ABSTRACT

Title of Thesis:	SCHOOL CLIMATE AND TEACHER USE OF STRATEGIES LINKED TO BULLYING PERPETRATION AND VICTIMIZATION
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Bullying in school settings is a major concern with approximately 22% of children in the U.S. experiencing some form of bullying (National Crime Victimization Survey, 2019). However, there is little to no current research specific to how teachers may play a modeling role through the behavior management strategies they use in the classroom to impact the likelihood and rate of bullying perpetration and victimization occurring among diverse middle school students. Additionally, while school climate has been linked to bullying perpetration and victimization, almost no research has examined how teacher strategies may impact school climate, which in turn predict bullying. This study sought to examine whether student perceptions of teacher use of positive (i.e., praise and reward) and punitive (i.e., yelling and punishment) strategies and school climate are linked to the likelihood and rates of bullying perpetration and victimization. In addition, it also examined whether school climate may have mediated the relationship between student perceptions of teacher strategies and bullying perpetration and victimization and whether gender and grade moderated these relations.

Data were collected from 545 middle school students (Age: M = 13.12, SD = 0.76) from a diverse middle school in Southern California, using a multi-measure online survey administered at school. Students/families could opt-out of the survey. Data were analyzed following a two-part model suited for semi-continuous variables containing large numbers of zeros, with the first step being binary logistic regression with the whole sample, and the second step being linear regressions for cases with non-zero values using a victim-only sample and a perpetrator-only sample. Results of this study indicated that perceptions of punitive teacher strategies were linked to the likelihood of victimization, as well as the rates of perpetration and victimization for those who endorsed involvement. Perceptions of positive strategies were associated with the likelihood of victimization for those in their first year of middle school, but not for older students. Additionally, school climate was linked to the likelihood of both perpetration and victimization, but not rates. Lastly, school climate created a significant indirect effect when added to the models for positive and punitive strategies predicting the likelihoods victimization and perpetration, and positive strategies predicting the rates, and should be investigated longitudinally as a possible mediator. Overall, results supported the hypotheses that the strategies teachers use to manage behavior in the classroom and school climate may be linked to students' involvement in bullying. Implications for practitioners and future work were presented.

SCHOOL CLIMATE AND TEACHER USE OF STRATEGIES LINKED TO BULLYING PERPETRATION AND VICTIMIZATION

By

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Chapter 1: Introduction and Theoretical Framework

Introduction

In school settings, bullying is a major concern in the U.S. and worldwide (Duan et al., 2020; Nordhagen et al. 2005). About 22% of children in the U.S. experience some form of bullying (i.e., being made fun of, subject of rumors, threatened with harm, pushed/shoved, excluded from activities, property destroyed, etc.) (National Crime Victimization Survey, 2019). Despite this prevalence, parents and teachers often do not realize how common bullying is due to it frequently going unreported (Glew et al., 2000), and there is still lacking research on bullying in specific populations such as Latinx students. Bullying is often associated with several long-term adverse outcomes, including internalizing and externalizing problems and school avoidance/failure (Duan et al., 2020; Glew et al., 2000; Reijntjes et al., 2010).

Internalizing problems such as low self-esteem, depression, suicide, anxiety, withdrawal and loneliness (Duan et al., 2020; Reijntjes et al., 2010) have been associated with bullying and victimization. Similarly, externalizing problems such as aggression, delinquency, behavioral problems (Reijntjes et al., 2011), and criminality (Klomek et al., 2015) have also been linked to bullying/victimization. There is evidence that experiencing victimization in childhood can lead to later development of aggressive behaviors and violent offending (Arseneault et al., 2006; Averdijk et al., 2016), as well as evidence that a reciprocal relationship exists with aggression predicting future victimization (Reijntjes et al., 2011). Additional adverse outcomes include obesity (Hammami et al., 2020), eating disorders (Lie et al., 2019), somatic (Glew et al., 2000) and psychosomatic complaints (Fekkes et al., 2004), and school avoidance/failure (Glew et al., 2000). With many negative outcomes associated with bullying perpetration and victimization, it is of interest to examine additional factors that may be associated with increased risk/rates of involvement.

Factors influencing bullying perpetration and victimization can be found at the individual and school level. At the individual level, factors that influence bullying may be heavily influenced by perceived differences from peers, such as gender (Glew et al., 2000; Nansel et al., 2001) and race/ethnicity (Peguero & Williams, 2011). Additionally, students' grade may be another factor related to bullying. While bullying seems to have the highest prevalence during elementary school years (Glew et al., 2000), research has found that bullying also peaks following school transitions, such as that from elementary to middle school (Pellegrini & Long, 2002). This peak may be explained by social dominance theory, explaining that the transition interrupts social dominance status, causing students to lean on bullying/aggression in order to elevate their social status among a new peer group (Pellegrini & Bartini, 2000, Sidanius & Pratto, 1999). Supported by this theory, the present study aims to examine students in the first and second years of middle school, and whether individual factors of gender and grade moderate the relationships between the target variables and perpetration/victimization.

At the school level, school climate lends to the quality of school life for children and can aid in their development and education so that they may end up leading productive and satisfying lives (Cohen et al., 2009). Positive school climate (across dimensions such as safety, student and teacher relationships, fair/clear rules and expectations, etc.) has been associated with decreased reports of bullying and victimization (Gendron et al., 2011; Guerra et al., 2011; Lee & Song, 2012), with victimization associated with more negative perceptions of school climate (Glew et al., 2005; Nickerson et al., 2014; Wang et al., 2014). The present study aims to examine the impact of overall school climate perceptions on bullying, with data gathered on dimensions of student-teacher relationships, student-student relationships, student engagement schoolwide, clear expectations/fair rules, school safety, and respect for diversity.

Within the school, it is also important to consider the significant amount of childhood/adolescent socialization and modeling that impact both victimization and perpetration. Based on the ideas of Social Learning Theory, with behavior being learned through modeling and observation, a significant modeling role for children is teachers, with whom children spend several hours per day and five days per week. Teachers may choose to use classroom management skills such as reinforcement strategies (praise and reward) or punitive strategies (yelling, timeouts, office referrals, etc.) (Bear et al., 2017a). It is of interest to address whether teacher use of punitive strategies in the classroom may serve to model perpetrative bullying behaviors. This study aimed to look at the relationship between teacher use of strategies and bullying behavior in a U.S. middle school.

This study examined the relationship between bullying perpetration and victimization experiences, teacher use of strategies, and school climate in a majority Latinx middle school population. This study sought to answer the following questions: (1) Are student perceptions of teacher use of positive (i.e., praise and reward) and punitive strategies (i.e., yelling and punishment) linked to the likelihood and rates of bullying perpetration and victimization? (2) Is positive school climate linked to lower likelihood and decreased rates of bullying perpetration and victimization? (3) Does school climate mediate the relationship between student perceptions of teacher strategies and bullying perpetration and victimization? and (4) Do gender and grade moderate the relationships between student perceptions of teacher use of strategies/school climate and perpetration/victimization? These questions are of particular interest, as few studies have examined the impact of teacher use of strategies on bullying perpetration and victimization.

Theoretical Framework

This study was guided by three theories: Bronfenbrenner's person-process-context-time model (PPCT; Bronfenbrenner & Morris, 2006), social learning theory (Bandura, 1977), and social dominance theory (Pellegrini & Bartini, 2000, Sidanius & Pratto, 1999).

Person-Process-Context-Time Model

The PPCT (Bronfenbrenner & Morris, 2006) model suggests that child development is influenced by four components as specified in the name: person, process, context, and time. Bronfenbrenner and Morris (2006) describe and break down each of these concepts into several parts.

The "person" concept refers to individual-level factors split into 3 groups of characteristics: demand characteristics, such as genetic and biological characteristics (i.e., sex/gender, physical appearance, and age (grade); resource characteristics, such as mental/emotional resources (i.e., past experiences), intelligence/skills, and material resources (i.e., wealth, education, caregivers); and force characteristics such as motivation, persistence, and temperament. The PPCT model acknowledges and emphasizes the reciprocal interactions between personal characteristics and contextual factors on child development (i.e., environment influences personal characteristics, and personal characteristics influence the environment) (Bronfenbrenner & Morris, 2006).

The "process" component describes proximal processes of development or the reciprocal interactions between the individual and their external environment, emphasizing that processes will function differently depending on the person and context (Bronfenbrenner & Morris, 2006).

The third component, "context," is comprised of four interactive and interrelated systems: the *micro, meso, exo, and macro,* systems, with this concept being the backbone of

Bronfenbrenner's original ecological systems theory (Bronfenbrenner, 1977). The microsystem is the layer closest to the individual and refers to relationships and interactions experienced in their immediate surroundings such as home and school with parents, teachers, and peers. The mesosystem moves further beyond those direct relationships and immediate surroundings, and encompasses interactions between two or more microsystems that include the individual, such as inter-relations between their parent(s) and the school. The next layer is the exosystem, which focuses on the larger formal and informal social structures outside of the individual's direct function, impacting them indirectly through influence on some structure in their microsystem (i.e., stress at work impacting parenting). Finally, the macrosystem refers to the larger cultural context such beliefs, values, and attitudes that have a cascading influence over all other system levels (Bronfenbrenner 1977).

Lastly, the "Time" concept of the model focuses on the development of the preceding concepts (Person, Context, and Process) as they interact over time. This concept is additionally broken into three levels: *micro, meso, and macro*- time, with micro-time referring to occurrences during specific episodes of proximal processes; meso-time referring to the extent to which processes occur in the individual's environment across days/weeks/years; and macro-time referring to shifts in wider culture that may occur within and across generations (Bronfenbrenner & Morris, 2006).

Social Learning Theory

Social learning theory is a theory of learning processes that occur within interpersonal contexts, and proposes that the acquisition of new behaviors can occur through the observation and imitation of others (modeling) (Bandura, 1977). This theory expanded on pre-existing behaviorist theories by taking into account the influence of social context and internal processes

on learning, as well as proposing that direct teaching and reinforcement were not necessary for the acquisition of new behavior (Bandura, 1963). In addition to the observation of behavior as part of the learning process, learning may also occur through the observation of the reinforcement and punishment of the behaviors of others, known as vicarious reinforcement (Bandura, 1963).

Another key tenet of Bandura's (1977) theory is that, as learning involves observation, extraction of information from those observations, and decision-making about the performance of the behavior, learning can occur without observable change in behavior. However, the learner is not just a passive recipient of information; rather, cognition, environment, and behavior are all mutually influencing one another (reciprocal determinism) and the learner is, in turn, also impacting the environment. In the context of bullying, this may be seen in a situation such as a child using aggressive behavior to gain control over a toy, where the perpetrative behavior is reinforced by obtaining the toy. The play environment thus changes, with the perpetrator being more likely to victimize playmates in the future and those who were victimized being more inclined to "give in" to the perpetrator (Shaffer, 2009).

Studies have linked observational learning to bullying, such as punitive parenting (Baldry & Farrington, 2005), exposure to domestic violence (Baldry, 2003; Bowes et al., 2009), socializing with aggressive peers (Mouttapa, et al., 2004), and living in less safe neighborhoods (Espelage et al., 2000; Youngblade et al., 2007) increasing the likelihood of perpetration. However, few studies have examined the link between behaviors modeled by teachers and bullying perpetration and victimization. Based on this, it is of interest to examine whether strategies that teachers use in the classroom may serve as modeled behavior for bullying.

Social Dominance Theory

Social dominance theory proposes that bullying/aggression may be used as tool to gain access to resources and elevate social status among peers (Pellegrini & Bartini, 2000, Sidanius & Pratto, 1999). This theory has also been linked to the increase in aggression that has been seen in the transition from elementary to middle school as students go from being the oldest and physically strongest students in the elementary school to the youngest and weakest in middle school, disrupting group dominance rankings. This transition may cause students to have to "renegotiate their place in a large and more diverse peer group" (Pellegrini & Bartini, 2000, p. 144). This idea is further supported by research demonstrating that aggression tends to decrease towards the end of 6^{th} (after school transition) or 7^{th} grade due to dominance becoming established and students understanding their status among their peers as well as the cost of challenging those of higher status with aggression (Pellegrini & Bartini 2000, Pellegrini & Long, 2002). As a result, I focused on middle school students in this study.

Based on these three theories, this study summarized research findings related to different systems of PPCT by exploring the "person" or individual factors, the "context" component through microsystem school factors and the role of modeling that may impact victimization and bullying perpetration in early adolescence, and the "time" concept by focusing on bullying after a school transition (elementary to middle school).

Chapter 2: Literature Review

Definition of Bullying and Its Negative Consequences

Bullying is defined as a form of aggression shown repeatedly by one or more children towards a victim with the intention to intimidate, harass, or bring physical harm to them (Glew et al., 2000). Important aspects of bullying include repetition of the aggressive behavior, intent to harm, and a power imbalance between the perpetrator and the victim; in other words, the victim is unable to defend themselves (Glew et al., 2000; Nansel et al., 2001). Bullying can occur anywhere; however, it most commonly occurs in places of lower supervision such as the cafeteria and playground. In older children, bullying will often occur in hallways and common areas before school and between classes (Glew et al., 2000). Bullying behaviors may occur in 4 different forms: physical (e.g., hitting, pushing, taking belongings), verbal (e.g., name calling, threatening), relational/social (e.g., spreading rumors, social isolation), or cyber (e.g., spreading rumors and sending mean messages, sometimes anonymously). Cyberbullying is one specific type of bullying that, like other types, involves harmful, repeated, and intentional acts, but occurs specifically in an electronic context (e.g. text/instant messages, blogs, email, etc.) (Kowalski et al., 2014) and is often triggered by incidents that took place in school (Patching & Hinduja, 2012). However, despite these types being distinct, bullying often occurs on a spectrum with most perpetrators engaging in verbal or relational bullying (77%; including cyberbullying) and some escalating to threatening and physically aggressive behaviors (23%) (National Center for Education Statistics, 2019). As such, I examined bullying perpetration and victimization more broadly, as relating to verbal, relational, and physical behaviors.

Negative Impact of Bullying and Victimization

Bullying can have severe and long-term impacts on both mental and physical health for victims as well as bullying perpetrators. These impacts can range from school avoidance/failure to somatic complaints, such as headaches and insomnia, to increased risk for later substance abuse, depression, and poor self-esteem (Glew et al., 2000). This is also supported when examining the impact of cyberbullying victimization, which has demonstrated negative outcomes for youth physical, psychosocial, behavioral, and academic outcomes (Yang et al., 2020). An article by Swearer & Hymel (2015) explained that bullying is a stressful event for both the perpetrator and victim, acting as a catalyst for a social-ecological diathesis-stress model. This model promotes understanding how bullying can both increase depression and anxiety in victims, as well as promote aggression and other externalizing behaviors in perpetrators.

