1984; Garver & Mentzer, 1999). Each of the estimates were above .7 with the exception of the Bullying Schoolwide subscale for Hispanic students ($\alpha = .69$). This indicates that the Delaware School Climate Survey has strong internal consistency among both male and female students as well as across race or ethnic backgrounds.

The standard subscales of the Delaware School Climate Scale include the following: Teacher-Student Relations, Student-Student Relations, Respect for Diversity, Clarity of Expectations, Fairness of Rules, School Safety, Student Engagement Schoolwide, and Bullying Schoolwide. Participants were asked to rank each item on a 4-point Likert scale where responses range from 1 (*disagree a lot*) to 4 (*agree a lot*). Each

of the subscales has moderate to high internal consistency, with Cronbach's alpha reliability estimates ranging from .77-.84 at the high school level (Bear, Yang, Mantz, et al., 2014). The Teacher-Student Relations subscale ($\alpha = .83$), the Student-Student Relations subscale ($\alpha = .84$), the Clarity of Expectations subscale ($\alpha = .77$), the Fairness of Rules subscale ($\alpha = .80$), the Student Engagement Schoolwide subscale ($\alpha = .78$), and the Bullying Schoolwide subscale ($\alpha = .82$) each have 4 items. The Respect for Diversity subscale ($\alpha = .81$), as well as the School Safety subscale ($\alpha = .84$), each have three items. The total Delaware School Climate Scale has an estimated Cronbach's alpha of .92 at the high school level (Bear, Yang, Mantz, et al., 2014).

The version of the Delaware School Climate Survey that was updated for the 2014-2015 school year was administered to students in the present study (Bear, Yang, Mantz, et al., 2014). In this updated version, one item was dropped from the Respect for Diversity subscale and three additional items were added to this subscale (Bear, Yang, Mantz, et al., 2014). Additionally, two items were added to the Student Engagement Schoolwide subscale (Bear, Yang, Mantz, et al., 2014). In the current sample, the Cronbach's alpha for the total school climate scale was estimated to be .94. The Teacher-Student Relations subscale ($\alpha = .83$), the Student-Student Relations subscale ($\alpha = .86$), the Clarity of Expectations subscale ($\alpha = .79$), the Fairness of Rules subscale ($\alpha = .82$), the Student Engagement Schoolwide subscale ($\alpha = .80$), the Bullying Schoolwide subscale ($\alpha = .82$), the Respect for Diversity subscale ($\alpha = .80$), and the School Safety subscale ($\alpha = .81$) each demonstrated high internal consistency in the present sample which is consistent with past research.

Discipline History

Three separate indicators of discipline history were the primary independent variables in the present study. Students were asked three items on the survey that were used as indicators of their discipline history during the current school year: how many days they were suspended (including both in-school and out-of-school suspensions), how many detentions they have received for any reason, and how many times they had been sent to the office as a result of their behavior in school. These items were open ended for students to report the exact number of each type of infraction they have received during the current school year. For the present study, discipline history was measured separately to determine if these indicators of discipline history are differentially predictive of student perceptions of school climate, and to allow for the creation of a total discipline history variable.

Student Perceptions of PBIS Implementation

Each student who participated in the present study was also asked six questions about school-wide PBIS implementation which was examined as a potential moderator influencing the strength of the relationship between discipline history and school climate. The questions were adapted from the Self-Assessment Survey (SAS; Sugai, Horner, & Todd; 2003) which is designed to assess teacher and staff perceptions of whether core features of PBIS are in place in their buildings. Previous research has shown that the SAS has strong internal consistency reliability with samples of school staff ($\alpha = .82-.88$; Solomon, Tobin, & Schutte; 2015). In addition, the SAS has been shown to be moderately correlated ($r = .75$) with the School-Wide Evaluation Tool (SET), which is a tool designed and validated to evaluate the implementation of PBIS (Horner et al., 2004). The questions were reworded to be appropriate for use with students rather than teachers

and staff. This measure has not previously been used with students to gauge implementation of PBIS, however the items were reviewed with five adolescents between the ages of 14 and 18 to ensure that individuals participating in the study would understand and be able to respond to the items.

The questions administered to students consisted of six positively worded statements in which students responded in one of three ways: yes, sometimes, or no. These criteria were adapted from the original version of the SAS for teachers and staff which asked respondents to indicate where each item was in place, partially in place, or not in place. This was done in order to ensure that high school students would know how to respond to the items. The following questions were asked to students as part of their participation in this study: 1) My school has positively stated rules, expectations, or core values, 2) Students at my school are taught routines (such as what to do when we first get to class, what to do if we finish our work early, etc.) and how we are expected to behave in classrooms, 3) Students at my school are taught routines and how we are expected to behave in other settings (e.g. cafeteria, hallway, outside), 4) Students at my school are praised regularly for displaying appropriate or acceptable behavior, 5) Students at my school receive rewards for displaying appropriate or acceptable behavior, and 6) Students at my school know that there are clear and consistent consequences for problem behavior. All of the questions asked of the students were pulled from the school-wide systems subscale of the SAS (Sugai et al., 2003), which has the highest internal consistency reliability estimate out of the three SAS subscales ($\alpha = .88$; Solomon et al., 2015). Although there are 18 items on the school-wide implementation section of the teacher and staff SAS, the six items selected are ones that are relevant to students and their

perceptions of PBIS implementation as opposed to the items that ask about staff training and professional development. In addition, the items selected are directly aligned with the core components of PBIS outlined by Horner et al. (2004). Cronbach's alpha was .94 for this scale with the present sample indicating high internal consistency of student responses on these items.

Procedure

The survey was administered on the date and time decided upon collaboratively with each school. In school A, the survey was administered through the science department. The assistant principal sent an email to all science teachers in the school informing them of the study and requesting that they set aside approximately a 30-minute block of time for the students in their classes to participate. The researcher decided collaboratively with the school to allow for administration of the survey over a two-and-a-half-week period in order to accommodate a busy time of year for the school. Teachers were instructed that the survey administration would take place electronically, and that students could use either laptops in the classroom, laptops in the library, or their cell phones to complete the survey. The researcher was available by phone and email throughout this entire time period in case questions or concerns came up.

School B selected to have students participate in the survey on one day only through one of their activity blocks. The day that school B chose for survey administration fell in the middle of the two-and-a-half-week period that school A students participated. The activity block was scheduled to last one hour, and teachers were emailed from the guidance department to inform them of the study and to request that students take the survey during that activity block. In school B, each student had been

assigned a Chromebook at the beginning of the current school year. The students were emailed a link via google classroom and then instructed to take the survey via their Chromebooks. If a student did not have their Chromebook available, they were allowed to use classroom computers or their cell phones. The researcher was on site during the entire survey administration period at school B.

Each student whose parents did not opt out of participation was given a link to the survey that was administered through the use of a google form. After clicking on the link, students were required to log in via their school google account. This information was used to ensure that students only took the survey once and could not log in again; this was not saved and could not be viewed by the researcher or linked with student responses. The survey included three main sections. The first section asked if the student is 18 or over or under 18 in order to direct the student to the appropriate consent/assent form. All students were then automatically directed to section two which required those under 18 to electronically sign a student assent form and those who indicated that they were over 18 to electronically sign a consent form indicating that they agreed to participate in the survey. Both forms explained that the student may discontinue their participation at any time or skip any question that they do not feel comfortable answering. Any student who indicated that they agreed and would like to participate was then directed to the survey. If a student selected not to participate in the survey, they were instructed by their teachers to move on to their next task. In school A, students took the survey during science class, and they were to begin their science assignment for the day if they selected not to participate in the survey or upon completion of the survey. In school B, students were administered the survey during an activity period. If students selected

not to participate in the survey or upon completion of the survey, they were asked by their teachers to work on any homework or classwork that they were behind in or to have the remainder of the class period as free time at their desks. Any student who indicated that they did not agree and did not want to participate in this study was directed to a screen which ended their participation in the survey. In school A, 3 students opted out at this stage of the survey, while 8 students opted out at this stage of the survey in school B. All student responses were confidential and no identifiable information was collected through this survey.

Students who gave affirmative consent or assent completed the survey during the time allotted by the school. Students were given space and time to complete the survey independently. Teachers, school counselors, and the researcher were available during all times for any questions. Any student who participated in the survey was entered to win a gift card. There were a total of eight \$15.00 Dunkin Donuts gift cards available. One gift card was available for each grade per school.

Data Analytic Plan

This study included three primary independent variables and one dependent variable. In addition, interaction terms were created in order to conduct a moderation analysis. SPSS software version 20.0 (IBM Corp, 2011) was used to conduct linear regression to analyze the primary research questions for this study. Welch analyses were used to look at demographic differences across all key variables in the study, and independent samples t-tests were conducted to determine if there were significant differences in perceptions of school climate or PBIS implementation between the two schools.