Mental Health Impact. Involvement in bullying appears to increase the risk for depression and suicidality in not only victims, but perpetrators and witnesses as well (Duan et al., 2020). Wagman et al. (2012) found that suicidality and/or attempted suicide was most highly reported by those who were both perpetrator and victim (bully-victims; 38%), then by victims (29%), and then lastly followed by perpetrators (22%). Additional considerations must also be given to the effects of cyber-bullying, particularly with the recent need for online education due to the COVID-19 pandemic. Experiencing both cyber-bullying and face-to-face bullying has been shown to significantly increase suicidal ideation in victims (3.26 times), beyond the risk created by experiencing only one of the two types of bullying (2-2.15 times) (Baiden & Tadeo, 2020).

Physical Health Impact. Despite a much greater focus of the literature on the mental health impacts of bullying, physical health impacts have also been found. Research has found

that bullying can impact weight (Hammami et al., 2020), increase physical complaints (headaches, stomachaches, insomnia) (Glew et al., 2000), and cause psychosomatic symptoms (Fekkes et al., 2004). Bullying has been associated with higher odds of overweight/obesity in both males and females, especially during high school (Hammami et al., 2020). Inversely, weight-related bullying is also associated with the development of eating disorders in adolescents (Lie et al., 2019). Physical and psychosomatic complaints have been found to be more commonly reported by bully-victims above those who either just perpetrate or are just victims (Fekkes et al., 2004, Glew et al., 2000). Without proper education and intervention, this could have life-long mental and physical impacts on these individuals. With a wide range of negative outcomes being associated with both victimization and perpetration, it is important to study bullying and bullying prevention among school-aged children.

Research on Bullying among Latinx Students

While significant literature on bullying exists, a major limitation is a lack of research in specific groups, such as Latinx students. Latinx is a gender inclusive term used in reference to an individual with Latin American cultural or ethnic identity living in the U.S. (Vidal-Ortiz & Martinez, 2008). Latinx has been reported to be the fastest growing ethnic minority group in the U.S., with census predictions that it will account for 30% of the U.S. population by 2060 (Colby & Ortman , 2015). Despite this rapid growth, the majority of literature examining bullying in the U.S. focuses on non-Latinx adolescents (Lutrick et al., 2020). While Latinx is considered an ethnic identity that can be held by an individual of any race, many individuals also identify Latinx as their racial identity (Parker et al., 2015). Oftentimes studies reported Latinx as a category of race rather than ethnicity and did not specify the races of participants within this category. As a result, for discussion of the literature and participants in this study, Latinx

participants are discussed as a group based on their self-identification of belonging to this category. Participants who do not identify as Latinx racially or ethnically are simply referred to by their reported race (e.g., White students).

Findings regarding rates of victimization for Latinx students are inconsistent. Some studies report finding higher rates of victimization experienced by Latinx students in comparison to White students (Sawyer et al., 2008; The U.S. Department of Justice, 2009). For example, Sawyer and colleagues (2008) found that amongst highschoolers, approximately 64% of Latinx participants reported experiencing some type of victimization and 35% reported frequent bullying perpetration. In contrast, among White participants, only 55% reported experiencing some type of victimization and 24% reported frequent bullying perpetration. Other studies report lower rates, with a greater likelihood of Latinx students serving as perpetrators or bully-victims than White students or other non-Latinx students (Lawson et al., 2013; Spriggs et al., 2007; Yang et al., 2021a; Yang et al., 2021b). Lawson and colleagues (2013) found that, in their sample using self-report measures, Latinx students were almost 3 times (280%) more likely than White students to belong to the perpetrator-victim group, which is characterized by a high probability of engaging in several forms of bullying as well as an increased likelihood of experiencing victimization. Yang and colleagues (2021b) found that in a school with a predominantly Latinx population (83.5%), Latinx students did indeed report lower victimization rates than their non-Latinx counterparts; however, they still reported a victimization rate of 41%. Overall, these high rates of bullying perpetration and victimization are of significant concern.

Regardless of the prevalence of bullying, studies have examined the outcomes related to these experiences for Latinx students. Recent studies examining Latinx youth found that those who experienced peer victimization reported higher levels of depression and suicidality than

their non-victimized peers (Lutrick et al., 2020; Robinson et al., 2021). Robinson and colleagues (2021) looked at an exclusively Latinx sample of 2554 students from 19 schools, where results also supported a significant positive relationship between victimization and depressive/suicidal symptoms. When examining the link between victimization and psychological distress, Rhee and colleagues (2017) found that bullying victimization had a significant relationship to psychological distress (e.g., feeling nervous, hopeless, restless, depressed, worthless, etc.) for Latinx students, but not for White, Black, or Asian students in their sample despite White and Black students reporting higher rates of victimization. The authors attributed this to the indirect and direct impact of ecological factors such as perceived community safety, which acted as a buffer against the development of psychological distress following victimization. Overall, resulting internalizing outcomes related to victimization in Latinx students appear to be consistent with non-Latinx-specific literature examining the impact of bullying discussed above. Additionally, research examining other victimization-related outcomes found that Latinx and Black students who were victimized in school are at higher risk of dropping out of school (Peguero, 2011). Adverse outcomes for Latinx students are not only associated with victimization, but with perpetration as well. A 2019 study by Jones and colleagues found that Latinx youth engaged in varying levels and types of perpetration, and that those who engage in the most severe forms (i.e., engaging in all types of bullying at high rates) were at much greater risk of developing internalizing symptoms (e.g., depression and suicidal ideation). With both victimization and perpetration serving as risk factors, it is important to examine what additional factors contribute to their occurrence.

Factors Contributing to Bullying Perpetration and Victimization

As previously mentioned, there are different roles associated with bullying/victimization including bullies, victims, and bully-victims. Along with this, differing factors may contribute to making a student at-risk for peer victimization and bullying perpetration. Victims are often characterized as children that react more passively and anxiously to situations, may be more insecure as well as physically smaller and weaker, and are more cautious, sensitive, and quiet (Glew et al., 2000). It is theorized that children fitting this profile are at greater risk for peer abandonment, leaving them more likely to be alone and vulnerable to being singled out and picked on (Olweus, 1993; 2010). However, this depiction is not universally true, and victimization can be seen for children across many different types of characteristics. Victims may also react differently, with some exhibiting passive behaviors such as crying and withdrawing, and others rising to provocation and responding with anxious and/or aggressive behavior (Glew et al., 2000).

Students who engage in bullying perpetration are individuals who are often characterized by being generally aggressive (not just toward victims), lacking empathy, and having a desire for power/social influence (Glew et al., 2000, Smokwski & Kopasz, 2005). They may tend to have low frustration-tolerance, be impulsive and temperamental, and often interpret the actions of others to be malicious/antagonistic (Smokwski & Kopasz, 2005). Additionally, it is important to keep in mind that perpetrator and victim status is subject to change over time. While there are general profiles for individuals more susceptible to perpetration and/or victimization, no one description can hold true for every individual due to unique experiences and a number of individual and interacting factors that shape and influence them. Based on Bronfenbrenner's

PPCT model, the factors that contribute to bullying perpetration and victimization were broken down into individual and school level factors and their contribution is discussed below.

Individual Level Factors

Based on the PPCT model, "Person"/individual factors impacting one's involvement in bullying may include grade, gender, and race/ethnicity.

Grade

Some research suggests that the peak age of bullying behaviors occurs in elementary school in the second grade (7-8 years old), with steady declines in bullying being seen with each increasing grade level (Glew et al., 2000). On the other hand, as suggested by social dominance theory and supported by the literature, it has also been found that bullying tends to increase immediately following school transition, particularly the transition from elementary to middle school (Pellegrini & Long, 2002), which may be attributed to a need to establish social dominance (Pellegrini & Bartini, 2000). Supporting social dominance theory, and the idea that school transition may cause students to have to "renegotiate their place in a large and more diverse peer group" (Pellegrini & Bartini, 2000, p.144), Ryoo et al. (2015) found that across k-12, 5th and 6th graders were most likely to be "frequent victims", with 6th and 9th graders most likely to be "frequent perpetrators". Additionally, 6th graders were most likely to transition to, and then stay in, the "frequent perpetrator" group (Ryoo et al. 2017). With this research in mind, students who have recently completed a school transition appear to be a significant population of interest when examining bullying perpetration and victimization.

Gender

Some research suggests that girls may be at greater risk of victimization than boys, as well as engaging in less bullying perpetration (Glew et al., 2000; Nansel et al., 2001). However,

the bullying behavior demonstrated by the two groups is quite different. Some research has shown that girls are more likely to engage in relational bullying (i.e., use of indirect bullying such as rumors/gossip and social isolation). This type of bullying is more subtle/less likely to be observed by adults, where victims of bullying may go unnoticed or have their experiences be dismissed. In comparison, boys are more likely to engage in more direct and aggressive physical bullying (Glew et al., 2000) that is easier to identify.

Race/Ethnicity

Racial/ethnic minority students have been identified as potentially experiencing lower rates of victimization-only than their white counterparts, and are at greater likelihood to perpetrate bullying (Lawson et al., 2013; Spriggs et al., 2007) or be bully-victims (Goldweber et al., 2012). This has also been seen specifically with Latinx students, with findings suggesting a greater likelihood of being involved in bullying than their non-Latinx peers (Nansel et al., 2001). More Latinx and Black students report being involved in a fight (14% Latinx, 17% Black) and the presence of gangs in schools (33% Latinx, 31% Black) than other races/ethnicities (9/14% Caucasian, 8/17% Asian) (Robers et al., 2012). Lawson et al. (2013) hypothesized that this was likely due to race/ethnic minority members (non-Asian) being less likely to "take it" when it came to bullying and instead respond more actively. This seems to be supported by other research as well, finding that Latinx students seemingly report lower or comparable rates of peer victimization compared to White students (Peguero & Williams, 2013; Robers et al., 2012; Yang et al., 2021a). However, contrasting data has also been presented where Latinx students reported higher rates of victimization than their White peers (Sawyer et al., 2008; The U.S. Department of Justice, 2009). This is potentially due to the unique types of victimization that racial/ethnic minority students face, such as discrimination and stereotyping, with risk of victimization seen to

increase significantly when individuals violate stereotype expectations (Peguero & Williams, 2013). Overall, reviews of the literature seem to show inconsistent findings regarding rates of victimization, but minority students may potentially face more when measured properly (Hong & Espelage, 2012; Hong et al., 2013). However, what happens in the case of schools where a "minority" group actually represents the majority? In a study by Yang and colleagues (2021b), in a sample of four high schools where Latinx students represented the majority (65-97% of the student body), it was found that non-Latinx students reported higher prevalence and frequency of victimization than Latinx students, potentially attributable to the increased power by the majority group. Based on this, it may be important to consider the composition of a school when considering risk factors. Because there are limited studies on bullying among Latinx students, this project helps to fill the gap in the literature by adding to the few pre-existing studies and examining additional factors that may contribute to increased rates of bullying perpetration and victimization.

School Level Factors

With children and adolescents spending a significant amount of their time at school, and a significant amount of bullying occurring either in the school or online after being triggered by an at-school incident (Patchin & Hinduja, 2012), it is important to examine what factors may be influencing bullying perpetration and victimization at the school-level, such as school climate and teacher strategies.

School Climate

Cohen et al. (2009) define school climate as "the quality and character of school life", basing it on norms, values, goals, teaching and learning practices, interpersonal relationships, and organizational structure. They go on to say that a positive school climate will help youth

development and learning such that they can lead productive, contributive, and satisfying lives. The key aspect of a positive school climate is that it fosters feelings of being socially, emotionally, and physically safe (Cohen et al., 2009). Positive school climate has been associated with greater academic achievement, lower levels of absenteeism and student suspension, increased student self-esteem, and a stronger sense of community (Cohen et al., 2009). Positive school climate has also been associated with decreased reports of bullying and victimization (Gendron et al., 2011; Guerra et al., 2011; Lee & Song, 2012), with those who are victimized reporting more negative perceptions of school climate (Glew et al., 2005; Nickerson et al., 2014; Wang et al., 2014). While there is variation in the literature pertaining to what the dimensions of school climate are, the present study examined school climate using the dimensions laid out by the Delaware School Climate Survey (Bear et al., 2014): student-teacher relationships; student-student relationships; student engagement schoolwide; clear expectations/fair rules; school safety; and respect for diversity.

Student-Teacher Relationships. For students who spend an average of 35 hours per week in the school setting, teachers are one of the main sources of relationships with adults. With positive adult relationships and support being associated with positive youth outcomes (Robinson et al., 2021; Sulkowski & Simmons, 2018), it is important to consider the role and impact teachers have in and on student outcomes, especially regarding bullying perpetration and victimization. In the context of school bullying, perceiving adults in the school setting as caring, respectful, and trustworthy is associated with decreased levels of victimization, even for students who are at higher risk of being victimized (Gage et al., 2014). Positive relationships with teachers and adult support have been shown to be negatively associated with bullying and victimization (Espelage et al., 2014; Klein et al., 2012; Ma, 2002; Murray-Harvey & Slee, 2010;

Sulkowski & Simmons, 2018) and positively associated with willingness to seek help (Klein et al., 2012). Positive student-teacher relationships have also been found to act as a buffer against psychosocial distress for students who experience victimization (Sulkowski & Simmons, 2018), and predict less physical aggression in students (Troop-Gordon & Kopp, 2011). Additionally, negative student-teacher relationships have been found to predict greater involvement in bullying (Wang et al., 2015). On the other hand, student-teacher conflict has been associated with more physical and relational aggression (Troop-Gordon & Kopp, 2011), increased rates of victimization, and reduced ratings of peer likeability (Longobardi et al., 2022). Researchers have theorized that when student-teacher relationship quality is low, the teacher may be less motivated to handle episodes of victimization toward the student and be less effective in supporting the student's development of effective coping and conflict management skills (Elledge et al., 2016). Teachers may also demonstrate through their behavior (e.g., strategies) their dislike for the student, and in turn promote peers' dislike of the student (Hendrickx et al., 2016). The benefit of positive student-teacher relationships has also been demonstrated for Latinx students. Rhee and colleagues (2017) found that perceived school support (i.e., feeling there is a teacher/other adult at school who cares about them, listens to them, praises them when they do something good, wants them to do their best, notices when they are in a bad mood, etc.) was significantly linked to how students perceived community safety, which in turn had a significant relationship with both victimization and psychological distress. Based on the literature, it is clear that student-teacher relationships are a critical dimension of school climate that can impact perpetration/victimization, either by providing a direct impact or by serving as a mediator in the relationship between teacher strategies and perpetration/victimization.

Student-Student Relations. Another major component of perceived school climate is peer relationships. Negative peer relations have been linked to increased risk for poor achievement, school dislike/avoidance, school dropout, disruptive behavior, low self-esteem, and depression (Brand et al., 2003; Buhs et al., 2006). In relation to bullying perpetration and victimization, lower perceptions of social support from peers have been associated with higher rates of perpetration and victimization (Herráiz & Gutiérrez, 2016; Spriggs et al., 2007). On the other hand, perceptions of strong social support, such as high-quality friendships, acts as a protective factor associated with lower rates of bullying/victimization (Goldbaum et al., 2008; Mucherah et al., 2017; Thornberg et al., 2018). Studies have also found that peer social support not only decreases risk of victimization, but also buffers the effect of victimization on subsequent depressive symptoms (Brenden & Poulin, 2018).

Studies examining the relation between peer relationships and bullying victimization found that students who experienced victimization generally reported lower peer acceptance (Perren & Hornung, 2006), increased social isolation (Spriggs et al., 2007), and poorer peer relations (Healy et al., 2015; Spriggs et al., 2007) than their non-bullied peers. Additionally, Longobardi and colleagues (2022) found that students also rated peers who experienced victimization and increased student-teacher conflict as less likeable than non-victimized peers. Beyond victimization it appears that any type of involvement in bullying may impact how the student perceives school climate and their peer relationships. Biernbaum and Lotyczewski (2015) found that students involved in any role of bullying (e.g., bully, bully-victim, victim) held more negative perceptions of school climate, particularly the tone of interpersonal relationships which accounted for the largest amount of unique variance in bullying scores of the measured school climate domains. Students involved in bullying reported feeling a lack of mutual respect in

comparison to perceptions of students not involved in bullying (Biernbaum & Lotyczewski, 2015). In looking at the relationship between bullying and peer relationships across ethnicities, Spriggs and colleagues (2007) found that the impact of peer relationships on victimization was consistent between White, Black and Latinx youth, with all groups experiencing social isolation relating to victimization. However, in relation to perpetration, only white and Latinx students experienced poor classmate relationships in comparison to non-involved youth.

As mentioned previously, while some adolescents who engage in bullying behaviors may be outwardly aggressive and face rejection and isolation from peers (Cook et al., 2010; Glew et al., 2000), others may demonstrate high social integration and use social influence/dominance in a proactive and goal-directed manner to victimize others (Pellegrini & Bartini, 2000; Rodkin, 2012). As a result, peer relationships for bullying perpetrators may vary. When examining the characteristics of peer groups for bullies, bully-victims, and victims, Farmer and colleagues (2010) found that bullies tended to be members of peer groups in which the majority of members were not involved in bullying and few were victims. In contrast, they found that bully-victims tended to be members of groups primarily composed of bullies, bully-victims, and victims. Farmer et al. (2010) also found that when rated by peers, bullies received much more controversial ratings, where they were liked by some and disliked by others, in comparison to bully-victims who were more universally disliked and rated to have less social influence and prosocial skills.

Bullying perpetration and victimization have consistently been linked to peer relationships. The literature has focused on topics such as the impact of peer relationships on rates of perpetration and victimization (Herraiz & Gutierrez, 2016; Mucherah et al., 2017; Spriggs et al., 2007; Thornberg et al., 2018), the perceptions of peer relationships of those

involved in bullying (Biernbaum & Lotyczewski, 2015; Healy et al., 2015), and the way those involved in bullying are perceived by their peers (Farmer et al., 2010; Longobardi et al., 2022). As a result, this is an important dimension to include and consider when evaluating school climate and how it may relate to bullying.

Student Engagement Schoolwide. Student engagement, both cognitively and behaviorally, is a critical factor in student learning and achievement that has been linked to student outcomes of academic achievement, school completion, and social-emotional adjustment (Brand et al., 2008; Fredericks et al., 2016; Wang & Eccles, 2013). Studies have found that positive school climate fosters greater student engagement (Archambault et al., 2009; Lawson & Masyn, 2015; Wang & Eccles, 2013), and that students who become disengaged from school are more likely to exhibit problematic and delinquent behavior (Wang & Fredericks, 2014). While engagement serves as a unique domain of school climate, many of these domains overlap and influence each other, contributing to a higher order construct of climate. Studies find that student engagement is promoted by other aspects of positive school climate, such as clear expectations for behavior and a supportive and caring school environment (Wang & Eccles, 2013). With regard to bullying perpetration and victimization, few studies have looked at the relationship between school-wide student engagement and bullying. Of those, some have found positive school climate and student engagement to be negatively related to bullying (Konold & Cornell, 2015; Yang et al., 2018). Yang and colleagues (2018) found that across elementary, middle, and high school students, bullying victimization was negatively associated with student school-wide engagement such that students who experienced victimization showed significantly less engagement. However, in contrast, Biernbaum and Lotyczewski (2015) found that victimized students in their sample demonstrated high school-wide engagement similar to students

uninvolved in bullying; whereas, students who were bullies and bully-victims demonstrated low or defiant engagement and held negative or indifferent views about the school. While there is inconsistency in the literature regarding the relationship between student engagement and bullying perpetration and victimization, this is still a fairly new and unexplored area of study with current literature indicating some connection. As a result, this is of interest to consider when looking at the relationship between school climate and bullying.

Clear Expectations and Fair Rules. In schools, setting clear expectations and fair rules to be followed is beneficial for students, helping to promote a positive school climate (Bear et al., 2017b). This has been supported by research demonstrating that rules and punishment perceived as unfair, overly harsh, or unevenly distributed contribute to the deterioration of school climate (Kupchik, 2010). With regard to the impact on bullying and victimization, Kupchik & Farina (2016) found that students were at greater risk for bullying victimization if they perceived school rules as unfair and poorly communicated, with students being less likely to report being bullied if they felt that rules were fair and perceived being treated with care by faculty. This has been further supported by several other research studies demonstrating that clear and fair rules/expectations are linked to a reduction in both bullying perpetration and victimization (Gregory et al., 2010; Guerra et al., 2011; Khoury-Kassabri et al., 2004; Låftman et al., 2016; Ma, 2002). As with student-teacher relationships, fair rules and clear expectations appear to have a significant impact on bullying perpetration and victimization. This further demonstrates how school climate may mediate the relationship between teacher strategies and perpetration/victimization, leading to my interest in including fair rules and clear expectations as a dimension of school climate in this study.

School Safety. Until more recently (e.g., post Columbine shooting), school safety was not consistently measured as part of school climate; however, recent events and research have demonstrated the importance of students feeling safe in schools (Bear et al., 2014). Studies have shown that when students and teachers feel safe and aggression and victimization are less common, they perceive school climate more positively (Goldstein et al., 2008; Kitsantas et al., 2004). Additionally, students who perceive fewer safety issues at school tend to engage in fewer delinquent and aggressive behaviors, be more academically adjusted, report fewer depressive symptoms, and have increased self-esteem (Brand et al., 2003; Horner et al., 2009). In relation to bullying perpetration and victimization, several studies have found that all students involved in bullying (bully, bully-victim or victim) had significantly greater safety concerns in comparison to students who were not involved in bullying (Biernbaum & Lotyczewski, 2015; Glew et al., 2008). Some studies have also found that, in particular, physical and verbal bullying perpetration and victimization were associated with perceived school safety (Varjas et al., 2009). In slight contrast, Beran and Tutty (2002) found that school safety was only associated with verbal bullying and not physical, potentially due to greater adult intervention when physical bullying occurred. Additionally, students reported the playground as the least safe area in school (Beran & Tutty, 2002), consistent with findings that bullying is more likely to occur in places with lower supervision such as the cafeteria, playground, and hallways (Glew et al., 2000). With regard to Latinx students, findings regarding perceived school safety vary, with some studies finding that Asian and Latinx students reported the highest levels of perceived safety (Yang et al., 2021a), but others finding that Latinx students are more likely to feel unsafe than Asian and White students (Jackson, 2015; Lacoe, 2015). However, Lacoe (2015) reported that no significant differences existed in perceived school safety across Latinx, Asian, and white students when

student characteristics (e.g., gender, home language, special education), the school, and neighborhood contexts (e.g., violent crime rate, median household income) were controlled for. These findings appear consistent with the somewhat inconclusive findings regarding rates of victimization for Latinx students, and indicate that context should be described and considered alongside findings. School safety has been linked to academic, behavioral, and mental health outcomes for students (Brand et al., 2003; Horner et al., 2009), with research demonstrating a significant link to bullying. As such, school safety is an important dimension of school climate to consider in relationship to bullying perpetration and victimization.

Respect for Diversity. Respect for diversity refers to respect for and appreciation of all students (regardless of race/ethnicity, gender, religion, or sexual orientation), the presence of cultural awareness (Chang & Le, 2010; Juvonen et al., 2006), and holding all individuals to the same principles and standards (Mattison & Aber 2007). Respect for diversity has been linked to better academic achievement for students who perceive racial fairness and experience less racial discrimination (Mattison & Aber 2007) and increased student satisfaction (Lin et al., 2019). As previously mentioned, several of these diversity dimensions (e.g., race/ethnicity, gender, sexual orientation, and disability) may serve as risk factors for victimization. Hatzenbuehler and Keyes (2013), when researching respect for diversity in the context of bullying and victimization, found that inclusive anti-bullying policies (i.e., policies that specified and targeted bullying based on diverse identities, rather than just bullying broadly) reduced the risk of suicide attempts and exposure to peer victimization (for lesbian and gay youth) and that non-inclusive anti-bullying programs did not . Having inclusive anti-bullying policies has also been seen to predict within-class decreases in reports of bullying (Gage et al., 2014). Respect for diversity has also been found to serve as a significant predictor of peer victimization for some minority groups

(e.g., Asian Americans), with greater respect for diversity predicting decreased peer victimization (Wang et al., 2016). Teacher and student acceptance of diversity has also been linked to an increase in intervening behaviors of student bystanders who witness others being victimized (Konishi et al., 2021), demonstrating a way that teachers model behavior for students, and how certain modeled behaviors may have negative consequences. With evidence of its impact on bullying and victimization, this is another dimension of school climate in my study.

Although several unique domains of school climate have been discussed, there is significant overlap and interplay between these domains that demonstrate their contribution to an overarching construct of school climate. For the purposes of this study, school climate is used as a higher-level construct encompassing these domains (student-teacher relationships; student-student relationships; student engagement schoolwide; clear expectations/fair rules; school safety; and respect for diversity).

Teacher Strategies

In accordance with Social Learning Theory (Bandura, 1977), adults serve as significant sources of modeling for children, with some literature demonstrating the link between modeled parent behaviors and increased aggression and perpetration in children (Baldry & Farrington, 2005; Bowes et al., 2009; Smokwski & Kopasz, 2005). While parents may be viewed as the most common source of modeling, teachers are another category of respected adults that children have regular and lengthy exposure to that may be used as a source for behaviors to model. One of the ways teachers may model behavior for children is the strategies they choose to use to manage behavior in the classroom. When managing student behavior (e.g., bullying), teachers have several options with which to respond such as praise, reward, and punitive consequences (Bear et al., 2017a). Teachers may also choose to utilize strategies that promote social-emotional learning

(SEL), such as teaching students to care about the feelings of others, control their own behavior, and feel responsible for how they act (Bear et al., 20017a). However, as these strategies utilize direct teaching rather than modeling, they were not included in the present study. Of the strategies that may serve as modeled behavior (praise, reward, and punitive consequences), some fall under the category of reinforcement, while others fall under punitive strategies.

Reinforcement. Reinforcement is the addition (positive) or removal (negative) of stimulus that will increase a behavior (Pierce & Cheney, 2013). In most classrooms, positive reinforcement is used in the form of praise and rewards. Praise and rewards have been found to be generally effective in improving behavior, with the caveat that students may respond to them differently based on personal preferences (Bear et al., 2017a). This is an extremely common strategy used by teachers, being found to be used daily or weekly in approximately 90% of U.S. classrooms (Bear et al., 2017a). In this study, the measure used (Bear et al., 2014) targeted teacher used of positive strategies, specifically praise and reward.

Praise. Praise can be operationalized in a few different ways; however, most definitions include positive verbal and nonverbal attention given to a child directed toward a characteristic of them or a behavior they have performed (Jenkins et al., 2015). Praise is often used as a technique to promote prosocial behaviors that serve as competing behaviors satisfying the same function (Miltenberger, 2016). Praise is commonly divided into two categories, general praise, which covers any praise statement, and labeled/behavior-specific praise which specifically names the desired behavior of the child (e.g., I like the way that you are quietly playing with your toys) (Jenkins et al., 2015). Some arguments have been posed for labeled/behavior-specific praise being more effective than general praise (Hawkins & Heflin, 2011, Simonsen et al., 2008, Thompson & Marchant, 2012); however, labeled praise is also much less frequently used

(Hawkins & Heflin, 2011, Jenkins et al., 2015), and harder to maintain even after teacher intervention to increase use (Hawkins & Heflin, 2011). Overall, praise has generally been proven as an effective, low-intensity (requires low effort on the part of the teacher's), and research-based strategy to promote positive behavior and decrease disruptive and aggressive behavior (Gable & Rock, 2009, Simonsen et al., 2008, Jenkins et al., 2015, Reinke et al., 2008). With regard to the impact of praise on bullying and victimization, few studies have directly looked at this relation; however, studies looking at SEL strategies (Nickerson et al., 2019) and school climate (Låftman et al., 2016) that included praise as an additional variable did find it to be negatively correlated with bullying and victimization.

Reward. Rewards serve as another method of individual and classroom reinforcement usually in the form of small toys/tangible items, access to preferred activities, consumables (food and drink), and privileges (Miltenberger, 2016) given either to an individual student or as classroom-wide reward. Previous literature demonstrates the use of rewards as an effective way to increase student motivation and decrease disruptive and aggressive behaviors (Reitman et al., 2004; Wheatley et al., 2009). Rewards can be administered directly, or through the use of a reward system such as a token economy. Token economies are reinforcement systems that use tokens/points to reward individuals for good behaviors, representing progress towards a back-up reinforcer (one of the reward types mentioned above) which can be redeemed at a later time (Miltenberger, 2016). While systems like this are fairly commonly used, there are also concerns about implementation and maintenance of this type of system in the classroom (Reitman et al., 2004). For the purposes of this study, reward is discussed more broadly (individual and classroom-wide), rather than a focus on specific systems. Research examining the effect of reward on bullying and victimization is quite limited; however, it has been negatively associated

with bullying and victimization in studies using the Delaware Positive, Punitive, and SEL Techniques Scale (Bear et al., 2016b; Nickerson et al., 2019), with the use of praise and rewards having a significant negative correlation with both bullying perpetration and victimization (Nickerson et al., 2019). Additionally, the use of praise/rewards has been found to be positively correlated with positive teacher-student relationships, which in turn have been found to be negatively correlated with conduct problems in samples of American, Chinese, and Japanese students (Bear et al., 2016a). These findings further demonstrate the potential for school climate to function as a mediator for the relationship between teacher positive strategies and perpetration/victimization.