In order to ensure that linear regression could be used, each of the assumptions were tested. The first assumption of linear regression is that the dependent variable be measured at the continuous level (Montgomery, Peck, & Vining, 2015). In the present study, the dependent variable is students' average score on the total school climate scale, which is a continuous variable. In addition, the second assumption is that the independent variable must be either continuous or categorical. The independent variables analyzed using linear regression were how many times students report having been sent to the office, given a detention, or the number of days suspended during the current school year. Each of these variables was measured continuously, with open ended responses asking students to indicate the number of times that they have received each type of discipline infraction during the current school year.

On the discipline history items, there were a few participants who responded with qualitative responses such as "a lot" or "too many to count". There were eight of these responses on the question regarding being sent to the office, seven on the item about receiving detentions, and one for the question about being suspended from school. It was determined that all participants who responded with qualitative responses would be included in the analysis as a review of other data (i.e., other missing values, responses on reverse score items) suggested that other responses were valid. Therefore, the qualitative responses were all replaced with the value that fell two standard deviations above the mean for that item. For being sent to the office, the mean response was 0.45 with a standard deviation of 3.08. For detentions received, the mean was 0.63 with a standard deviation of 2.70, and for suspensions the mean was 0.14 with a standard deviation of 0.81. Therefore, the qualitative responses indicated above were replaced with 6.60, 6.04,

and 1.76, respectively. This procedure for handling qualitative data was determined collaboratively with dissertation committee members.

The other five assumptions of linear regression were tested using SPSS. These include a linear relationship between the dependent and independent variable, homoscedasticity, normality, and independence of observations (Lund & Lund, 2013; Montgomery et al., 2015). The assumption of the linear relationship between the dependent and independent variable was determined by creating a scatterplot in SPSS. For each of the regression models run, as will be discussed in Chapter 4, the standardized residuals and the standardized predicted values were compared using a scatterplot. A Loess curve was used to detect any nonlinearity. In each of the models in the present study, the variables were roughly linear around zero indicating a linear relationship between the dependent and independent variables.

Second, homoscedasticity was tested in order to ensure that the error variance was constant. This was done using SPSS by both visual inspection and a statistical analysis. Through SPSS, homoscedasticity was tested by calculating the unstandardized residuals through a regression model. Then, the squared values of the saved residuals, the squared predictors, and the products of each of the predictors were calculated. The squared residuals were then regressed on the predictor variables, the squared predictors, and the products of each predictor. Finally, the R^2 value was calculated, as well as the degrees of freedom for each regression model run, and the product of these two statistics were compared to a chi-square table to detect if any heteroscedasticity was present (McClendon, 2002). While SPSS cannot perform White's test (White, 1980), which is a

common test to determine if heteroscedasticity exists within a regression model, this procedure replicates that analysis (McClendon, 2002).

Homoscedasticity was satisfied according to this analysis in the model that solely examined each of the three types of discipline infractions as independent variables and the dependent variable of school climate, but not for the other models. Significant p-values were calculated for each of the moderation model analyses when R^2 was multiplied by the degrees of freedom for each model and compared to a chi-square distribution table. In order to account for this in each of these models, weighted least squares regression was used to adjust the model to account for heteroscedasticity (Cleveland & Devlin, 1988; Garson, 2013; Ruppert & Wand, 1994; Stone, 1980).

Normality was examined by utilizing visual inspection through a normal probability-probability (P-P plot; Ghasemi & Zahediasl, 2012; Lund & Lund, 2013). This was tested for each of the models analyzed as detailed in Chapter 4. According to the P-P plot, the data from the first two regression models tested (each separate type of discipline infraction as predictor of school climate and the total discipline infractions as the predictor of school climate) deviated slightly from a normal distribution. However, it was expected prior to conducting this study that participants' responses on the discipline variables would not be normally distributed, and that fewer participants would report the higher number of discipline infractions. Previous research suggests that large samples are robust to this assumption of regression, and that a deviation from normality will likely not influence the results of the analysis (Ghasemi & Zahediasl, 2012).

Third, an important assumption of linear regression is that each observation included is independent of other observations. Given that participants were only

administered the survey once, there are no repeat scores and therefore no serial dependence from one participants' score to another participants' score. In addition, multicollinearity among variables within a regression model is a concern for a linear regression analysis (Robinson & Schumacker, 2009). This can increase the variance inflation factor (VIF), and potentially provide results that are unable to be interpreted due to the high variability (Aiken & West, 1999). As a general rule, VIFs under 10 are considered to satisfy the assumption and not violate multicollinearity (Belsley, Kuh, & Welch, 1980; Berry & Feldman, 1985). In Chapter 4, it will be discussed in depth which models in the present study had variables with VIFs that needed to be adjusted as well as the process used to account for the potential of multicollinearity among these variables.

After the assumptions were sufficiently tested, linear regression was used to examine the relationship between student perceptions of school climate and the number of discipline infractions received as indicated above. The adjusted R^2 was examined to determine the proportion of variance in perceptions of school climate that can be explained by each indicator of discipline history (Montgomery et al., 2015). The statistical significance of the model was also determined using the F value and degrees of freedom in SPSS (Montgomery et al., 2015).

In addition to examining this interaction, student perception of PBIS implementation was examined to determine if it served as a moderating variable for the relationship between any between discipline history and the dependent variable of perception of school climate. The researcher wanted to determine whether student perception of PBIS implementation strengthens the relationship between the three different discipline history independent variables and the dependent variable of student

perception of school climate. For this analysis, an average score was calculated for the six items indicating student perception of PBIS implementation. For this variable, any item that students responded with *yes* was given three points when coded, *sometimes* was given two points, and *no* was given one point. Therefore, a higher average score indicated a student perceiving more PBIS components in place in their school. In order for an average to be calculated, a student must have responded to at least four out of the six items. If they responded to any fewer, their response was excluded from the moderation analysis. Due to incomplete responses, 16 participants were excluded. This analysis was used to determine if the interaction between discipline history and perception of PBIS implementation had a significant effect in predicting perception of school climate. This interaction effect was examined to see if there is a significant change in the R^2 value, as well as whether there is a significant interaction effect between discipline history and PBIS implementation in predicting perception of school climate (Aiken & West, 1991). More specifically, the significance of each of the models was examined to determine if including PBIS as the moderating variable accounts for significantly more variance than including only discipline history and perception of school climate (Aiken & West, 1991).

CHAPTER IV

RESULTS

Data Analysis

This study examined the relationship between school climate, discipline history, and PBIS implementation. More specifically, the following primary research questions were assessed: (1) To what extent does student report of being sent to the office for their behavior predict perception of school climate?, (2) To what extent does student report of receiving a detention predict perception of school climate?, (3) To what extent does student report of being suspended predict perception of school climate?, (4) Is student perception of PBIS implementation at their school predictive of their perception of school climate?, and (5) To what extent does the total number of discipline infractions that a student reports having received predict their perception of school climate?.

Moderation analyses using linear regression were also conducted to examine student perception of PBIS implementation as a potential moderating variable influencing the strength of any of the relationships between discipline history and perception of school climate. Specifically, the study sought to determine if PBIS implementation served as a moderator between number of times sent to the office and perception of school climate, number of detentions received and perception of school climate, number of days suspended and perception of school climate, and the total number of discipline infractions that a student has received during the current school year and perception of school climate.

Additionally, Welch analyses were conducted to analyze differences in perceptions of school climate among key demographics and characteristics of the student

participants in the study. More specifically, a Welch analysis was conducted for gender, race, grade in school, and grades that the student participants reported having received during the current school year. To further analyze any significant differences between groups, Games-Howell post hoc comparisons were used.

Descriptive Statistics for Key Variables

Descriptive statistics were calculated for each of the key variables in this study. The average number of times that students reported being sent to the office during the school year was 0.52 ($SD=3.12$), with responses ranging from 0 to 76. The average number of times that students reported being given a detention during the school year was 0.68 ($SD=2.74$), with responses ranging from 0 to 44. The number of days that students reported being suspended ranged from 0 to 15 days total ($M=0.14$, $SD=0.81$). Finally, for the total number of discipline infractions received this year, students reported an average of 1.32 ($SD=5.67$) infractions with responses ranging from 0-120.

On the school climate total scale, average responses were calculated for each student using responses on each of the items. The average school climate rating was 2.69 ($SD=0.41$) on a 1-4 scale. On items that asked about PBIS implementation, students were asked to respond to each of the six items asked indicating either *yes*, *no*, or *sometimes*. Responses indicating *yes* were given three points when coded, *sometimes* was given two points, and *no* was given one point. An average was obtained for each student participant as an overall perception of PBIS implementation indicator. Average responses on this indicator ranged from 1-3, with the average being 1.76 ($SD= 0.49$).

Additionally, Pearson correlation coefficients were calculated between all main variables of interest in this study. As shown in Table 4.1 below, the indicators of

discipline history (i.e. office visits, detentions, suspensions, and discipline total) are highly correlated. It is not surprising that students who had received one type of discipline infraction were also likely to have been recipients of other discipline infractions. Additionally, it was assumed that the total discipline variable would be highly correlated with each of the other discipline indicators as it is the sum of the three discipline indicators (i.e. office visits, detention, and suspensions) examined in this study. As predicted, there was also a strong negative correlation between school climate and each of the indicators of discipline history. Thus, as discipline infractions received goes up, students reported more negative perceptions of school climate. Lastly, it was surprising that PBIS was negatively correlated with perceptions of school climate and positively correlated with each discipline indicator. These correlations are in the opposite direction of what was originally hypothesized. Potential explanations for this finding are discussed in Chapter 5.

Table 4.1
Correlation Matrix

| Variable | 1 | 2 | 3 | 4 | 5 |
|---------------------|---------|---------|---------|---------|---------|
| 1. Office Visits | --- | | | | |
| 2. Detentions | .666** | --- | | | |
| 3. Suspensions | .353** | .330** | --- | | |
| 4. Discipline Total | .918** | .891** | .494** | --- | |
| 5. PBIS | .155** | .150** | .110** | .171** | --- |
| 6. School Climate | -.234** | -.199** | -.136** | -.241** | -.581** |

Note: * $p < .01$; ** $p < .001$

Differences in School Climate Perceptions by Participant Characteristics

This study examined whether there were significant differences in perceptions of school climate related to student information collected through the survey. Specifically,

students were asked to identify their gender, race, current grade in school, and the grades that they have primarily received. A Welch analysis followed by Games-Howell post-hoc comparisons were used to further examine differences among these groups. Glass' delta (Δ) was used as a measure of effect size for any significant differences. Glass' delta was selected as the measure of effect size as this has been recommended in the literature for calculating effect sizes when there is heterogeneity of variance between groups (Glass, 1976; Hedges, 1981). It is suggested that 0.2 indicates a small effect, 0.5 indicates a medium effect, and 0.8 and above indicate a large effect (Cohen, 1968; Glass, McGaw & Smith, 1981).

A Welch analysis was used instead of an ANOVA to analyze the student characteristics mentioned above due to a violation of homogeneity of variance, which is one of the assumptions that must be met in order to use ANOVA. To determine whether the variances among groups of each of these student characteristics were equal, Levene's test of equal variances was used (Levene, 1960). Levene's test of equal variances was significant, indicating heterogeneity of variance, in gender ($p < .001$), race ($p = .043$), grade in school ($p < .001$), and grades received this year ($p = .020$). Thus, a Welch analysis was used instead of ANOVA to analyze each of these student participant characteristics.

Prior to each of these analyses, participant responses of "other" and "prefer not to answer" were grouped into one group. In addition, any group that had fewer than two respondents (i.e. either no participants or only one participant selected that response) was added to the other or prefer not to answer group. This was applicable to the analysis for gender as responses of "other" and "prefer not to answer" were combined into one group. For the analysis related to race, participant responses of "other" and "prefer not to

answer" were combined. In addition, only one participant reported identifying as Native Hawaiian, so this was included in the new "other" group for the purpose of this analysis. Similarly, for the grades received this year analysis, a combined "other" group was created for participants who responded to this item with "other" and "prefer not to answer". The one participant who indicated that they received mostly Fs this year was also included in this group.

A Welch analysis indicated that there was a significant difference of student perceptions of school climate among students who identified as male ($M=2.75$, $SD=0.38$), female ($M=2.67$, $SD=0.38$), and those who either selected other or prefer not to answer on this item of the survey ($M=2.22$, $SD=0.68$), $F(2, 71.092) = 11.845$, $p < .001$. A Games-Howell post hoc comparison indicated that there was a significant difference between each of the three groups. Specifically, students who identified as male had a significantly more positive perception of school climate compared to students who identified as female ($p = .005$) as well as those who selected other or prefer not to answer ($p = .001$). Glass' delta effect size estimates indicated a small effect for the analysis between male and female students ($\Delta = 0.21$), as well as a large effect for the difference between male students and those who identified as other or preferred not to answer ($\Delta = 1.39$). Additionally, students who identified as female had significantly more positive perceptions of school climate compared to those who selected other or prefer not to answer ($p = .006$). Glass' delta indicated that this difference had a large effect ($\Delta = 1.39$).

In terms of race of the participants in this sample, there was also a significant difference in perceptions of school climate between students who identified as African American ($M=2.53$, $SD=0.46$), Asian ($M=2.82$, $SD=0.35$), Hispanic ($M=2.64$, $SD=0.44$),

Native American ($M=2.53$, $SD=0.39$), White ($M=2.71$, $SD=0.38$), Multi-Race Non-Hispanic ($M=2.43$, $SD=0.41$), or other and those who preferred not to answer this item ($M=2.56$, $SD=0.53$), $F(6, 41.361)=3.991$, $p=.003$. Games-Howell post hoc comparisons revealed that students who identified as Asian had significantly more positive perceptions of school climate than those who identified as Multi-Race Non-Hispanic ($p=.005$). A Glass' delta effect size estimate revealed that this was a large effect ($\Delta = 1.11$). There were no other significant differences found among these groups.

When grade of the student was examined in relation to perceptions of school climate, there was no significant difference found in participants in 9th grade ($M=2.70$, $SD=.40$), 10th grade ($M=2.70$, $SD=0.40$), 11th grade ($M=2.68$, $SD=0.36$), and 12th grade ($M=2.73$, $SD=0.37$), $F(4, 82.437) = 1.776$, $p=.141$.

In addition to demographic information, students were asked to report what grades they have mostly received. They were given the following options: As, Bs, Cs, Ds, Fs, and prefer not to answer. Only one participant in the sample reported that they got mainly Fs, so this was combined with the students who responded with "prefer not to answer" as an "other" category for the purpose of this analysis. Overall, there was a significant difference between students who reported receiving mostly As ($M=2.76$, $SD=0.38$), mostly Bs ($M=2.68$, $SD=0.40$), mostly Cs ($M=2.60$, $SD=0.35$), mostly Ds ($M=2.51$, $SD=0.42$), and those who responded in the other category ($M=2.50$, $SD=0.57$), $F(4, 110.206)=6.780$, $p<.001$. More specifically, Games-Howell post hoc comparisons indicated that students who reported receiving primarily As this year had significantly more positive perceptions of school climate than those who reported receiving primarily Cs ($p=.001$) and those who responded in the other category ($p=.032$). This indicates a

small to medium effect size for the difference between students who reported receiving primarily As and students who reported primarily Cs ($\Delta = 0.42$), and a medium to large effect for the difference between students who reported receiving primarily As and those who responded in the other category ($\Delta = 0.68$). There were no other significant differences found. See Table 4.2 for a summary of these results.

Table 4.2
School Climate by Participant Characteristics

| | <i>M</i> | <i>SD</i> | <i>p</i> |
|-------------------------|----------|-----------|----------|
| Gender | | | <.001** |
| Male | 2.75 | 0.38 | |
| Female | 2.67 | 0.38 | |
| Other | 2.22 | 0.68 | |
| Race | | | .003* |
| African American | 2.53 | 0.46 | |
| Asian | 2.82 | 0.35 | |
| Hispanic | 2.64 | 0.44 | |
| Native American | 2.53 | 0.39 | |
| White | 2.71 | 0.38 | |
| Multi-Race Non-Hispanic | 2.43 | 0.41 | |
| Other | 2.56 | 0.53 | |
| Grade in School | | | .141 |
| 9 th Grade | 2.70 | 0.40 | |
| 10 th Grade | 2.70 | 0.40 | |
| 11 th Grade | 2.68 | 0.36 | |
| 12 th Grade | 2.73 | 0.37 | |
| Other | 2.10 | 0.89 | |
| Grades Received | | | <.001** |
| Mostly As | 2.76 | 0.38 | |
| Mostly Bs | 2.68 | 0.40 | |
| Mostly Cs | 2.60 | 0.35 | |
| Mostly Ds | 2.51 | 0.42 | |
| Other | 2.50 | 0.57 | |

Note: * $p < .01$; ** $p < .001$

Finally, an independent samples t-test was conducted for the school climate scale as well as the PBIS implementation scale to determine if there were significant differences between responses from participants from the two schools. There was no

significant difference in perceptions of school climate between school A ($M=2.69$, $SD=0.43$) and school B ($M=2.70$, $SD=0.38$), $t(839.976) = 0.442$, $p=.659$. Similarly, there was no significant difference in the perceptions of PBIS implementation reported between school A ($M=1.82$, $SD=0.88$) and school B ($M=1.77$, $SD=0.96$), $t(839) = 0.698$, $p=.486$.

Discipline History and Perception of School Climate

Linear regression was used to determine if each independent variable (i.e., three indicators of school discipline history) significantly predicted scores of the dependent variable (i.e., school climate). Each independent variable, number of times that students reported being sent to the office, number of detentions received, and number of days suspended, was examined individually. A moderation analysis was then conducted for any significant relationships found in this first model to determine if PBIS implementation moderated the strength of the relationship between discipline history and climate.