Punitive Strategies. Punishment is the addition (positive) or removal (negative) of a stimulus that is intended to decrease a behavior (Pierce & Cheney, 2013). Both positive and negative punishment are often seen in classrooms such as verbal reprimands, timeouts, office referrals, detention, the removal of privileges, and the use of exclusionary discipline (i.e., suspension and expulsion). Due to the fairly equal use of positive and negative punishment in classrooms by teachers, and the potential ineffectiveness of these strategies in actually reducing problem behavior (Gerlinger et al., 2021), going forward they will be referred to as punitive strategies. Just as reinforcement strategies are commonly used by teachers, so are punitive strategies, which are typically aimed at correcting/managing student behavior and often reflected in the student code of conduct which establishes rules/expectations as well as disciplinary actions used by the school for rule violation (Bear & Manning, 2008). Teacher use of punitive strategies can range from verbal reprimands, to yelling, or as far as suspension and expulsion (Bear et al., 2017a). Unfortunately, surrounding circumstances (i.e., fighting for self-defense, running late due to bus arriving earlier than usual, etc.) are often not taken into account, and using punitive

strategies based on a zero-tolerance policy for bad/undesirable behavior (i.e., giving severe and harsh punishment even for more minor infractions such as showing up late without a note, talking back to teachers, etc.) is common in schools (Bear et al., 2017a). Additionally, the use of this harsh zero-tolerance discipline is likely to decrease students' perceptions of rules being fair, as well as their perceptions of the overall school climate.

Zero-tolerance policies have further been reviewed for efficacy with findings showing that punitive responses such as suspensions and expulsions often do not lead to true behavior change or deterrence in bullying for the rest of the students (American Psychological Association Zero Tolerance Task Force, 2008). While exclusionary discipline is typically reserved for serious acts of misbehavior (i.e., fighting, weapons, drugs, bullying), too often it is also used for minor acts of noncompliance (Bear & Manning, 2008), with approximately 3 million students being suspended from school each year (Losen & Gillespie, 2012). When looking at the impact of these types of punitive strategies, a meta-analysis of 40 studies conducted by Gerlinger et al. (2021) found that all forms of exclusionary discipline (in-school suspension, out-of-school suspension, and expulsion) were significantly associated with increased delinquent behaviors and subsequent justice system involvement, rather than serving to decrease these behaviors. Studies have found that fair, firm, and consistent consequences for bullying or delinquent behavior are much more effective in correcting behavior than zero-tolerance policies (Felix et al., 2008). This may potentially be due to students not viewing exclusionary discipline as a punishment (free time away from class/school), as well as exclusion from school removing access to prosocial role models that may help reduce bullying behavior (Felix et al., 2008). Another issue with zero-tolerance policies is that teachers may be unwilling to report bullying if they believe the

punishment is too severe (i.e., school handbook outlines use of suspension/expulsion for fighting, detention for refusing to follow instructions, etc.) (Limber, 2004).

Researchers have examined teacher classroom strategies and their impact and found that critical teacher comments were significantly correlated with student verbal and/or physical aggression (Van Acker et al., 1996). With regard to bullying and victimization, punitive strategies have been linked to promoting antisocial behavior when used frequently (Allen, 2010), to facilitating victimization when used unfairly (Casas et al., 2015), and to victimization generally when used harshly (Banzon-Librojo et al., 2017). Teacher use of punitive strategies have also been correlated with more perpetration and victimization among elementary school students (Wang et al., 2016). It has been theorized that by using harsh discipline, teachers may model aggressive behavior as a normal/appropriate way to act and potentially communicate that a student is not deserving of better treatment (James et al., 2008). Not only may this communicate that a student is deserving of bullying and aggression, but it may also impact how students perceive the school climate by reducing perceptions of student-teacher relationships, fairness of rules, school safety, and potentially respect for diversity if the student is from a marginalized group. Punitive strategies have been found to be generally effective in the short-term management of student behavior by stopping or decreasing the behavior (Bear et al., 2017b). However, effects are often not sustained long-term and, when used too frequently or severely at school, often produce anger, dislike of teachers/schools, and sometimes retaliation (Bear et al., 2017b). Rather, the use of firm, but appropriate, disciplinary methods in school-based bullying prevention/ intervention programs has been linked to reduced bullying (Ttofi & Farrington, 2011). This supports the findings of school climate research, demonstrating that perceptions of clear expectations and fair rules are linked to decreased bullying perpetration and

victimization (Gregory et al., 2010; Guerra et al., 2011; Khoury-Kassabri et al., 2004; Låftman et al., 2016; Ma, 2002). These findings suggests that school climate may mediate the relationship between teacher use of strategies and bullying perpetration/victimization.

School Climate as a Mediator

While the use of positive and punitive strategies by teachers has not been directly researched in relation to bullying and victimization, these strategies have been linked to school climate perceptions, which have been shown to be related to bullying/victimization. Bear et al. (2017b) found that perceptions of positive school climate were linked to teacher use of positive strategies (e.g., using praise and rewards for good behavior), and that use of punitive strategies was associated with less favorable perceptions of school climate. Furthermore, teacher strategies may be related to several dimensions of school climate. For example, student-teacher relationships, which have been negatively associated with bullying perpetration and victimization (Sulkowski & Simmons, 2018; Wang et al., 2015), may be directly impacted by how students perceive the strategies their teachers use in the classroom. If a student perceives a teacher as using frequent positive strategies, their relationship may be more positive, and vice versa. Other dimensions of school climate that may be affected by teacher strategies include clear expectations and fair rules, and respect for diversity, where student perceptions of these dimensions may be heavily influenced by what their teacher models for them. Clear expectations and fair rules have been associated with reductions in bully perpetration and victimization (Låftman et al., 2016), with the risk of bullying victimization being found to increase when students perceived school rules as unfair and poorly communicated (Kupchik & Farina, 2016). Respect for diversity has been found to predict decreased peer victimization (Wang et al., 2016), with teacher and student acceptance of diversity having been linked to increased intervening

behaviors of student bystanders when they witness victimization (Konishi et al., 2021). If a teacher is perceived as using many punitive strategies, rules may be perceived as unfair. If those punitive strategies are used more frequently against students from certain racial/ethnic groups, students may perceive respect for diversity as being poor. As such, it is of interest to not only examine whether student perceptions of teacher strategies are linked to bullying perpetration and victimization, but also whether school climate plays a mediating role in that relationship.

Aims and Hypotheses

Aim 1

The primary aim of the study was to examine the relationship between students' perceptions of teacher use of positive/punitive strategies and the likelihood/rates of students' bullying victimization and perpetration.

Hypothesis 1. Students' perceptions of teacher use of strategies would predict perpetration and victimization, such that: (1) perceptions of teachers using punitive strategies would be associated with greater likelihoods of perpetration and victimization; (2) perceptions of teachers using positive strategies would be associated with lower likelihoods of perpetration/victimization; (3) greater perceptions of teachers using punitive strategies would be associated with higher rates of perpetration, specifically for individuals who self-report engaging in perpetration; and (4) greater perceptions of teachers using positive strategies would be associated with lower rates of victimization, specifically for those who self-report having been victimized.

Aim 2

The secondary aim of the study was to examine the relationship between students' perceptions of school climate and the likelihood/rates of perpetration and victimization.

Hypothesis 2. School climate perceptions would predict perpetration and victimization, such that: (1) perceptions of positive school climate would be associated with lower likelihoods of perpetration/victimization; and (2) as perceptions of school climate increase, perpetration and victimization rates decrease for those who self-report engaging in perpetration or experiencing victimization.

Aim 3

The tertiary aim of the study was to examine whether school climate perceptions mediated the relationship between student perceptions of teacher strategies and perpetration/victimization.

Hypothesis 3. Student perceptions of school climate would mediate the relationship between student perception of teacher strategies and bullying/victimization such that: (1) greater perceptions of teachers' use of positive strategies would be associated with more positive perceptions of school climate, which would in turn be associated with a reduced likelihood of perpetration/victimization; (2) greater perceptions of teachers' use of punitive strategies would be associated with less positive perceptions of school climate, which in turn would be associated with an increased likelihood of perpetration/victimization; (3) greater perceptions of teachers' use of positive strategies would be associated more positive perceptions of school climate, which would in turn be associated with decreased perpetration and victimization for those who self-report involvement; and (4) greater perceptions of teachers' use of punitive strategies would be associated with less positive perceptions of school climate, which would in turn be associated with increased perpetration and victimization for those who self-report involvement.

Aim 4

The quaternary aim of the study was to examine whether the individual-level factors of gender and grade moderated the relationships between student perceptions of teacher strategies/school climate and the likelihood/rate of perpetration/victimization.

Hypothesis 4. Gender would moderate the relationships between student perceptions of teacher strategies/school climate and the likelihood/rate of victimization, such that the relations would be stronger for girls than for boys. Gender would moderate the relationships between student perceptions of teacher strategies/school climate and the likelihood/rate of perpetration, such that the relations would be stronger for boys than for girls. Grade level would moderate the relationships between student perceptions of teacher strategies/school climate and the likelihood/rate of perpetration/victimization, such that the relations would be stronger for 7th grade students (the first year in the participating middle school) than 8th grade students.

Chapter 3: Methods

Participants

Data were collected as part of a larger study designed to gather information targeting bullying to inform ecologically-based prevention and intervention for schools. A total of 545 7th and 8th Grade Students from a public middle school in Southern California were surveyed in 2014. The sample for the present study was 49.4% male and 50.6% female. Age ranged from 12 to 15 years (M = 13.12, SD = 0.76), with approximately an equal number of students from each grade (46.1% 7th grade and 53.9% 8th grade). Race/ethnicity data was not collected for all participants; therefore, publicly available demographic information (Startclass, 2015) about the students enrolled in the middle school was pulled, with 73.9% of students being Hispanic, 10.5% White, 11% Black, 1.5% Asian, 1% Pacific Islanders, 0.4% Native American, and 1.8% biracial. Any participant that did not complete the target measures of this study (discussed below) were excluded from analyses.

Measures

Demographics

Students were asked to complete survey items regarding their gender, date of birth, and grade in school. Information about race/ethnicity was collected from publicly available demographic information about the school (Startclass, 2015).

Delaware School Climate Scale (DSCS)

The DSCS is a scale of the Delaware School Survey (DSS) that measures school climate across 8 subscales (35 items in total): teacher-student relationships; student-student relationships; respect for diversity; student engagement schoolwide; clarity of expectations; fairness of rules; school safety; and bullying schoolwide (Bear et al. 2014) For the purposes of this study, the

bullying schoolwide subscale was not used, as the Bully Survey was used to collect perpetration and victimization information instead. The DSCS takes approximately 15-20 minutes to complete. Findings indicate that the DSS-Student Version has strong psychometric properties. Confirmatory analyses conducted by Bear and colleagues (2014) on approximately half the sample of 43,834 students supported adequate fit of an eight-factor model (χ^2 = 4980.2 (377, N = 17,140), p < .001; CFI = .961; RMSEA = .027; SRMR = .027) and a bifactor model with one general factor and eight specific factors (χ^2 = 9140.4 (373, N = 17,140), p < .001; CFI = .962; RMSEA = .048; SRMR = .037), with the bifactor model being preferred if the Bullying Schoolwide factor is removed due to its poor correlation with the other factors. As a result, the authors of the scale justify and support the use of a total score for the School Climate Scale (Bear et al., 2014). With respect to reliability, internal consistency coefficients, for all students combined, for the eight subscales ranged from .76 to .87. For the total score of the DSCS with items from all eight subscales, high reliability was found with an overall alpha of .94 for all students combined. The DCSC-Student demonstrated good concurrent validity, with each of the subscales and total scale being correlated moderately with academic achievements (correlation coefficients ranged from -.18 to -.72) and suspensions/expulsions (correlation coefficients ranged from .37 to .74) across groups and at the school level (Bear et al. 2014).

Delaware Positive, Punitive, and Social Emotional (SEL) Learning Techniques Scale

The Delaware Positive, Punitive, and SEL Learning Techniques Scale is another scale on the DSS that measures teachers' student behavior management strategies across three subscales: use of positive behavior techniques (4 items); use of punitive/corrective techniques (4 items); and use of SEL techniques (5 items). Confirmatory analyses conducted by Bear and colleagues (2014) supported a three-factor model (χ^2 = 2706.724 (62, N = 17,138), p < .001; CFI = .925;

RMSEA = .054; SRMR = .050). For the purposes of this study, only the positive behavior techniques and punitive/corrective techniques subscales were used to address teacher use of strategies (Bear et al. 2014). With regard to reliability, internal consistency coefficients were .82 and .72 for positive and punitive techniques respectively, with only small differences across race/ethnicity, age, and gender. The punitive techniques scales demonstrated good concurrent validity, with correlations between techniques, academic achievement, and suspension/expulsion ranging from .29 to .76 across groups and at the school level; however, positive techniques failed to correlate with the additional two variables (Bear et al. 2014).

Verbal and Physical Bullying Scale – Victimization (VPBS-V)

The VPBS-V is an 11- item scale of the Bully Survey that assesses verbal/relational (7 items) and physical (4 items; e.g., "pushed or shoved me") victimization (Swearer et al., 2008). The verbal/relational factor included items relating to verbal (e.g., "made fun of me") and relational (e.g., "nobody would talk to me") victimization. All items utilize a 5-point Likert-type scale ("never happened" to "always happened") with scores (1-5) indicating frequency of peer victimization. The victimization scale has been found to support both a two-factor solution and a one-factor general solution. It has demonstrated high internal consistency with alphas of .79, .85, and .87 for physical victimization, verbal/relational victimization, and total score respectively (Swearer et al. 2008). Internal consistency for the VPBS-V was .82 overall, .67 for the physical victimization subscale, and .80 for verbal/relational victimization subscale (Radliff et al., 2016).

Verbal and Physical Bullying Scale – Perpetration (VPBS-P)

The VPBS-P is a 10-item scale of the Bully Survey that assesses physical, verbal, and relational bullying perpetration with items parallel to the VPBS-V (Swearer et al., 2008). Similarly, to the victimization scale, all items are scored on the same 5-point Likert-type scale

("never happened" to "always happened") with higher scores indicating greater frequency of perpetration. The perpetration scale has also been found to demonstrate high internal consistency ($\alpha = .78$). Validity of the scale has been examined through correlational analyses that indicate a significant correlation between frequency of total bullying perpetration and office referral ($r(469) = .10$, $p = .04$) (Radliff et al., 2016).

Procedures

Researchers contacted a few middle schools from a school district in Southern California, and one school agreed to participate in the study. The researchers used a passive consent procedure in which parents were provided with detailed information about the study and given 1 week to decide whether they wanted their child to be opted out from the study. Thirty-one parents chose to opt out their child. The participating middle school students completed an assent form. The study survey was administered during regular class time on a normal school day using a laptop and hosted on an online survey platform, taking approximately 30 minutes to complete. Students were provided written instruction through the survey prompt, as well as verbal instructions delivered by trained research assistants. The research assistants also remained available to respond to participant's questions about the survey. Participants were encouraged to respond to all questions administered on the survey, but also had the ability to skip over any question they did not want to answer. Participants had the ability to exit the survey at any time. Participants anonymously responded to questions about their school and bullying experiences. Participants had the opportunity to enter a $25 gift card raffle if they chose to enter their student ID and name when completing the survey. Data was de-identified following completion of the raffle. The Institution Review Board of the University of California, Riverside, approved the research protocol.

Analyses

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 28.0 (IBM Corp., 2021). Demographic frequencies (Table 1) and descriptive statistics, including means, ranges, standard deviations, and correlations of variables of interest, were evaluated (Table 2). Prior to testing the hypotheses, missing data were examined and addressed, and then the data were assessed for regression assumptions. Following this, regression analyses were run.

Table 1

Sample Demographics

	Total Sample	
Demographic Variables	N	%
Gender		
Female	276	50.6
Male	269	49.4
Age		
12	117	21
13	262	48
14	152	28
15	14	3
Grade Level		
7^{th}	251	46.1
8^{th}	294	53.9
Total	545	

Missing data were analyzed using visual inspection and frequencies distributions, and inspected for systematic patterns. To address the missing data, I first completed listwise deletion of participants who did not complete target measures. Starting with $N = 619$, 74 cases that failed to complete at least one target measure were deleted, resulting in a remaining sample of $N = 545$.

Following listwise deletion of excluded participants, approximately 0.79% of data was missing and appeared to be missing at random. Due to the amount of data missing being quite small, I addressed missing values using mean substitution.

As regression analyses were used, I assessed whether regression assumptions were met. I conducted analyses to check for normality, linearity, homoscedasticity, auto-correlation, and multicollinearity. Assumptions of auto-correlation and multicollinearity were met (VIF < 2); however, the data showed significant right skew violating the normality, linearity, and homoscedasticity assumptions. In this study's sample, only 14.1% (n = 78) endorsed engaging in perpetration and 29.2% (n = 160) endorsed experiencing victimization, with 64.5% (n = 352) of the sample not endorsing either, leaving a large proportion of zero values and resulting in severely skewed, heteroskedastic data. Therefore, I conducted analyses using a two-part model suited for semicontinuous variables with a large number of zero values (Boulton & Wilford, 2018). The first step of the two-part model was binary logistic regression, run for the whole sample, using dichotomous versions of the dependent variables. The second step was linear regression run only for cases with non-zero values (Boulton & Wilford, 2018) using a victim-only sample and a perpetrator-only sample. I then checked linear regression assumptions for the subsamples of participants who endorsed perpetration or victimization. Assumptions were generally met with minimal violation, except the assumption of homoscedasticity. In order to address the issue of heteroscedasticity, I applied heteroskedasticity consistent 3 standard error estimators (HC3) when running all linear regression analyses, using the RLM macro (Darlington & Hayes, 2017) in SPSS version 28.0. As these subsamples are smaller than the whole sample, I conducted a sensitivity power analysis using G*Power version 3.1.9.7 (Faul et al., 2007) to determine the effect size I would be able to detect with my samples at 80% power. Results

indicated that the small sample size of n = 78 (perpetrators) would allow me to detect medium effect sizes (Cohen's f^2 = .13), and my slightly larger sample of n = 160 (victims) would allow me to detect slightly smaller medium effect sizes (Cohen's f^2 = .06).

To address the research questions of this study, two-part regression analyses were conducted as suggested by Boulton and Wilford (2018). First, using dichotomous versions of the dependent variables, I conducted binary logistic regressions to determine whether student perceptions of teacher strategies and school climate predicted the likelihood of perpetration and victimization. Dichotomous variables were coded for perpetration and victimization as 1 [yes for perpetration or victimization] if participants endorsed any instance of perpetration/victimization respectively. After conducting the logistic regressions, I also conducted separate linear regression analyses to determine whether student perceptions of teacher strategies and school climate predicted the rates of perpetration for those who engaged in perpetration (n = 78) and victimization for those who experienced victimization (n = 160). Mean composite scores were used for the independent variables of positive strategies, punitive strategies, and school climate.

Next, a series of two-part regression analyses were conducted as part of mediation analyses to determine whether school climate may have mediated the relationships between perceptions of teacher strategies and perpetration and victimization. I used the PROCESS macro v4.1 (Hayes, 2022) in SPSS version 28.0 with bias corrected 95% confidence intervals (n = 10000) to test the significance of the indirect effects of school climate. I considered the indirect effect as statistically significant if the 95% bias-corrected bootstrap confidence intervals (CIs) for the indirect effect did not contain zero (Preacher & Hayes, 2004). When bootstrapping was used, I reported only CIs instead of p values. I considered .01 to be a small effect size, .09 to be a medium effect size, and .25 to be a large effect size, as suggested by Kenny (2018).

Lastly, two-part regression analyses were conducted to determine whether gender and grade moderated the relationships between perceptions of teacher strategies/school climate and the likelihood/rate of perpetration/victimization. I conducted the moderation analyses using the PROCESS macro v4.1 (Hayes, 2022), with mean-centered continuous predictors.

Chapter 4: Results

The results below are organized according to the four research questions in this study: (1) Do student perceptions of teacher strategies predict perpetration/victimization? (2) Do school climate perceptions predict perpetration/victimization? (3) Do school climate perceptions mediate the relationship between student perceptions of teacher strategies and perpetration/victimization? and (4) Do gender and grade moderate the relationships between student perceptions of teacher strategies/school climate and perpetration/victimization? Analyses include 545 7th and 8th grade students, 29% (n = 160) of whom endorsed experiencing victimization in the past year, and 14% (n = 78) of whom endorsed engaging in bullying perpetration in the past year.

Preliminary Analyses

For each of the target variables I examined the descriptive statistics and Pearson correlations. Of the 545 students in the sample, 78 (14.3%) reported engaging in bullying perpetration and 160 (29.4%) reported experiencing victimization. See Table 2 for correlations among variables of interests. Results indicated that perpetration and victimization were positively correlated. Perceptions of teacher use of punitive strategies were positively related to both victimization and perpetration, but perceptions of positive strategies were not significantly related to either. Lastly, school climate was positively related to teacher use of positive strategies, and negatively related to punitive strategies, perpetration, and victimization.

Table 2

Descriptive Statistics of Target Variables

	M	SD	1	2	3	4	5
1. Victimization	1.35	0.70	1				
2. Perpetration	1.14	0.48	.340***	1			
3. Positive Strategies	2.62	0.65	-.083	-.077	1		
4. Punitive Strategies	2.86	0.55	.190***	.122**	.013	1	
5. School Climate	2.76	0.46	-.236***	-.193***	.598***	-.149***	1

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Independent samples *t*-tests showed some significant gender (Table 3) and grade differences (Table 4). Girls ($M = 1.44$, $SD = 0.78$) reported experiencing more victimization than boys ($M = 1.26$, $SD = 0.60$), $t = 2.93$, $p < .01$), but no significant differences were found for perpetration. Perceptions of teacher use of positive and punitive strategies differed by grade levels, with 7th graders perceiving teachers using both types of strategies more (Positive $M = 2.84$, $SD = 0.47$; Punitive $M = 2.73$, $SD = 0.65$) than 8th graders (Positive $M = 2.70$, $SD = 0.44$; Punitive $M = 2.53$, $SD = 0.64$), $t = 3.55, 3.72$, $p < .001, .001$, respectively. However, no significant grade differences were found for victimization, perpetration, or school climate perceptions.

Table 3

Independent Samples t-test for Target Variables by Gender

	Girls		Boys		
	M	*SD*	*M*	*SD*	*t*
Victimization	1.44	0.78	1.26	0.60	2.93**
Perpetration	1.16	0.51	1.12	0.45	1.12
Positive Strategies	2.77	0.45	2.77	0.47	-0.29
Punitive Strategies	2.64	0.65	2.64	0.66	-0.61
School Climate	2.88	0.55	2.84	0.56	-0.78

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Independent Samples t-test for Target Variables by Grade

	7th Graders		8th Graders		
	M	*SD*	*M*	*SD*	*t*
Victimization	1.36	0.69	1.35	0.72	0.20
Perpetration	1.10	0.36	1.18	0.56	-1.90
Positive Strategies	2.84	0.47	2.70	0.44	3.55***
Punitive Strategies	2.73	0.65	2.53	0.64	3.72***
School Climate	2.82	0.54	2.89	0.56	-1.44

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Question 1: Do Student Perceptions of Teacher Strategies Predict Perpetration/Victimization?

First, for the whole sample, I ran two binary logistic regressions (Table 5) to determine whether perceptions of teacher strategies predicted the likelihood of perpetration and victimization. First, for whether positive and punitive teacher strategies predicted the likelihood of perpetration, results indicated that neither positive nor punitive strategies significantly predicted the likelihood of perpetration. Then, I conducted a logistic regression to determine whether positive and punitive strategies predicted the likelihood of victimization. The model was statistically significant, $\chi^2(2) = 14.62$, $p < .001$, explained 3.8% of the variance (Nagelkerke R^2), and correctly classified 70.6% of cases. Results indicated that punitive strategies significantly predicted the likelihood of victimization ($b = .60$, $SE = .18$, $OR = 1.82$, $p < .001$), but positive strategies did not ($b = -.23$, $SE = .14$, $OR = 2.65$, $p = .10$) (Table 5). Increased student perceptions of teachers using punitive strategies were associated with an increased likelihood of victimization.

Table 5

Binary Logistic Regressions of Victimization and Perpetration for Whole Sample

	Predictor	*b*	*SE*	Wald	*p*	Odds Ratio
Victimization (binary)	Positive Strategies	-0.23	0.14	2.65	0.10	0.79
	Punitive Strategies	0.60***	0.18	11.63	<.001	1.82
	School Climate	-1.12***	0.22	26.27	<.001	0.33
Perpetration (binary)	Positive Strategies	-0.34	0.18	3.56	0.06	0.71
	Punitive Strategies	0.38	0.22	2.96	0.09	1.46
	School Climate	-1.16***	0.27	18.21	<.001	0.31

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Next, I examined the relationship between teacher use of strategies and the rates of perpetration for students who self-identified as perpetrators ($n = 78$); and the relationship between teacher use of strategies and the rates of victimization for students who self-identified as victims ($n = 160$) using two linear regression (Table 6). First, for whether positive and punitive teacher strategies predicted the rate of perpetration for those who self-reported engaging in perpetration ($n = 78$), results indicated that punitive strategies ($b = .33$, $p = .04$) significantly predicted the rate of perpetration (F (2, 75) = 2.53, $p < .05$, $R^2 = .05$), such that as student perceived their teachers as using more punitive strategies, students reported higher rates of perpetration. Next, I conducted a linear regression to determine whether strategies predicted the rate of victimization for the participants who endorsed being victimized ($n = 160$). Results indicated that punitive strategies ($b = .35$, $p < .01$) significantly predicted the rate of victimization (F (2, 157) = 4.97, $p < .01$, $R^2 = .06$), such that as students perceived their teachers

as using more punitive strategies, students reported higher rates of victimization. However, students' perceptions of teacher use of positive strategies were not related to their experience of perpetration or victimization.

Table 6

Linear Regressions of Victimization for Victims and Perpetration for Perpetrators

	Predictor	*b*	*SE*(HC3)	95% CI		*p*
				LL	*UL*	
Victimization	Positive Strategies	-0.11	0.11	0.45	2.37	0.32
	Punitive Strategies	0.35**	0.12	0.11	0.59	<0.01
	School Climate	-0.29	0.16	-0.62	0.03	0.07
Perpetration	Positive Strategies	-0.09	0.25	-0.58	0.41	0.72
	Punitive Strategies	0.33*	0.16	0.01	0.64	0.04
	School Climate	-0.45	0.30	-1.04	0.14	0.13

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Question 2: Does School Climate Predict Perpetration/Victimization?

Next, for the whole sample, I ran two binary logistic regression analyses (Table 5) to determine whether school climate perceptions predicted the likelihood of perpetration and victimization. First, for whether school climate predicted the likelihood of perpetration, the model was statistically significant ($\chi^2(1) = 18.90$, $p < .001$), explained 6.1% of the variance, and correctly classified 85.5% of cases. Results indicated that school climate significantly predicted the likelihood of perpetration ($b = -1.16$, $SE = .27$, $OR = .31$, $p < .001$), such that student perceptions of a more positive school climate were associated with a decreased likelihood of perpetration.

Then, I conducted a logistic regression to determine whether school climate predicted the likelihood of victimization. The model was statistically significant ($\chi^2(1) = 28.30$, $p < .001$), explained 7.2% of the variance, and correctly classified 71% of cases. Results indicated that school climate significantly predicted the likelihood of perpetration ($b = -1.12$, $SE = .22$, $OR = .33$, $p < .001$), such that student perceptions of a more positive school climate were associated with a decreased likelihood of victimization.

Next, two linear regressions were conducted (Table 6) to determine whether school climate predicted the rates of perpetration or victimization for students who self-identified as perpetrators ($n = 78$) or victims ($n = 160$). The model was not significant for perpetration (F (1, 76) = 2.35, $p = .13$, $R^2 = .05$,) or victimization (F (1, 158) = 3.27, $p = .07$, $R^2 = .03$).

Question 3: Does School Climate Mediate the Relationship Between Student Perception of Teacher Strategies and Perpetration/Victimization?