The first linear regression analysis indicated that the number of times a student reported being sent to the office was a significant predictor of their perceptions of school climate ($\beta = 0.021$, $p < .001$). This shows that as students reported each additional occurrence of being sent to the office due to their behavior, their perception of school climate was significantly more negative. Although the reported school climate perceptions were more negative with increases in detentions received and number of days suspended, neither the number of detentions received ($\beta = -0.010$, $p = .130$) or the number of days suspended were found to be significant predictors of student perceptions of school climate ($\beta = -0.026$, $p = .136$). The adjusted R^2 for this model was .057, suggesting

that 5.7% of the variance in school climate perceptions was explained by the three measures of discipline infractions. See Table 4.3 for a summary of this analysis.

Table 4.3
Discipline History and School Climate Analysis

| | Unstandardized Coefficients | | <i>t</i> | <i>p</i> | Adjusted <i>R</i> ² | Collinearity VIF |
|------------|-----------------------------|----------------|----------|----------|--------------------------------|------------------|
| | β | Standard Error | | | | |
| Model 1 | | | | | .057 | |
| Office | -0.021 | 0.006 | -3.586 | .000* | | 1.881 |
| Detention | -0.010 | 0.007 | -1.514 | .130 | | 1.843 |
| Suspension | -0.026 | 0.018 | -1.494 | .136 | | 1.162 |

Note: VIF = Variance Inflation Factor; **p* < .001

PBIS Implementation and School Climate

In addition to examining whether each type of discipline infraction was predictive of student perceptions of school climate, PBIS implementation was also examined using linear regression to assess whether it was independently predictive of school climate perceptions. This analysis revealed that PBIS implementation was a significant predictor of perceptions of school climate ($\beta = -0.138, p < .001$). Additionally, this analysis suggested that 9.8% of the variance in perceptions of school climate in this model was accounted for by the variable of student perceptions of PBIS implementation. Although it was predicted that there would be a significant relationship between these two variables, it was hypothesized that as students perceived that more PBIS components were in place, they would also perceive a more positive school climate. The results suggest that the opposite was true for the participants in the present study. Students who perceived that more components of PBIS were in place in their schools reported significantly lower perceptions of school climate. Potential explanations for this finding as well as potential implications for this result are discussed in Chapter 5.

Table 4.4
PBIS and School Climate Analysis

| | Unstandardized Coefficients | | <i>t</i> | <i>p</i> | Adjusted <i>R</i> ² | Collinearity |
|---------|-----------------------------|----------------|----------|----------|--------------------------------|--------------|
| | B | Standard Error | | | | VIF |
| Model 2 | | | | | .098 | |
| PBIS | -0.138 | 0.014 | -9.617 | .000* | | 1.000 |

Note: VIF = Variance Inflation Factor; **p* < .001

PBIS Moderation Analysis for Office Visits and School Climate

Since the relationship between the number of times a student reported being sent to the office and their perception of school climate was statistically significant, as detailed above, another linear regression model was used to determine if PBIS implementation served as a moderator influencing the strength of the relationship between these two variables. Specifically, PBIS implementation was examined as a moderator to the significant relationship found between students reporting being sent to the office during the current school year and school climate perceptions.

Prior to conducting the moderation analysis, preliminary tests of assumptions revealed that two assumptions of linear regression were violated by this model. It was indicated that homoscedasticity was violated through the analysis conducted described in Chapter 3. Thus, weighted least squares regression was used in this model to adjust for the differences in variances between each of the variables in the model (Cleveland & Devlin, 1988; Garson, 2013; Ruppert & Wand, 1994; Stone, 1980; White, 1980). Collinearity was also examined between each of the independent variables included in this model (i.e. the number of times sent to the office, the average response on the PBIS implementation indicator, and the interaction of these two variables as the moderation variable). Given that the moderation variable in the model is the product of two other

variables, this interaction variable was highly correlated with the other two suggesting multicollinearity. Multicollinearity can inflate the variance when using interaction terms, thus violating one of the assumptions of linear regression (Robinson & Schumacker, 2009). To address this, centering was used by subtracting the mean of each of the variables from each participant's score (Aiken & West, 1991; Robinson & Schumacker, 2009). The three variables mentioned above were centered by creating new variables following this method, and each centered variable was tested to ensure that this method solved the issue of multicollinearity. The variance inflation factor (VIF) for each of the variables after centering were 5.999 for being sent to the office, 1.028 for average PBIS implementation, and 5.932 for the interaction term. This suggests that this method was successful, as the VIFs for each of the variables were under 10 suggesting that they no longer demonstrate multicollinearity (Belsley et al., 1980; Berry & Feldman, 1985).

Next, the new centered variables were entered into the regression model to test the effect of PBIS implementation as a moderating variable between office visits and school climate perceptions. This analysis revealed that PBIS implementation was a significant moderator of the relationship between student reports of being sent to the office and the perception of school climate ($\beta = 0.027, p=.002$). This combined with the previous finding that more office visits predict more negative perceptions of school climate suggests that when students perceive higher PBIS implementation, despite being sent to the office for their behavior at school, their perception of school climate is significantly more positive overall compared to their peers who reported being sent to the office and not perceiving PBIS components being in place. Additionally, this analysis demonstrated that the number of times sent to the office variable, perception of PBIS implementation,

and the combination of these two variables overall accounted for 31.9% of the variance in student perceptions of school climate. See Table 4.5 for a summary of this analysis.

Table 4.5
Office Visits and School Climate Moderation Analysis

| | Unstandardized Coefficients | | <i>t</i> | <i>p</i> | Adjusted <i>R</i> ² | Collinearity |
|-------------|-----------------------------|----------------|----------|----------|--------------------------------|--------------|
| | β | Standard Error | | | | VIF |
| Model 3 | | | | | .319 | |
| Office | -0.047 | 0.010 | -4.765 | .000** | | 5.999 |
| PBIS | -0.416 | 0.024 | -17.675 | .000** | | 1.028 |
| OfficeXPBIS | 0.027 | 0.009 | 3.136 | .002* | | 5.932 |

Note: VIF = Variance Inflation Factor; * $p < .01$; ** $p < .001$

Total Discipline History Analysis

In another separate linear regression model, it was examined whether the total discipline infractions that a student received during the current school year predicted their perception of school climate. The total discipline infractions consisted of the sum of the number of office visits due to behavior reported, the number of detentions reported, and the number of days suspended reported. For this analysis, weighted least squares regression (Garson, 2013; Wiens, 2013) was used due to another assumption violation of homoscedasticity described in Chapter 3 and previously in this chapter. Similar to the previous model described, preliminary analyses also indicated that one of the variables in this model was highly correlated with another suggesting multicollinearity. To address this, centering (Aiken & West, 1991; Robinson & Schumacker, 2009) was used again and each variable was tested to ensure that this method again solved the issue of multicollinearity. After centering each of the variables, the VIFs were 6.627, 1.047, and 6.515, respectively, for total discipline infractions, total PBIS implementation, and the interaction term.

After ensuring that the remaining model satisfied the assumptions, a linear regression analysis was run. This revealed that total discipline infractions received during the current school year was a significant predictor of perception of school climate ($\beta=0.018, p<.001$). Thus, each discipline infraction received by a student resulted in them reporting a significantly more negative perception of school climate. Since this analysis found a significant relationship between total discipline infractions received and perceptions of school climate, PBIS implementation was examined as a moderator to see if it significantly influenced the strength of the relationship between these two variables. The analysis revealed that students with more discipline infractions overall reported lower perceptions of school climate. Additionally, when perceptions of PBIS implementation were higher students reported significantly more positive perceptions of school climate than their peers with lower perceptions of PBIS implementation and similar discipline infraction histories ($\beta = 0.009, p=.031$). The variables in this model, total discipline infractions received, perception of implementation of PBIS, and the combination of these two variables accounted for 32.8% of the variance in perceptions of school climate among participants in this study. See Table 4.6 for a summary of the moderation analyses.

Table 4.6
Total Discipline History Analysis

| | Unstandardized Coefficients | | | | Adjusted R^2 | Collinearity VIF |
|-----------------|-----------------------------|----------------|---------|--------|----------------|------------------|
| | β | Standard Error | t | p | | |
| Model 4 | | | | | .328 | |
| Discipline | -0.018 | 0.011 | -4.006 | .000** | | 6.627 |
| PBIS | -0.419 | 0.024 | -17.750 | .000** | | 1.047 |
| DisciplineXPBIS | 0.009 | 0.004 | 2.164 | .031* | | 6.515 |

Note: VIF = Variance Inflation Factor; * $p < .05$; ** $p < .001$

CHAPTER V

DISCUSSION

Overview

The purpose of the present study was to examine the relationship between discipline history and student perceptions of school climate at the high school level. While there is a significant literature base suggesting that positive school climate is associated with more positive outcomes for students (e.g. Bradshaw et al., 2014; Thapa et al., 2013), there is a much more limited amount of research that has examined specific factors that contribute to student perceptions of school climate. The current study examined discipline infractions that students reported receiving during one school year (i.e. number of times sent to the office due to behavior, number of detentions received, and number of days suspended) in relation to their perceptions of school climate. Furthermore, student perception of PBIS implementation was examined as a moderating variable influencing the strength of this relationship between discipline and school climate. PBIS is an evidence-based multi-tiered framework to provide behavioral support for students at all grade levels (Horner et al., 2004), yet there is limited research evaluating outcomes of PBIS implementation for high school students (e.g. Bohanon et al., 2006; Flannery et al., 2014). While the present study is exploratory in nature, it is the first known to directly examine the interaction of discipline history, school climate, and PBIS implementation.