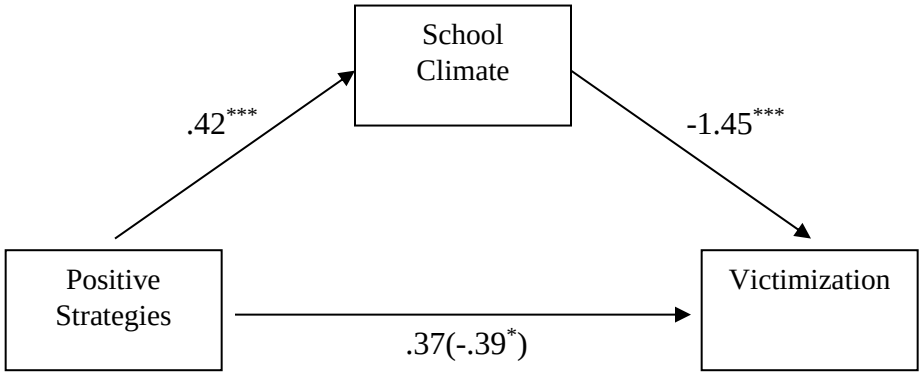
First, to determine whether school climate may mediate the relationship between student perception of teacher strategies and the likelihood of perpetration/victimization, I conducted mediation analyses with logistic regression using a bootstrapping approach. In these analyses, the indirect effect (or mediation) was considered significant if the 95% bias corrected confidence intervals for the indirect effect did not include 0 (Preacher & Hayes, 2004).

For the likelihood of victimization, I conducted two analyses (one for positive strategies and one for punitive strategies as PROCESS does not allow two independent variables in its logistic mediation analyses) with school climate as the mediator. For positive strategies predicting the likelihood of victimization (Figure 1), results indicated that there was not a significant direct effect ($b = 0.37$, $p > .05$). However, there were significant effects for path a (i.e., positive strategies predicting school climate) ($b = 0.42$, $p < .001$) and path b (i.e., school

climate predicting victimization) (b = -1.45, p < .001). Finally, there was a significant indirect effect from teachers' positive strategies, to school climate, and to the likelihood of victimization (estimated effect = -.61, the bias corrected 95% CI [-.89, -.37], which is considered a large effect size).

Figure 1

School Climate as a Mediator for Positive Strategies and Victimization Logistic Regression for Whole Sample

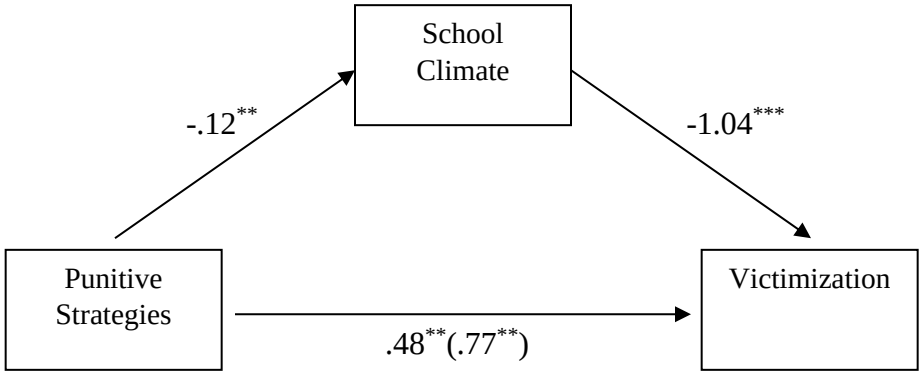


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of positive strategies predicting victimization while controlling for school climate. * p < .05, *** p < .001

For punitive strategies predicting the likelihood of victimization (Figure 2), results indicated that there was a significant direct effect (b = 0.48, p = .01), as well as significant effects for path a (i.e., punitive strategies predicting school climate) (b = -0.12, p = .01) and path b (i.e., school climate predicting victimization) (b = -1.04, p < .001). Finally, there was a significant indirect effect from teachers' punitive strategies, to school climate, and to the likelihood of victimization (estimated effect = .13, the bias corrected 95% CI [.03, .27], which is considered a large effect size).

Figure 2

School Climate as a Mediator for Punitive Strategies and Victimization Logistic Regression for Whole Sample

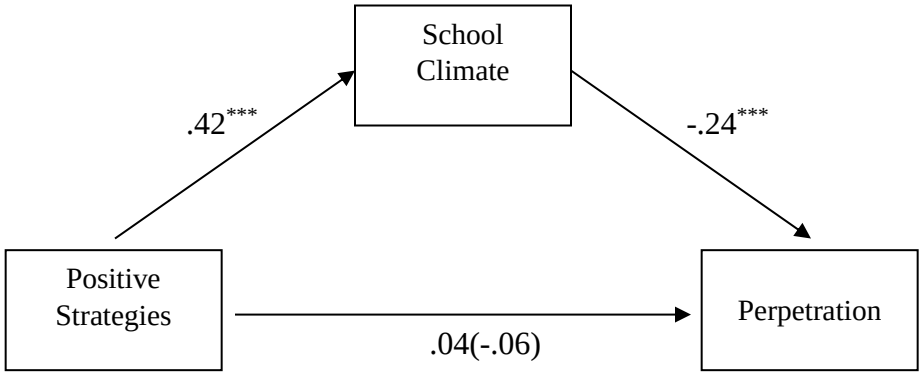


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of punitive strategies predicting victimization while controlling for school climate. ** $p <$ .01, *** $p < .001$

For the likelihood of perpetration, I conducted an additional two analyses with school climate as the mediator. For positive strategies predicting the likelihood of perpetration (Figure 3), results indicated that there was not a significant direct effect ($b = 0.04$, $p = .38$). However, there were significant effects for path a (i.e., positive strategies predicting school climate) ($b = 0.42$, $p < .001$) and path b (i.e., school climate predicting perpetration) ($b = -0.24$, $p < .001$). Finally, there was a significant indirect effect from teachers' positive strategies, to school climate, and to the likelihood of perpetration (estimated effect = -.10, the bias corrected 95% CI [-.16, -.05], which is considered a medium effect size).

Figure 3

School Climate as a Mediator for Positive Strategies and Perpetration Logistic Regression for Whole Sample

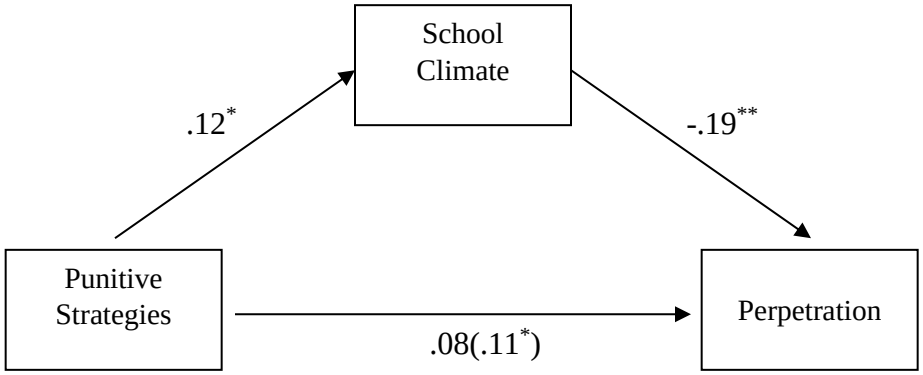


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of positive strategies predicting perpetration while controlling for school climate. * $p <$ .05, ** $p < .01$, *** $p < .001$.

For punitive strategies predicting the likelihood of perpetration (Figure 4), results indicated that there was not a significant direct effect ($b = 0.08$, $p = .06$). However, there were significant effects for path a (i.e., punitive strategies predicting school climate) ($b = -.12$, $p = .01$) and path b (i.e., school climate predicting perpetration) ($b = -0.19$, $p < .01$). Finally, there was a significant indirect effect from teachers' punitive strategies, to school climate, and to the likelihood of perpetration (estimated effect = -.03, the bias corrected 95% CI [.004, .05], which is considered a small effect size).

Figure 4

School Climate as a Mediator for Punitive Strategies and Perpetration Logistic Regression for Whole Sample

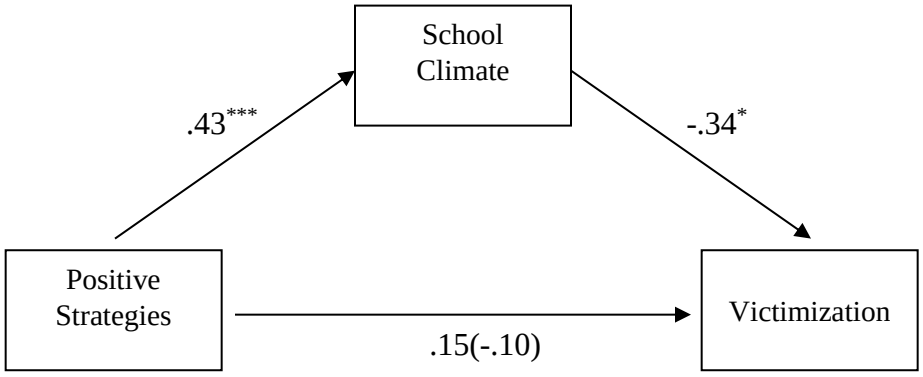


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of punitive strategies predicting perpetration while controlling for school climate. * $p <$ .05, ** $p <$ .01, *** $p <$ .001.

To determine whether school climate may mediate the relationship between perceptions of teacher strategies and the rate of perpetration/victimization for those who endorsed involvement in perpetration or victimization, I conducted four mediation analyses with simple linear regressions using the PROCESS macro. First, for positive strategies predicting the rate of victimization (Figure 5), there was not a significant direct effect (b = 0.05, p = .67). However, there were significant effects for path a (i.e., positive strategies predicting school climate) (b = 0.43 $p <$ .001) and path b (i.e., school climate predicting victimization) (b = -0.34, p = .04). Finally, there was a significant indirect effect from teachers' positive strategies, to school climate, and to the rate of victimization for those who self-reported being victimized (estimated effect = -.14, the bias corrected 95% CI [-.30, -.01], which is considered a medium effect size).

Figure 5

School Climate as a Mediator for Positive Strategies and Victimization for Victims

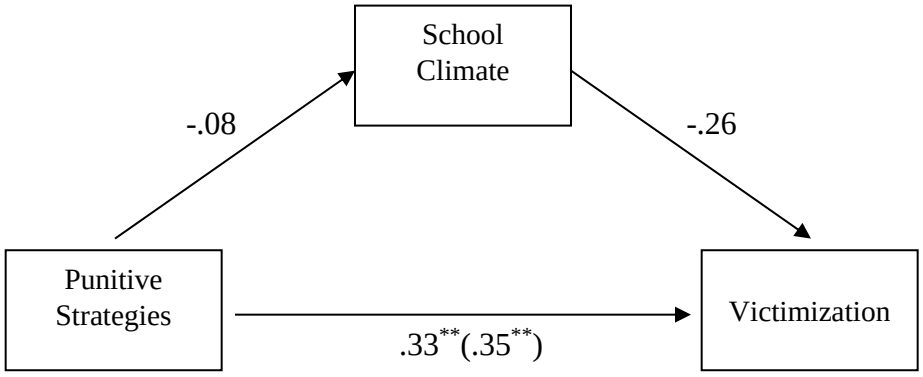


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of positive strategies predicting victimization while controlling for school climate. * $p <$ .05, ** $p < .01$, *** $p < .001$.

Next, for punitive strategies predicting the rate of victimization (Figure 6), there was a significant total effect ($b = 0.35$, $SE = .12$, $p < .01$) and direct effect ($b = 0.33$, $SE = .13$, $p = .01$). However, neither the effects for path a (i.e., punitive strategies predicting school climate) ($b = -0.08$, $p = .34$), nor path b (i.e., school climate predicting victimization) ($b = -0.26$, $p = .11$) were significant. Finally, there was not a significant indirect effect from teachers' punitive strategies, to school climate, and to the rate of victimization for those who self-reported being victimized (estimated effect = .02, the bias corrected 95% CI [-.02, .09], which contains zero).

Figure 6

School Climate as a Mediator for Punitive Strategies and Victimization for Victims

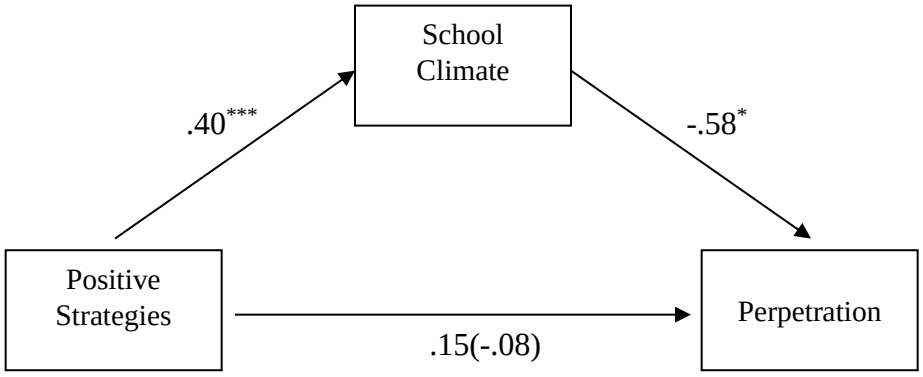


Note. Unstandardized coefficients are reported. The number in the parentheses indicates the total effect of punitive strategies predicting victimization while controlling for school climate. * $p <$ .05, ** $p <$ .01.

Then, for positive strategies predicting the rate of perpetration (Figure 7), there was not a significant direct effect (b = 0.15, p = .53). However, there were significant effects for path a (i.e., positive strategies predicting school climate) (b = 0.40 $p <$ .001) and path b (i.e., school climate predicting victimization) (b = -0.58, p = .03). Finally, there was a significant indirect effect from teachers' positive strategies, to school climate, and to the rate of perpetration for those who self-reported having engaged in perpetration (estimated effect = -.23, the bias corrected 95% CI -[.45, -.03], which is considered a medium effect size).

Figure 7

School Climate as a Mediator for Positive Strategies and Perpetration for Perpetrators

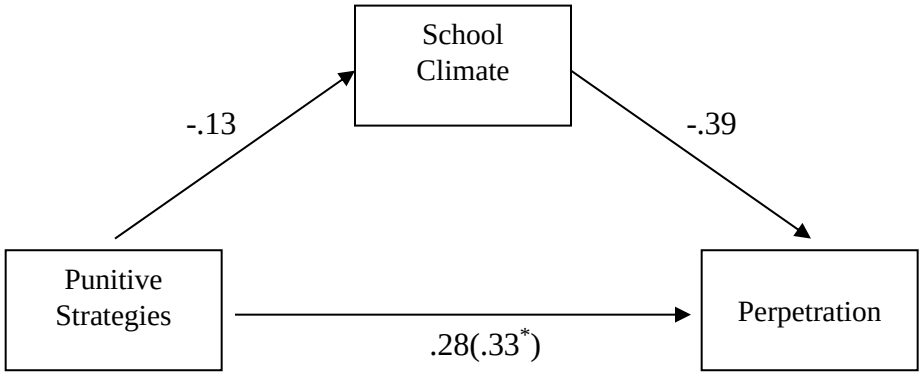


Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of positive strategies predicting perpetration while controlling for school climate. * $p <$ .05, ** $p <$ .01, *** $p <$ .001.