This study utilized a survey administered to 856 students across two public high schools in Western Massachusetts. Students were asked to report discipline infractions during the current school year, as well as their perceptions on items that ask about school

climate and their perception of the implementation of core components of PBIS in their schools. The following discussion will present a summary of the findings of this study, address some of the limitations, discuss contributions to the field, and end with future directions for this work.

Summary of Findings

In the present study, multiple variables were examined to analyze their association with student perceptions of school climate. First, differences in school climate perceptions by key characteristics of student participants were found. Analyses indicated that there were significant differences in student perceptions of school climate by the student's gender, race, and the grades that they reported primarily receiving. More specifically, Welch analyses indicated that male participants had significantly more positive perceptions of school climate than both female participants and those who responded to the question about gender with "other" or "prefer not to answer." Participants who identified as female also reported significantly more positive perceptions of school climate than those in the other/prefer not to answer group. For the analysis related to race, students who identified as Asian had significantly more positive perceptions of school climate compared to those who identified as Multi-Race Non-Hispanic. There were also significant differences found when examining what grades students reported receiving during the current school year, as students who reported receiving primarily As had significantly more positive perceptions of school climate than those who reported receiving primarily Cs as well as those who responded with "other" on this item of the survey.

Previous research that has found that the majority of the variability in perceptions of school climate is accounted for by individual level factors compared to school level factors (e.g. Koth et al., 2008; Mok & McDonald, 1994; Vieno et al., 2005). These previous findings are consistent with what was found in the present study. The current study found that there were significant differences in perceptions of school climate by gender, race, and grades received in school. However, no significant differences were found between overall perception of school climate between the two schools that participated in the current study. This suggests that, like previous work, differences in perceptions of school climate are likely influenced more by individual level factors than school level factors.

Linear regression was used to answer the primary research questions in this study. Results showed that both the number of times that a student reported being sent to the office during the school year, as well as the total number of discipline infractions (i.e., office visits, detentions, and suspensions) were significant predictors of perceptions of school climate. More specifically, as students reported increasing office visits due to their behavior at school or an increasing number of total discipline infractions during the school year, they also reported significantly more negative perceptions of school climate compared to their peers who had fewer office visits and total discipline infractions. No significant relationships were found between student reports of the number of detentions received or the number of days suspended and student perceptions of school climate.

It was hypothesized that each of the discipline indicators in this study (i.e. number of times sent to the office, number of detentions received, number of days suspended, and total discipline history which is the sum of the first three indicators) would be significant

predictors of student perceptions of school climate. The results from this study only partially supported this hypothesis, as only the number of times that a student reported being sent to the office and the total discipline history were significant predictors of perceptions of school climate. These findings are aligned with a previous study conducted by Fefer and Gordon (in preparation) which found that students who reported higher numbers of previous discipline infractions had significantly more negative perceptions of school climate. While this work did not examine each indicator of discipline history in isolation as the current study did, both the present study and the Fefer and Gordon (in preparation) study found the same significant relationship between student reports of total discipline history and student school climate perceptions.

In another study, Bear et al. (2017) also examined the relationship between school climate and discipline, and the results from the current study are partially consistent with their findings. Bear et al. (2017) found that as students self-reported more punitive discipline practices being used at their school, they also reported more negative perceptions of school climate overall. Although these authors asked students about school discipline practices overall rather than those aligned with PBIS or their own contact with the discipline system as was done in the current study, this finding may help to explain the surprising current finding that higher perceptions of PBIS implementation predict lower perceptions of school climate. Perhaps students are perceiving some of the PBIS components in a similar way to punitive discipline practices.

Additionally, PBIS implementation was examined to see if it was a significant predictor of student perceptions of school climate independent of discipline history. It was hypothesized that as students reported more components of PBIS implementation in

place in their school, they would also report significantly more positive perceptions of school climate. Results from this study showed that perception of PBIS implementation was a significant predictor of perceptions of school climate, but not in the predicted direction. The results from the current study indicated that students who reported perceiving more components of PBIS in place in their schools reported significantly more negative perceptions of school climate.

The finding that higher perceptions of PBIS implementation is predictive of less positive perceptions of school climate is different than what has previously been found. In one study, Bradshaw et al. (2009) found that teachers in schools implementing PBIS with fidelity had significantly more positive perceptions of school climate compared to teachers in schools not implementing PBIS. While this finding is different from what was found in the present study, the Bradshaw et al. (2009) study was conducted solely in elementary schools and school climate was measured by a teacher survey. Similarly, Horner et al. (2009) found that there were significant differences in teacher and staff perceptions of school climate in schools implementing PBIS and comparison schools that were not implementing with those implementing PBIS reporting significantly more positive perceptions of school climate. However, this study was also conducted in elementary schools using staff perceptions of school climate.

While there is consistent research demonstrating positive outcomes of PBIS implementation in elementary and middle schools (e.g. Bradshaw et al., 2009; Horner et al., 2009; Nocera et al., 2014), much less literature is available at the high school level. Additionally, many of the studies that have been conducted which showed preliminary support for PBIS implementation at the high school level have been case studies from

only one school (e.g. Bohanon et al., 2006). Finally, Bear et al. (2017) examined the relationship between student perceptions on the positive behavioral techniques subscale on the Delaware School Climate Survey (Bear et al., 2016) and student perceptions of school climate on the standard school climate scale of the Delaware School Climate Survey (Bear et al., 2016). The authors also examined whether a student's grade level in school (i.e. elementary, middle, or high school) moderated this relationship. Bear et al. (2017) found that grade level significantly influenced the strength of this relationship, as the relationship between perceptions of positive behavioral techniques and perceptions of school climate was significantly weaker for high school students compared to elementary and middle school students. Thus, the results from this study combined with the present findings suggest that maybe traditional components of PBIS need to be even further adapted for high school students. It is possible that what influences perceptions of school climate and the quality of school life at the high school level is different from what is important for elementary and middle school students. Thus, future research should continue to evaluate PBIS at the high school level. This should include student perceptions of practices to ensure that procedures used are not only developmentally appropriate but also socially valid and meet the needs of high school students.

It was also hypothesized that student perception of PBIS implementation would be a significant moderator of the relationships between each indicator of discipline history and student perception of school climate. Specifically, it was predicted that students who reported higher numbers of discipline infractions but also perceived that components of PBIS were in place in their school would have significantly more positive perceptions of school climate compared to students who also reported high numbers of

discipline infractions but did not perceive components of PBIS were in place at their school. This hypothesis was also partially supported by the results of this study.

PBIS implementation was found to be a significant moderator of the relationship between perception of school climate and the number of times that a student reported being sent to the office for their behavior as well as of the relationship between perception of school climate and students' total number of discipline infractions received. As students reported more frequent discipline infractions, both overall and specifically related to being sent to the office for behavior, their perception of school climate was significantly more negative unless they perceived that core components of PBIS were in place. The relationship between these discipline contact variables and student perception of school climate depended significantly on their perception of PBIS implementation. Previous work has shown that when PBIS components are implemented within a school, both students (Bear et al., 2017) and staff (Bradshaw et al., 2009; Horner et al., 2009) have significantly more positive perceptions of school climate. However, this was the first known study to examine PBIS implementation as a moderator to determine if PBIS implementation may influence the relationship between discipline history and school climate. Previous research has not accounted for discipline history when looking at the relationship between PBIS implementation and school climate. The findings of the current study suggest this is an important aspect of understanding this relationship.

In sum, the findings from the present study provide a further rationale for the theory of school climate emphasized through this work. The results highlight the importance of examining individual level factors that previous work has also found to be critical when assessing school climate perceptions (Mok & McDonald, 1994; Vieno et

al., 2005). Additionally, this study found a significant relationship between differences in students' environments (e.g. grades received in the current school year, self-reported discipline history, perception of PBIS implementation) and their perceptions of school climate. This is consistent with the ecological systems theory (Bronfenbrenner, 1977) and the authoritative school climate theory (Bear, Yang, Mantz, et al., 2014; Cornell et al., 2015).

Lastly, the present study found mixed results regarding the outcomes of PBIS implementation. The current research available on PBIS in high schools is limited, and it suggests that adaptations should be made in order to best align with the developmental needs of high school students (Swain-Bradway et al., 2015). Jia et al. (2016) also suggested that clear high expectations for high school students is not enough, and that support that they perceive from teachers and staff also plays a role. In the present study, the PBIS implementation questions focused on expectations, reinforcement, and consequences. It is possible that perceived support may also account for a variability in perceptions of school climate. Taken together, these results begin to examine the relationship between discipline history, discipline approach, and school climate perceptions. Additional research is needed to further understand the relationship between these variables.

Limitations

Despite these interesting findings that add to past research, there are several limitations that are important to acknowledge when interpreting the results of this study and considering implications for the field. First, when conducting survey research, it is important to consider the limitations of using solely self-report data. In general, there is

consensus that self-report data may include information that is either intentionally or unintentionally inaccurate (Stone, Bachrach, Jobe, Kurtzman, & Cain, 1999). More specifically, individuals may not accurately recall information or attempt to provide answers with the intention of portraying themselves in a positive way. In the present study, student participants were asked to self-report the number of times they have been sent to the office, given a detention, and the number of days that they were suspended during one school year. While the information collected was anonymous, students may have under or over reported their discipline history over the last school year. For example, they may not have exactly remembered how many infractions they had received, or students with high numbers of infractions may have reported fewer incidents to present themselves in a more positive light. While this is a limitation of this study, a self-report measure was selected for feasibility due to the exploratory nature of this study and work in this area. Additionally, the self-report measure was chosen to align with both the individualized and subjective nature of perceptions of school climate that was selected for this study. This method is also consistent with how perceptions of school climate have been studied in past research (e.g. Aldridge & Ala'l, 2013; Bear, Yang, Mantz, et al., 2014).

Second, the three independent variables in the study, each type of discipline infractions, were asked to participants in an open-ended format. Students were asked how many times they were sent to the office for their behavior, how many detentions they have received, and how many days that they had been suspended during one school year, and then given a short answer box to respond. While this procedure is often used in order to obtain more diverse responses that are not controlled by the options provided (Reja,

Manfreda, Hlebec, & Vehovar, 2003), this resulted in two issues. First, there was a fair amount of missing data. This is typical of surveys that utilize open-ended response formats (Reja et al., 2003). Participants who skipped these items altogether, or those who responded with "I don't know" or other responses that did not seem clearly interpretable, such as "365", were coded as missing in the analysis. Specifically, 2.7% of the data for being sent to the office (23 participants), 2.6% of the data for receiving a detention (22 participants), and 2.9% of the data for the number of days suspended (25 participants) was considered missing and excluded from the analysis. Second, some participants responded with qualitative responses on these items. Qualitative responses that were not interpretable (e.g. "I don't know") were coded as missing. Qualitative responses that indicated that the student had received that type of discipline infraction more frequently than the average student (e.g. "too many to count" or "a lot") were assigned the value that fell two standard deviations above the average response for that type of infraction. If self-report is used in future studies as an indicator of discipline history, a potential solution to this limitation could be to provide options or categories (e.g. 0 infractions, 1-2 infractions, 3-4 infractions, 5+) to student participants to guide their answers. This would eliminate the qualitative responses that were given in the present study, as well as provide some guidance on how participants should respond. It seems that it would be beneficial to also compare student self-reported discipline histories to a more objective measure to determine if student reports are reliable indicators of this variable.

In addition, there was not much variability in the number of discipline infractions that were reported by students with the majority of students not reporting any of the three types of discipline infractions during the current school year. More specifically, 82.5%

($n=707$) of students reported that they had not been sent to the office, 73.9% ($n=633$) reported zero detentions, and 91% ($n=780$) reported zero days suspended. While these are typical percentages for what we would expect to see in a school in terms of the majority of students receiving few or no discipline infractions (Horner & Sugai, 2015), it is possible that receiving a detention or suspension may actually be associated with a significantly more negative perception of school climate yet there was not enough power to detect this result in the current study due to few participants reporting detentions and suspensions.

Third, while the sample size for the present study was relatively large ($N=856$), we had a considerably lower response rate compared to previous studies in high schools that also utilized a passive parent consent process (e.g. Clark et al., 2014; Shaw et al., 2014). The author hypothesized that much of this may be due to the time of the school year that the survey was conducted as well as the administration method. In order to have students report on the number of discipline infractions that they received through the duration of one school year, it was necessary to conduct the survey at the end of the school year. However, the end of the school year is often a hectic time in public high schools. Due to this, fewer students may have participated than was expected. In addition, students in grade 12 across these two schools make up only 11.7% of the sample even though grade 12 students make up 24.9% of the total population of students across the two participating schools according to the Massachusetts Department of Elementary and Secondary Education (MA DESE, 2016). Twelfth grade students across both schools graduated close in time to the survey administration dates, and the researcher

hypothesized that this is likely a contributing factor to the lack of grade 12 student participation in this study.

Fourth, in order to work with and make participation in this study feasible for the participating schools, it was necessary to use two slightly different data collection methods. In one school, survey administration took place on one day. All students who participated from this school took the survey during an activity block. At the other school, the survey administration took place during a two-and-a-half-week period. During this time, science teachers were asked to pick one class period to allow students to take the survey. While all other aspects of survey administration were similar across schools, it is anticipated that this difference could account for some variability in response rates between schools.

Fifth, due to highly variable response rates among survey research studies previously conducted in high schools (e.g. Shaw et al., 2014), this study utilized student participants from two schools in order to ensure an adequate sample size. While this allowed for adequate participants, it also potentially allowed for extraneous variables to influence the results of the study. An independent samples t-test was conducted to determine if there were significant differences between perceptions of school climate by school or perceptions of PBIS implementation by school. Results indicated that there were not significant differences in either of these variables by school.

Finally, the survey items used to assess student perceptions of PBIS implementation were adapted from the Self-Assessment Survey (SAS; Sugai et al., 2003). The SAS was developed for use with adults working in a school to evaluate their perceptions of PBIS implementation (Sugai et al., 2003). The SAS was selected given

that previous research has indicated strong reliability when used with staff members (Solomon et al., 2015). Additionally, it has been correlated with the SET, which is an objective measure of PBIS implementation (Horner et al., 2004). There is currently no known validated measure for assessing student perceptions of PBIS implementation.

For the purpose of the current study, six items from the SAS were adapted and administered to students. While the SAS has not been previously validated for use with high school students, Cronbach's alpha indicated high reliability among student response on items across both schools. However, student responding on these items was low overall as the average responses ranged from 1.53-2.16 across both schools. Although these items were initially piloted with some adolescents, it is possible that all students did not understand how to respond to these items. Due to this, the findings that included this variable of PBIS implementation should be interpreted with caution as more research is needed to understand how to best ask for student input on PBIS implementation.

Contribution to the Research

Many schools are placing an increasing focus on improving school climate and shifting discipline practices from solely punitive to more preventative approaches (Horner et al., 2010; Sugai & Horner, 2009). Improving school climate and shifting discipline practices to preventive rather than reactive systems for managing problematic behavior have become national initiatives (Bear, 2010; Piscatelli & Lee, 2011; Sugai & Horner, 2009) Many policies, as well as technical assistance centers have been developed to support these initiatives (Piscatelli & Lee, 2011; Sugai & Simonsen, 2012). Findings of the current study support the idea that school climate and discipline practices are interrelated and should continue to be considered together. This is consistent with the

authoritative school climate theory, as it based off of the idea that both structure and support provided by school procedures and practices are essential to developing a positive school climate (Bear, Yang, Mantz, et al., 2014; Cornell et al., 2015).

While there has been some research on the importance and positive outcomes related to both of these topics (e.g. Bradshaw et al., 2009; Horner et al., 2009; Kupermic et al., 1997; Wang, 2009; Wang & Dishion, 2012), the evaluation of these variables is limited in both breadth and depth at the high school level. Many of the well-controlled research studies that have been conducted, as well as examples from the field, focus primarily on elementary and middle school settings. Additionally, despite increasing PBIS implementation in high schools each year, they continue to lag behind elementary and middle schools (Swain-Bradway et al., 2015). Similarly, previous research has indicated that school climate perceptions are significantly more negative among high school students compared to elementary and middle school students (Bear et al., 2017). As practices in schools continue to shift, practitioners will continue to look to the literature on the importance and effectiveness of variables such as school climate, discipline practices, and PBIS implementation, as well as how to best improve these practices in high schools.