Lastly, for punitive strategies predicting the rate of perpetration (Figure 8) the total effect was significant (b = 0.33, SE = .16, p = .04), but the direct effect was not (b = 0.27, SE = .18, p = .12) and neither were path a (i.e., punitive strategies predicting school climate) (b = -.13, p = .21) and path b (i.e., school climate predicting perpetration) (b = -.39, p = .22). Finally, there was not a significant indirect effect from teachers' punitive strategies, to school climate, and to the rate of perpetration for those who self-reported engaging in perpetration (estimated effect = .05, the bias corrected 95% CI [-.04, -.22], which contains zero).

Figure 8

School Climate as a Mediator for Punitive Strategies and Perpetration for Perpetrators



Note. Unstandardized coefficients are reported. The number in parentheses indicates the total effect of punitive strategies predicting perpetration while controlling for school climate. * $p <$ .05.

Question 4: Do Gender and Grade moderate the relationships between student perceptions of teacher strategies/school climate and perpetration/victimization?

Moderation analyses were conducted for all relations of interest with gender and grade as moderators. First, to determine whether gender moderated the relationships between perceptions of teacher strategies and the likelihood of perpetration/victimization, I conducted four moderation analyses by entering the variables into a simultaneous regression model using the PROCESS macro v4.1 (Hayes, 2022) in SPSS version 28.0. For both positive and punitive strategies predicting the likelihood of victimization, the interaction terms between strategies and gender were not significant (b = -.14, p = .64; b = .41, p = .24), nor were the interaction terms between strategies and gender for strategies predicting the likelihood of victimization (b = .01, p = .98; b = .26, p = .56), indicating that gender did not moderate the relationships. Next, to determine whether gender moderated the relationship between school climate and the likelihood of perpetration/victimization, I conducted two additional moderation analyses. For both the

likelihood of perpetration and victimization the interaction terms between school climate and gender were not significant (b = -.81, p = .07; b = -.28, p = .61), indicating that gender did not moderate the relationships.

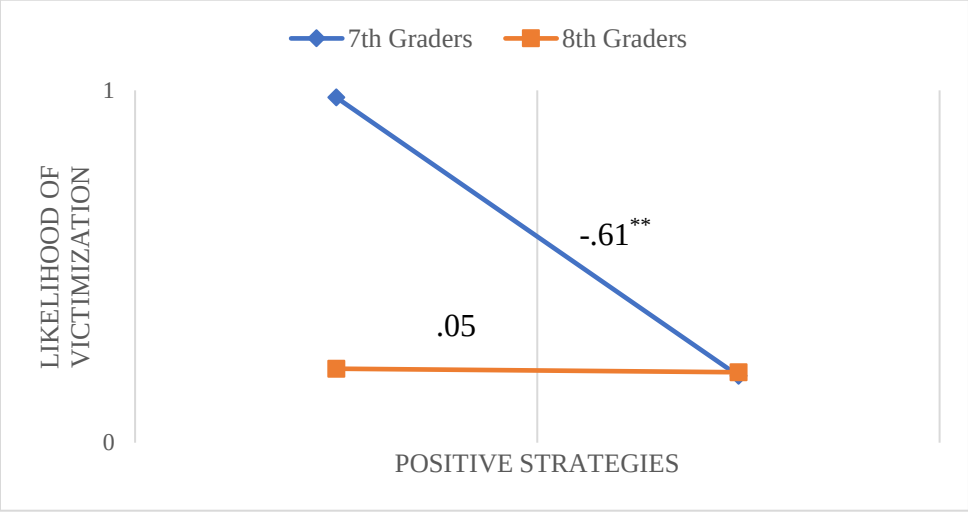
To determine whether gender moderated the relationship between strategies and the rates of perpetration/victimization for those who endorsed involvement, I conducted four moderation analyses by entering the variables into a simultaneous regression model. For positive and punitive strategies predicting the rate of victimization for those who reported being victimized, the interaction terms between strategies and gender were not significant (b = -.02, p = .92; b = -.001, p = 1.00), indicating that gender did not moderate the relationships. For positive and punitive strategies predicting the rate of perpetration for those who reported engaging in perpetration, the interaction terms between strategies and gender were not significant (b = .11, p = .84; b = -.37, p = .29), indicating that gender did not moderate the relationships. Next, to determine whether gender moderated the relationship between school climate and the rates of perpetration/victimization for those who endorsed involvement, I conducted an additional two moderation analyses. For school climate predicting the rate of victimization for those who reported being victimized, the interaction term between school climate and gender was not significant (b = .20, p = .72), indicating that gender did not moderate the relationship. For school climate predicting the rate of perpetration for those who reported engaging in perpetration, the interaction term between school climate and gender was not significant (b = .56, p = .38), indicating that gender did not moderate the relationships.

To determine whether grade moderated the relationship between perceptions of teacher strategies and the likelihood of perpetration/victimization, I conducted four moderation analyses by entering the variables into a simultaneous regression model. For positive strategies predicting

the likelihood of victimization ($\chi^2(3) = 5.11$, $p < .05$), results indicated that the interaction between grade and positive strategies was significant ($b = .67$, $p < .05$), indicating that the relationship between positive strategies and the likelihood of victimization was stronger for 7th graders than for 8th graders (Figure 5). When I ran the logistic regression analysis separately for 7th graders and 8th graders, result showed that positive strategies predicted the likelihood of victimization for 7th graders ($\chi^2(2) = 15.22$, $p < .001$, b = -.70, $p < .001$), but not for 8th graders ($\chi^2(2) = 9.29$, $p < .01$, b = .12, $p = .58$). For punitive strategies predicting the likelihood of victimization, the interaction term was not significant ($b = .20$, $p = .57$), indicating that grade did not moderate the relationship. For both positive and punitive strategies predicting the likelihood of perpetration, the interaction terms were not significant ($b = .16$, $p = .67$; $b = .63$, $p = .17$), indicating that grade did not moderate the relationships. Next, to determine whether grade moderated the relationship between school climate and the likelihood of perpetration/victimization, I conducted an additional two moderation analyses. For school climate predicting both the likelihoods of victimization and perpetration, the interaction terms were not significant ($b = .22$, $p = .62$; $b = .20$, $p = .72$), indicating that grade did not moderate the relationships.

Figure 9

Grade as a Moderator for the Relationship between Positive Strategies and the Likelihood of Victimization



Note. Unstandardized coefficients are reported. ** $p < .01$

To determine whether grade moderated the relationship between strategies and the rates of perpetration/victimization for those who endorsed involvement, I conducted four moderation analyses by entering the continuous predictor and interaction terms into a simultaneous regression model. For positive and punitive strategies predicting the rate of victimization for those who reported being victimized, the interaction terms were not significant (b = -.11, p = .61; b = .21, p = .41), indicating that grade did not moderate the relationships. For positive and punitive strategies predicting the rate of perpetration for those who reported engaging in perpetration, the interaction terms were not significant (b = -.13, p = .79; b = .11, p = .78), indicating that grade did not moderate the relationships. Next, to determine whether grade moderated the relationship between school climate and the rates of perpetration/victimization for those who endorsed involvement, I conducted an additional two moderation analyses. For school climate predicting the rate of victimization for those who reported being victimized, the

interaction term was not significant (b = -.12, p = .70), indicating that gender did not moderate the relationship. For school climate predicting the rate of perpetration for those who reported engaging in perpetration, the interaction term was not significant (b = -.43, p = .42), indicating that grade did not moderate the relationships.

Chapter 5: Discussion

Overall, the current study contributes to the literature by being the first study to examine whether teacher-modeled behaviors (through teacher use of positive and punitive strategies) are associated with the likelihood of students' involvement in bullying perpetration/victimization, as well as the rates of perpetration/victimization for students involved in bullying. In addition, this study also examined whether school climate may mediate the relationship between perceptions of teacher strategies and perpetration/victimization, and whether gender or grade served as moderators.

Student Perceptions of Punitive Teacher Strategies Significantly Predicted the Likelihood of Victimization

As hypothesized, perceptions of punitive strategies predicted an increased likelihood of victimization (and rates of victimization and perpetration for students involved, see discussion later). As student perceptions of teachers as using punitive strategies increased, victimization was more likely to occur. However, contrary to hypotheses, perceptions of positive strategies only predicted a decreased likelihood of victimization for 7th graders, but not for the whole sample, and neither student perceptions of positive nor punitive strategies directly predicted the likelihood of perpetration (although there was a trend, p = .06, .09, respectively).

Although no studies appear to have specifically examined the association between perceptions of positive and punitive teacher strategies and bullying perpetration/victimization, the finding that perceptions of teachers' use of punitive strategies predicted the likelihood of being victimized aligns with research demonstrating that punitive strategies are often ineffective at improving behavior (Gerlinger et al., 2021), and instead have been associated with aggression (Van Acker et al., 1996), antisocial behavior (Allen, 2010) and victimization (Banzon-Librojo et

al., 2017; Casas et al., 2015). On the other hand, I found that the use of positive strategies predicted the likelihood of victimization for 7th graders (first year of middle school), but not 8th graders (see more discussion about grade level differences later). The finding among 7th graders was consistent with research findings that positive reinforcement in classrooms is generally effective at improving behavior (Bear et al., 2017a) and decreasing disruptive and aggressive behaviors (Gable & Rock, 2009, Simonsen et al., 2008, Jenkins et al., 2015, Reinke et al., 2008; Reitman et al., 2004; Wheatley et al., 2009).

The finding that perceptions of teacher strategies did not predict the likelihood of perpetration (although there was a trend, p = .06, .09, respectively) was surprising based on the above research findings, as well as my own findings linking perceptions of punitive strategies to the likelihood of being victimized. However, only 14% (n = 78) of the students reported engaging in perpetration, in comparison to 29% (n = 160) of students that reported being victimized. One possible explanation for punitive strategies predicting the likelihood of victimization, but not perpetration, is that individual perpetrators may victimize several students. As I found that punitive strategies did significantly predict the rates of perpetration, it is possible that when teachers used punitive strategies, they also modeled aggressive behavior that lead to increased rates of perpetration for a subset of students (not all students) who have a tendency to use aggression to solve conflict (predicting increased rates of perpetration). These perpetrators may engage in bullying towards multiple victims, in turn leading to an increased likelihood of other students experiencing victimization. Additionally, as mediation analyses revealed that school climate had a significant indirect effect from teacher strategies to school climate and to the likelihood of perpetration, it is possible that teachers' strategies are associated with the likelihood of perpetration indirectly, through their association with school climate.

Lastly, previous research has found that, in comparison to emotional or internalizing problems, children may be less accurate reporters of their own externalizing behavioral problems (Deighton et al., 2013). As a self-report measure was used in this study and bullying perpetration is discouraged by schools and generally viewed as socially inacceptable, there is a likelihood that social desirability bias discouraged students from responding to items honestly. Students who engaged in perpetration may have either reported a lower frequency of perpetration, or not reported engaging in perpetration at all. While this may of course be true for reports of victimization as well, there seems to be less stigma associated with victimization than perpetration, leading to a greater likelihood of self-report bias for those who engaged in perpetration. This may also have been potentially exacerbated by the format of the survey, which used gateway questions regarding perpetration and victimization such that an individual had to endorse having been bullied or bullying someone in the past year in order to answer the VPBS-V and VPBS-P frequency items. Future research should consider using multiple forms of measuring students' perpetration and victimization such as parent and teacher report.

Student Perceptions of Teachers' Punitive Strategies Predicted Rates of Perpetration and Victimization

As hypothesized, perceptions of teachers' punitive strategies predicted rates of perpetration and victimization for those who reported involvement (n = 78 for perpetration and n=160 for victimization). Greater perceptions of the use of punitive strategies by teachers were associated with increased rates of perpetration for students who engaged in perpetration (n=78). Similarly, for students who experienced victimization (n = 160), greater perceptions of the use of punitive strategies by teachers were associated with increased rates of victimization. This finding aligns with prior research demonstrating that punitive strategies are not only ineffective at

reducing undesirable behaviors, but may actually promote aggressive and antisocial behavior and facilitate victimization (Allen, 2010; Banzon-Librojo et al., 2017; Casas et al., 2015; Gerlinger et al., 2021; Van Acker et al., 1996). This study expands on prior research by demonstrating that greater perceptions of punitive teacher strategies exacerbate rates of perpetration and victimization for those involved.

The finding that perceptions of positive strategies were not significantly associated with rates of perpetration or victimization, directly, was somewhat surprising. This may be due to the limited range of perceptions of teachers' positive strategies among students who were involved in perpetration and victimization compared with the general population. These students probably already perceive a lower level of teacher use of positive strategies, leading to non-significant regression findings. My findings suggest that positive strategies may be somewhat ineffective at reducing the rates of ongoing perpetration/victimization for students involved. This may be especially true when punitive strategies, which exacerbate rates, are being included in the regression together. Including punitive strategies in the model may potentially outweigh and mask any rate-reducing effects that positive strategies may provide. This study adds to the literature that positive strategies may not be sufficient to reduce rates of bully perpetration and victimization, and may be less associated with rates of bullying than punitive strategies. As such, reducing the use of punitive strategies should be a high priority to address bullying in classrooms.

School Climate Predicted the Likelihood of Perpetration and Victimization, But Not the Rates

As hypothesized, school climate predicted the likelihood of perpetration and victimization, such that when students perceived school climate as more positive, the likelihoods

of being victimized and engaging in perpetration decreased. However, contrary to hypotheses, school climate did not predict rates of perpetration/victimization for those involved.

The finding that school climate was associated with lower likelihoods of victimization and perpetration is in line with previous research findings that positive school climate has been associated with decreased reports of perpetration and victimization (Gendron et al., 2011; Guerra et al., 2011; Lee & Song, 2012). This finding is also consistent with previous findings that negative climate perceptions predict greater bullying perpetration (Wang et al., 2015), and that students involved in any role of bullying hold more negative perceptions of school climate (Biernbaum & Lotyczewski, 2015). This study further reaffirms that positive school climate may be protective against bullying perpetration and victimization.

The finding that school climate was not directly associated with rates of perpetration and victimization for those who reported involvement is inconsistent with previous research findings, such as negative school climate perceptions being associated with increased rates of perpetration (Herráiz & Gutiérrez, 2016; Spriggs et al., 2007) and victimization (Longobardi et al., 2022; Thornberg et al., 2018). It is also inconsistent with findings that positive climate perceptions predict less physical aggression in students (Troop-Gordon & Kopp, 2011) and lower rates of perpetration and victimization (Goldbaum et al., 2008; Mucherah et al., 2017; Thornberg et al., 2018). However, these research studies did not use the two-part regression analyses as suggested by Boulton and Wilford (2018) to handle data with large numbers of zero values (e.g., students who did not engaged in perpetration or victimization). Considering the distribution of the outcome variable, this two-part regression analysis is more accurate. The small sample size may also explain the non-significant finding for school climate predicting rates, as the sensitivity power analysis conducted indicated that I only had the power to detect medium effect sizes (and

findings were approaching significance, p = .07 or .13); therefore, future research with a larger sample is recommended. In addition, reported rates of perpetration/victimization were quite low throughout the sample (M = 1.14; M = 1.35; scores on scale of 1-5, 1 = "Never Happened"), which may contribute to this non-significant finding. As discussed previously, this is potentially attributable to incorrect reporting due to social desirability bias. While the results may have been affected by self-report bias, it is also possible that school climate plays a more crucial role in predicting whether or not someone bullies another student at all, rather than how frequently they engage in different types of perpetrations. Overall, school climate appears to be an important factor associated with bullying perpetration and victimization, but should be further examined in relation to how it impacts perpetration/victimization rates (e.g., using a larger sample).

School Climate as a Potential Mediator

To my knowledge, this is the first study examining whether school climate may act as a mediator for the relation between teacher use of strategies and victimization. I found that school climate may have mediated the relation between teachers' positive strategies and likelihood and rates of both perpetration and victimization. School climate may also have mediated the relation between teachers' punitive strategies and the likelihood of both perpetration and victimization (but not the rates). These findings are in line with prior literature on school climate. For example, teacher-student relationships, an important dimension of school climate, have been linked to perpetration and victimization, such as negative student-teacher relationships predicting greater involvement in bullying (Wang et al., 2015) and student-teacher conflict being associated with increased victimization (Longobardi et al., 2022). If students perceive their teacher as using more positive strategies, they may perceive the student-teacher relationship as more positive, which contributes to lower likelihood and rates of perpetration and victimization. Additionally, teachers

play a significant role in other dimensions of school climate, such as being a communicator and enforcer of rules and expectations, a communicator of respect for diversity, and a promoter of student engagement and school safety. For example, research has demonstrated a direct link between teacher communication relating to diversity and students' positive bystander behavior when witnessing peer victimization (Konishi et al., 2021). Specifically, the strategies teachers use to manage behavior in the classroom may be one method used to communicate rules/expectations, and may impact student perceptions of whether rules are clear and fair. In addition, research has linked clear and fair rules/expectations to reductions in both perpetration and victimization (Gregory et al., 2010; Guerra et al., 2011; Khoury-Kassabri et al., 2004; Låftman et al., 2016; Ma, 2002).

In contrast, the findings that school climate did not appear to mediate the relationship between punitive strategies and the rates of perpetration/victimization (for students involved in bullying) may be due to the smaller sample size in these subgroup analyses, which only has the power to detect medium effect sizes. It may also be due to school climate perceptions being more strongly associated with whether perpetration/victimization occur in the first place, rather than on how frequently students engaged in perpetration/victimization, with perceptions of teachers' punitive strategies having a direct association with rates. Additionally, as school climate served as a potential mediator between positive strategies and perpetration/victimization, but not between punitive strategies and rates, it may be that positive and punitive strategies are associated with bullying through different mechanisms. For example, punitive strategies may be associated with victimization and perpetration through modeling, whereas positive strategies may be associated with victimization/perpetration indirectly through its impact on school climate such as fostering student-teacher relationships.

This study adds that school climate may account, to varying degrees, for the relationships between perceptions of positive teacher strategies and both the likelihood and rates of perpetration/victimization as well as the perception of punitive strategies and the likelihood of perpetration/victimization. Future research should examine these relationships longitudinally in order to be able to draw causal conclusions about the mediating role of school climate.

Gender was Not a Significant Moderator

Contrary to hypotheses, gender was not a significant moderator for any of the relationships between the variables of interest. In addition, it is of note that preliminary independent samples *t*-tests did not show any significant differences between boys and girls on their ratings of teacher strategies and school climate, but did differ on victimization, with girls reporting experiencing greater rates of peer victimization. This is consistent with previous research findings that girls may be at greater risk of victimization than boys (Glew et al., 2000; Nansel et al., 2001). On the other hand, prior research has shown mixed findings regarding gender differences in bullying perpetration. Some studies have shown that boys are more likely to engage in bullying perpetration, particularly direct and aggressive physical bullying (Glew et al., 2000), while other research has also found that girls are more likely to engage in relational bullying, such as rumors/gossip and social isolation, that is often indirect and more subtle than the physical bullying boys more commonly engage in (Glew et al., 2000). Based on this, it is possible that by combining multiple types of bullying into single perpetration and victimization constructs, differences between how factors are associated with bullying in boys and girls may be harder to detect.

While I hypothesized that the risk and protective factors may function differently for boys and girls, my results did not support the hypothesis. Future studies should further examine

the relation between school climate and teacher strategies on different types of bullying, including cyberbullying, whether these relations differ based on gender, as well as what other factors may be contributing to the differing rates of victimization reported by boys and girls.

Grade as a Moderator for the Relationship between Positive Strategies and the Likelihood of Victimization

I found that grade moderated the relationship between positive strategies and the likelihood of victimization, such that the relationship was significant for 7th graders, with positive strategies being associated with a lower likelihood of victimization, but not for 8th graders. This finding may be aligned with social dominance theory and previous research findings suggesting that bullying occurs at greater rates following school transitions (Pellegrini & Bartini, 2000; Pellegrini & Long, 2002). Social dominance theory suggests that students in their first year of middle school (7th graders in this study) are more likely to be involved in bullying perpetration and victimization than older students, due to being more likely to use bullying/aggression is as a tool to elevate social status among their peers shortly after transition to middle school (Pellegrini & Bartini, 2000; Pellegrini & Long, 2002). Relatedly, 7th graders may be more sensitive and more likely to be impacted by perceptions of teacher strategies and school climate during the transition period. This is also consistent with previous research showing that grade to serve as a moderator between bullying prevention programs and victimization. For example, Ossa and colleagues (2021) found that their bullying prevention program was more effective in reducing victimization for students in grades 5-7 than grades 8-9. My results showed that increased student perceptions of teachers using positive strategies is associated with a lower likelihood of victimization among 7th graders, but not among 8th graders. As a result, if teachers want to model positive behavior and reduce bullying, they should focus

on doing so in the first year of middle school, as students who have just transitioned into the school may be more malleable compared with students in higher grades. Teacher modeling of positive behaviors maybe less effective in 8th grade because students have already established a social hierarchy and their behavior patterns maybe harder to change at that time.

In contrast, I did not find grade to moderate any of the relationships with punitive strategies as the predictor. However, in both the whole and sub-samples, only punitive, and not positive, strategies were a significant predictor for the likelihood of victimization and the rates of perpetration and victimization. While 7th graders may be more malleable and less established than 8th graders, punitive strategies may be detrimental enough to be associated with perpetration and victimization across grade levels. Furthermore, it may be that positive and punitive strategies are associated with bullying perpetration and victimization through different mechanisms, as discussed above. Future studies should further examine bullying differences, and factors that influence bullying, between grade levels.

Study Limitations and Future Directions

This study had several limitations related to its measures and design. First, data were collected from students in one middle school in Southern California, and may not be representative of all students in the U.S, nor can hypotheses be examined at the school level. Based on this it is recommended that future studies examine similar hypotheses with not only a larger sample, but using data from many different schools located in different regions. Additionally, race/ethnicity data were not collected in the survey. As a result, despite publicly reported school demographics indicating that the sample is majority Latinx, no specific analyses relating to race/ethnicity could be conducted and conclusions cannot be drawn as to how that may have impacted the other data.

Secondly, all measures included in the survey were self-report. Previous research has shown that students may be less accurate reporters of their own behavioral problems, such as perpetration (Deighton et al., 2013). As the survey was administered in the school setting, participants may have been hesitant to report their own perpetration due to fear of punishment or reduced social desirability among peers. Based on this, it is recommended that future studies utilize other, and multiple forms of measurement for bullying perpetration and victimization, such as parent and teacher report. Additionally, administration in the school setting may not only have affected perpetration reporting, but answers regarding perceptions of teacher strategies and school climate as well due to worry that responses may be shared with teachers. While students were informed that survey results were anonymous and they could discontinue taking the survey at any point, the use of school computers and their typical classroom environment during the school day may have caused students to self-censor their responses.

Thirdly, cyberbullying is not included in the measure of perpetration and victimization, despite the significant advance in technology and increase in cyberbullying seen in recent years (Jones et al., 2013). As a result, this study examined bullying perpetration and victimization broadly and conclusions cannot be drawn about associations with specific types of bullying. Future studies are recommended to examine the relationships between teacher strategies/school climate and perpetration/victimization for specific types of bullying.

With regard to the school climate measure, each climate dimension is only addressed with approximately 4 items, and is somewhat limited in its definitions of the constructs. For example, the Respect for Diversity items appear to focus exclusively on race, rather than approaching diversity more broadly with consideration for multiple types of identities. Future

studies may consider adapting items to address such issues or utilizing other measures of school climate.

Lastly, this study utilized a cross-sectional design. As a result, the relations examined are only correlational and the direction of the results cannot truly be interpreted. For example, it can be difficult to tease apart whether school climate perceptions lead to decreased/increased likelihood of perpetration/victimization, or whether being victimized or engaging in perpetration impacts students' perceptions of the school climate. In particular, as mediation is typically expected to be tested only with temporal precedence (Maric et al., 2012), no causational interpretations can be made. In spite of this limitation, several significant correlational results were found, and future studies should examine these relations longitudinally in order to draw stronger conclusions.

Implications and Conclusions

In schools, bullying is a significant concern, impacting a large number of students and putting them at risk for several long-term adverse outcomes such as internalizing and externalizing problems, and school avoidance and failure. With bullying being a prevalent and serious concern, it is important to identify risk and protective factors to inform prevention efforts, as well as intervention efforts to reduce the adverse outcomes. This study examined the associations between perceived teacher strategies and school climate and bullying perpetration and victimization among a diverse sample of middle school students in the US, and examined whether gender and grade affected the strength of those relationships. Specific findings included: (1) victimization was more likely to occur, for all students, when students perceived teachers as using punitive strategies, and less likely to occur for 7th graders when students perceived teachers as using positive strategies; (2) both victimization and perpetration were less likely to occur

when school climate was perceived as positive; (3) for those who self-identified as having been victimized or engaging in perpetration, perceiving teachers as using more punitive strategies predicted a higher frequency of victimization and perpetration respectively; (4) perceptions of school climate partially or fully mediated most of the relationships between perceptions of positive and punitive strategies and perpetration/victimization, but not the relationships between punitive strategies and the rate of perpetration/victimization for those who endorsed involvement; and (5) gender did not moderate any of the examined relationships.

Results from this study have several important implications. First, as results suggest that student perception of teacher use of strategies, particularly punitive strategies, are associated with the likelihood and rates of perpetration/victimization, it is important that teachers and schools pay attention to the strategies that teachers use to manage behavior in the classroom, especially in the first grade of middle school that follows a school transition (e.g., 6^{th} or 7^{th}). In particular, schools should focus on working to reduce teachers' use of punitive strategies to manage the classroom. Second, as findings demonstrated that school climate was linked to the likelihood of perpetration/victimization, it will be beneficial for schools to take a preventative approach to foster positive school climate to reduce the likelihood of bullying occurring. Schools may promote a more positive school climate by ensuring that rules are fair and regularly made clear to students, hosting events that celebrate diversity, and increasing opportunities for students to feel heard and cared for by their teachers.

Overall, the results of this study confirmed the hypotheses that student perceptions of teacher strategies and school climate are associated with likelihood and rates of bullying perpetration and victimization. This study also showed that perceptions of the strategies that teachers use may be associated with how students perceive the climate of their school, which

may in turn be associated with their likelihood of being involved in bullying. Lastly, some results did support previous findings that younger grades have greater involvement in traditional bullying, highlighting the need for multiple methods of addressing, intervening, and preventing bullying across grade-levels.

Appendix A

Assessment Tools

Delaware School Climate Survey – School Climate Scale – Student

The following survey is about how you feel about your school. Please choose the answer that best shows how you feel about each item (from disagree a lot to agree a lot).

1. Most students pay attention in class.
2. Teachers treat students of all races with respect.
3. The school rules are fair.
4. This school is safe.
5. Rules in this school are made clear to students.
6. Most students try their best.
7. Teachers care about their students.
8. The consequences of breaking school rules are fair.
9. Teachers like their students.
10. Students know how they are expected to act.
11. Students are friendly with each other.
12. Adults in this school care about students of all races.
13. Students like their teachers.
14. Students know what the rules are.
15. Students care about each other.
16. Teachers listen to students when they have problems. The following survey is about how you feel about your school. Please choose the answer that best shows how you feel about each item.

17. Most students work hard to get good grades.
18. Students feel safe in this school.
19. This school makes it clear how students are expected to act.
20. Students respect those of other races.
21. Adults who work in this school care about the students.
22. Most students follow the school rules.
23. Classroom rules are fair.
24. Most students turn in their homework.
25. The color of a person's skin doesn't matter to students in this school.
26. The color of a student's skin doesn't matter to teachers in this school.
27. Students treat each other with respect.
28. Students get along with each other.

Delaware Positive, Punitive, and Social Emotional (SEL) Learning Techniques Scale

The following survey is about how you feel about your school. Please choose the answer that best shows how you feel about each item (from disagree a lot to agree a lot).

1. Students are punished a lot.
2. Students are praised often.
3. Students are often sent out of class for breaking rules.
4. Students are often given rewards for being good.
5. Students are often yelled at by adults.
6. Teachers often let students know when they are being good.
7. Many students are sent to the office for breaking rules.
8. Classes get rewards for good behavior.

Verbal and Physical Bullying Scale – Victimization

How did you get bullied? (Check how often these things happened from never happened to always happened)

1. Called me names
2. Made fun of me
3. Said they will do bad things to me
4. Played nasty/mean jokes on me
5. Wouldn't let me be part of their group
6. Broke my things
7. Attacked me
8. Nobody would talk to me
9. Wrote bad things about me through texting
10. Said mean things behind my back
11. Pushed or shoved me

Verbal and Physical Bullying Scale – Perpetration

How did you bully this person? (Check how often these things happened from never happened to always happened)

1. Called him/her names
2. Made fun of him/her
3. Said they will do bad things to him/her
4. Played mean/nasty jokes on him/her
5. Wouldn't let him/her be a part of their group
6. Broke his/her things

7. Attacked him/her
8. made sure that Nobody would talk to him/her
9. Wrote bad things about him/her online or through text
10. Said mean things behind his/her back
11. Pushed or saved him/her

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