The present study found that discipline history, measured by the number of times a student reported being sent to the office as well as total discipline history reported, was a significant predictor of school climate perceptions. This information is particularly useful given the important positive outcomes that have previously been associated with positive perceptions of school climate (e.g. Thapa et al., 2013; Wang & Dishion, 2012; O'Malley et al., 2015). Contact with school discipline systems is a predictor of school

climate that educators can feasibly control or change. Results from this study suggest that limiting the number of punitive discipline infractions may lead to more positive perceptions of school climate. Previous research suggests that there may be many school (e.g. class size; McNeely et al., 2002), classroom (e.g. relationships with teachers, Koth et al., 2008) and individual (e.g. gender; Mitchell et al., 2010) level factors that influence perceptions of school climate. However, much of the previous work has focused on school level predictors rather than individual level factors (e.g. McNeely et al., 2002). This is especially problematic as previous studies have shown that the majority of variability, between 65% and 85%, in school climate perceptions is accounted for by factors at the individual student level rather than the school level (Koth et al., 2008; Vieno et al., 2005). Additionally, it has continuously been suggested in previous research that we must continue to focus on factors that influence school climate that school staff can have some control over (Mok & McDonald, 1994; Van Horn, 2003). The results from the present study provide insight into malleable factors that influence school climate. Given that both increased reports of being sent to the office and the total number of discipline infractions reported were significant predictors of more negative perceptions of school climate, schools could target preventing students from contacting these punitive forms of discipline as a way to enhance student perceptions of school climate. From an intervention standpoint, this is promising as many schools are moving towards more proactive and positive approaches to discipline (Fenning et al., 2012; Girvan et al., 2016; Netzel & Eber, 2003; Sugai & Horner, 2009). Results provide a further rationale for schools looking for alternatives to traditional school discipline practices, as well as for preventing students from coming in contact with punitive discipline practices.

Furthermore, these findings provide a rationale for supporting teachers to manage challenging behaviors within the classroom rather than relying solely on office visits, detentions, and suspensions to manage student behavior.

PBIS is one approach that has been proposed as an alternative to traditional punitive school discipline practices (Sugai & Horner, 2009). PBIS is a prevention orientated discipline framework that has been shown to reduce punitive discipline infractions in schools (Flannery et al., 2014; Horner et al., 2009; Nocera et al., 2014). Thus, it would be expected that students in schools that implement PBIS have fewer contacts with their school's punitive discipline system. This was supported by this study in which very few students reported any contact with the school's punitive discipline practices.

The results from the present study are mixed regarding the association of student perceptions of PBIS implementation and student perceptions of school climate. The results suggest that students who perceive more PBIS components in place in their schools also have significantly more negative perceptions of school climate. However, PBIS implementation was found to be a significant moderating variable between self-reported discipline history and perceptions of school climate. Specifically, students who reported high rates of discipline infractions who also perceived components of PBIS to be in place in their schools had significantly more positive perceptions of school climate compared to students who reported high rates of discipline infractions and few components of PBIS in place. The significant moderating role of PBIS implementation on the negative correlation between discipline history and perceptions of school climate is important as it suggests that PBIS implementation may buffer the relationship between

punitive discipline practices and perceptions of school climate. This is promising for students who already have a history of office visits due to behavior or more severe rule violations at school, and suggests that PBIS implementation may be most important for those students who have frequent contact with school discipline systems.

These mixed findings also may potentially suggest that the traditional PBIS components (e.g. teaching school routines and expectations, providing rewards for expected behavior; Horner et al., 2009) may need to be altered to be more developmentally appropriate and socially valid for high school students, which has already been a concern identified by previous work (e.g. Swain-Bradway et al, 2015). Additionally, it is also possible that students who are more frequent recipients of punitive discipline practices do not access the same positive behavioral supports that students who do not have a history of discipline infractions come in contact with in schools implementing PBIS. While schools implementing PBIS may assume that all students are recipients of these practices, it may be possible that those who are more frequent recipients of punitive discipline practices are not aware of or personally experiencing the positive aspects. Future research should continue to examine the efficacy of PBIS implementation in high schools and determine methods to reliably assess student perceptions of PBIS components.

Finally, this study found significant differences between school climate perceptions by student gender, race, and the grades that they reported primarily receiving in school. This is consistent with a previous study that found significant differences in perceptions of school climate by gender, although the study was conducted only with student participants who were in 5th grade (Mitchell et al., 2010). Similarly, Bear et al.

(2017) also found significant differences in perceptions of school climate depending on a student's race, but they did not find significant differences by the student's gender. Additionally, the Bear et al. (2017) study included students from elementary school, middle school, and high school. The present study adds to the limited research currently available on factors that influence perceptions of school climate in general, as well as to the even smaller amount of literature that currently exists specifically examining factors that influence perceptions of school climate at the high school level.

In sum, this study served two main purposes. The first was to explore individual student level factors, specifically indicators of discipline history, and their relationship to student school climate perceptions. The second was to expand upon the very limited current research on PBIS at the high school level by examining the influence of student perceptions of PBIS implementation on the relationship between discipline history and school climate. This was also the first study known to directly ask students for their perceptions of whether core components of PBIS are being implemented within their schools. Finally, this was the first study known to directly measure the relationship between the three variables of discipline history, student perceptions of school climate, and student perceptions of PBIS implementation.

Future Directions

While this study provided preliminary evidence for the link between discipline infractions received and student perceptions of school climate, as well as some initial evidence that PBIS implementation may moderate this relationship, this is the first study known to directly examine the link between these three variables. Future research should attempt to replicate and expand this work in additional high schools. Furthermore, this

study could be expanded by consideration of more objective measures of school discipline infractions (e.g. office discipline referrals, detentions, and suspensions collected from school records) in addition to student self-report. It may be helpful to compare objective measures to self-report of discipline infractions. This would first allow us to determine if differences existed among objective versus self-report indicators of discipline history, and also to determine if high school students are able to reliably report previous discipline infractions. Previous research has not yet examined reliability among student self-report and objective measures of discipline history.

Future research related to a student self-report measure of PBIS implementation would be a valuable contribution to the field as incorporating student voice and input into school-wide practices and initiatives has been shown to be essential particularly at the high school level (Freeman, Simonsen, et al., 2016; Murphy, Beck, Crawford, Hodges, & McGaughy, 2001). While the Delaware School Climate Survey (Bear, Yang, Mantz, et al., 2014) does include two subscales related to positive behavioral and punitive techniques, these scales focus solely on the use of rewards for good behavior and punishment for breaking rules. They do not include other core components of PBIS implementation, such as explicit teaching of expectations to students in all school settings (Horner et al., 2004). Additionally, it would be useful to consider using this measure in combination with an objective measure of PBIS implementation, such as the Tiered Fidelity Inventory (TFI; Algozzine et al., 2014). It would also be beneficial to include other methods of asking student perceptions, such as interviews, to further understand what aspects of PBIS implementation students observe and are aware of.

While the purpose of the present study did not focus on differences in student perceptions of PBIS implementation depending on discipline history, future work should examine this relationship. It is hypothesized that students who are more frequent recipients of punitive school discipline practices are also less likely to be recipients of some of the core components of PBIS implementation, such as being rewarded for good behavior. Future research should examine how often students who are more frequent recipients of punitive discipline practices in schools receive praise and rewards for positive behavior, as well as how likely they are provided additional levels of support, such as Tier 2 or Tier 3 behavioral supports (Sugai & Horner, 2009), to reteach what behavior is expected at school and prevent those students from continuously receiving discipline infractions. This could provide insight to schools about the importance of not only having components of PBIS in place, but also ensuring each of the students, including those who have a history of frequent rule violations or other inappropriate behaviors, within a school come in contact with positive behavioral supports.

Finally, significant differences were found among key characteristics of student participants. Specifically, there was a significant difference of student perceptions of school climate by gender, race, and grades primarily received. Further replicating and expanding upon these and other individual-level factors that may influence student perceptions of school climate may be particularly useful for both prevention and intervention planning. Additionally, results from this study suggest that both discipline history and PBIS implementation may predict and influence perceptions of school climate. As research continues to demonstrate the important positive outcomes associated with perception of school climate (e.g. Bradshaw et al., 2014; Freeman, Simonsen, et al.,

2016; Thapa et al, 2013), and schools continue to focus on improving school climate and shifting from solely punitive to more proactive and preventative approaches to providing behavioral support behavioral support (Fenning et al., 2012; Girvan et al. 2016; Horner et al., 2004), it becomes even more essential to continue to examine the relationship between these three variables.

APPENDIX A
STUDENT SURVEY RECRUITMENT LETTERS

Parent/Guardian Passive Consent Information Letter

Dear Parents/Guardians,

[Name of school] will be partnering with Kayla Gordon, a graduate student in the School Psychology Program at the University of Massachusetts Amherst, for a research project related to school climate at the high school level. The project will look at things that may influence high school students' experiences in school. Participation in this project will occur through an online survey that is estimated to take students about 20 minutes to complete.

The survey asks students questions about their opinions of different parts of school life including relationships with their teachers, relationships with their peers, respect for diversity, safety at school, bullying behavior, and the clarity of expectations and discipline approach in their schools. In addition, students will be asked to self-report an academic performance indicator and how often they have gotten in trouble during the current school year. All of the responses will be confidential, and your child will not be asked to give his/her name at any point during the survey. We would like all students to participate, but the survey is voluntary. Students will also be instructed that they can skip any items that they do not wish to answer. No identifying information will be collected during the survey process about your child. We do not foresee any risk to students related to their involvement in this survey. There may be no direct benefits to students who participate, but any student who does participate in this study will be given a raffle ticket for a gift card. One \$15 Dunkin Donuts gift card will be available per grade.

Your child's participation and your assistance in this project will help to inform and improve school practices. The goal is for this information to be used to enhance school experiences for high school students. Anonymous data will be shared with us in order for us to use to improve our practices within the district. In addition, anonymous combined data from all students will be used for a dissertation project and may be shared within the broader research community. You may request to see a copy of the survey at the school office. If you have any questions related to this survey or your child's participation in this study, please feel free to contact either Kayla Gordon (kaylag@umass.edu), doctoral student in School Psychology at the University of Massachusetts Amherst, or Dr. Sarah Fefer (sfefer@educ.umass.edu), Assistant Professor in School Psychology at the University of Massachusetts Amherst, who is the faculty sponsor for this project. If you have any concerns about your child's rights as a research participant, you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu. You may also contact your child's guidance counselor with any questions related to this survey. Any parent of a student under age 18 is also asked to please email [contact person and their email for any parent who wants to opt out of their child participating] or call [phone number] with your child's name and homeroom number by [date one week prior to the survey administration] only if you **do not** want your child to participate in this survey.

Thank you.

Student Survey Consent Letter

Online Survey Consent Form

You are being invited to participate in a research study to learn about high school students' experiences at school. You are being asked to participate in this research project so that we can learn high school students' opinions about different parts of school life so that we can better support them.

If you agree to participate, you will be asked to complete an online survey/questionnaire. This questionnaire is about your opinions on friends, teachers, safety at school, grades, and discipline at your school. You can skip any questions that you do not wish to answer at any point during this survey. You can also change your mind and stop participating in this research project at any time. All you have to do is raise your hand and tell the teacher in the room. The survey will take approximately 20 minutes to complete.

We believe there are no known risks associated with your participation in this study. You will not be asked to give your name at any point during this survey. All of the information collected will be completely confidential and cannot be traced back to you. The information will not be shared with your friends, your parents, or your teachers. After all of the students who want to participate have taken the survey, the responses will be combined and shared with your school administrators so that they have feedback about how to best support students here.

Although you may not directly benefit from this study, you will be able to provide input on high school students' experiences and thoughts about different parts of school. Also, if you do agree to participate in the study, you will be entered into a raffle for a chance to win a \$15 Dunkin Donuts gift card. There will be one winner of a gift card per grade.

You can raise your hand and ask any questions now or at any point during the survey. If you think of a question later that you forgot to ask, you can ask your guidance counselor. You can also contact either Kayla Gordon (kaylag@umass.edu), a doctoral student in School Psychology at the University of Massachusetts Amherst or Dr. Sarah Fefer (sfefer@educ.umass.edu), Assistant Professor in School Psychology at the University of Massachusetts Amherst, with any questions related to this study. If you have any concerns about your rights as a research participant, you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu.

By clicking "I agree" below you are indicating that you are 18 years old, have read and understood this form and that you agree to participate in this study.

I Agree

I Do Not
Agree

Student Survey Assent Letter

Online Survey Assent Form

You are being invited to participate in a research study to learn about high school students' experiences at school. You are being asked to participate in this research project so that we can learn high school students' opinions about different parts of school life so that we can better support them.

If you agree to participate, you will be asked to complete an online survey/questionnaire. This questionnaire is about your opinions on friends, teachers, safety at school, grades, and discipline at your school. You can skip any questions that you do not wish to answer at any point during this survey. You can also change your mind and stop participating in this research project at any time. All you have to do is raise your hand and tell the teacher in the room. The survey will take approximately 20 minutes to complete.

We believe there are no known risks associated with your participation in this study. You will not be asked to give your name at any point during this survey. All of the information collected will be completely confidential and cannot be traced back to you. The information will not be shared with your friends, your parents, or your teachers. After all of the students who want to participate have taken the survey, the responses will be combined and shared with your school administrators so that they have feedback about how to best support students here. This study was also explained to your parents through an email last week.

Although you may not directly benefit from this study, you will be able to provide input on high school students' experiences and thoughts about different parts of school. Also, if you do agree to participate in the study, you will be entered into a raffle for a chance to win a \$15 Dunkin Donuts gift card. There will be one winner of a gift card per grade.

You can raise your hand and ask any questions now or at any point during the survey. If you think of a question later that you forgot to ask, you can ask your guidance counselor. You can also contact either Kayla Gordon (kaylag@umass.edu), a doctoral student in School Psychology at the University of Massachusetts Amherst or Dr. Sarah Fefer (sfefer@educ.umass.edu), Assistant Professor in School Psychology at the University of Massachusetts Amherst, with any questions related to this study. If you have any concerns about your rights as a research participant, you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu.

By clicking "I agree" below you are indicating that you have read and understood this form and that you agree to participate in this study.

I Agree

I Do Not
Agree

APPENDIX B
SURVEY ADMINISTERED TO STUDENTS

Student Online Survey

Section 1_

Are you under 18 or over 18?

Under 18 _____ Over 18 _____

*If participants are under 18, they were directed to the assent form. If they are over 18, they were directed to the consent form. Indicating they agree to either the consent or assent forms directed them to the same survey. Consent and assent forms were section 2 – the actual survey was section 3. See Appendix A for the consent and assent forms.

Section 3_

What is your gender? _____ Male _____ Female _____
_____ Other

What grade are you currently in? __ 9th __ 10th __ 11th __ 12th

What is your race/ethnicity? __ African American __ Asian __ Hispanic
__ Native American __ White __ Native Hawaiian __ Multi-race (Non-
Hispanic) __ Other

Where were you born? Please just indicate the country.

_ United States
_ Other: _____

How many times have you been sent to the office because you got in trouble for your behavior during this school year?

How many times have you received a detention (for any reason) during this school year?

How many times have you been suspended, either internal or external, (for any reason) during this school year? Please report the number of total days for any suspensions combined.

During this school year, have you received mostly...?

__ As __ Bs __ Cs __ Ds __ Fs

Please read each statement and mark the response that best shows how much you agree.

| IN THIS SCHOOL: | Disagree A LOT | Disagree | Agree | Agree A LOT |
|--|-------------------|----------|-------|----------------|
| 1. Most students turn in their homework on time. | | | | |
| 2. Teachers treat students of all races with respect. | | | | |
| 3. The school rules are fair. | | | | |
| 4. Students are safe in the hallways. | | | | |
| 5. Rules are made clear to students. | | | | |
| 6. Most students try their best. | | | | |
| 7. Teachers care about their students. | | | | |
| 8. The consequences of breaking rules are fair. | | | | |
| 9. Students threaten and bully others. | | | | |
| 10. Students know how they are expected to act. | | | | |
| 11. Students are friendly with each other. | | | | |
| 12. Adults care about students of all races. | | | | |
| 13. Students feel safe. | | | | |
| 14. Students worry about others bullying them. | | | | |
| 15. Students know what the rules are. | | | | |
| 16. Students care about each other. | | | | |
| 17. Teachers listen to students when they have problems. | | | | |
| 18. The school's Code of Conduct is fair. | | | | |
| 19. Students know they are safe. | | | | |
| 20. It is clear how students are expected to act. | | | | |
| 21. Students respect others who are different. | | | | |
| 22. Adults who work here care about the students. | | | | |

| | | | | |
|--|--|--|--|--|
| 23. Most students follow the rules. | | | | |
| 24. Bullying is a problem. | | | | |
| 25. Most students like this school. | | | | |
| 26. Students of different races get along. | | | | |
| 27. Teachers expect the best from students of all races. | | | | |
| 28. Classroom rules are fair. | | | | |
| 29. Most students work hard to get good grades. | | | | |
| 30. Students treat each other with respect. | | | | |
| 31. Students get along with each other. | | | | |
| 32. Teachers like their students. | | | | |
| 33. Students bully one another. | | | | |
| 34. Most students feel happy. | | | | |

Please respond to the following questions to indicate whether you feel like your school has the following things in place.

| | Yes | Sometimes | No |
|---|-----|-----------|----|
| 1. My school has positively stated rules, expectations, or core values. | | | |
| 2. Students at my school are taught routines (such as what to do when we first get to class, what to do if we finish our work early, etc.) and how we are expected to act in the classroom. | | | |
| 3. Students at my school are taught routines and how we are expected to act in other settings (e.g. cafeteria, hallway, outside). | | | |
| 4. Students at my school are praised regularly for displaying appropriate or acceptable behavior. | | | |
| 5. Students at my school receive rewards for displaying | | | |

| | | | |
|--|--|--|--|
| appropriate or acceptable behavior | | | |
| 6. Students at my school know that there are clear and consistent consequences for problem behavior. | | | |

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