

School Climate and Bullying Victimization: A Latent Class Growth Model Analysis

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Researchers investigating school-level approaches for bullying prevention are beginning to discuss and target school climate as a construct that (a) may predict prevalence and (b) be an avenue for school-wide intervention efforts (i.e., increasing positive school climate). Although promising, research has not fully examined and established the social-ecological link between school climate factors and bullying/peer aggression. To address this gap, we examined the association between school climate factors and bullying victimization for 4,742 students in Grades 3–12 across 3 school years in a large, very diverse urban school district using latent class growth modeling. Across 3 different models (elementary, secondary, and transition to middle school), a 3-class model was identified, which included students at high-risk for bullying victimization. Results indicated that, for all students, respect for diversity and student differences (e.g., racial diversity) predicted within-class decreases in reports of bullying. High-risk elementary students reported that adult support in school was a significant predictor of within-class reduction of bullying, and high-risk secondary students report peer support as a significant predictor of within-class reduction of bullying.

Keywords: school climate, bullying, latent growth model

Current legislation and litigation indicate that schools and school districts are becoming more and more accountable for prevalence rates and outcomes of bullying perpetration and victimization (Maag & Katsiyannis, 2012). Therefore, it seems imperative that education systems at all levels (school, district, state) address bullying systemically through policy innovations and intervention efforts (Merrell, Gueldner, Scott, & Isava, 2008; Smith, Schneider, Smith, & Ananiadou, 2004). School-level approaches to pre-

vent bullying are beginning to highlight and target school climate, or the social and environmental conditions of a school (Thapa, Cohen, Guffrey, & Higgins-D'Alessandro, 2013), as a construct that (a) may predict prevalence and (b) be an avenue for school-wide intervention efforts (i.e., increasing positive school climate; Bear, Gaskins, Blank, & Chen, 2011). Emerging research is beginning to examine the association between school climate and bullying (Steffgen, Recchia, & Viechtbauer, 2013), with some research focused on student perceptions (Zullig, Koopman, Patton, & Ubbes, 2010). To contribute to emerging evidence, we examined the association between students' perceptions of school climate and students' report of school safety, defined as perceived rates of bullying victimization, to identify factors influencing increases in perceived bullying victimization, particularly for students at high-risk for frequent and consistent bullying victimization.

Before elucidating associations between school climate and bullying victimization, a clear definition of bullying is necessary. The Centers for Disease Control defines bullying as

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any unwanted aggressive behavior that involves an observed or perceived power imbalance and is repeated multiple times, and inflicts physical, psychological, social, or educational harm or distress (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014). The act of bullying is embedded within a social context that reinforces and maintains aggressive behaviors, increasing the likelihood of future aggressive acts (Farmer, Lane, Lee, Hamn, & Lambert, 2012). Without the social context, the behaviors associated with bullying would not exist (Grendron, Williams, & Guerra, 2011). Farmer, Lane, Lee, Hamn, and Lambert (2012) define the bully, the victim, and their associated peer groups as interrelated, whose interactions are regularly evoking, reinforcing, and shaping each other's patterns of behavior. From a behavior analytic perspective, reinforcement (positive and negative) maintaining bullying behaviors may include peer attention, where the bully is seeking to maintain a social position (Farmer et al., 2012). Often the bully is rewarded for engaging in these behaviors with high popularity status among his or her peers (Ahn, Garadeau, & Rodkin, 2010). Bullying most often occurs within schools because it is the most relevant social context for school-age children (Saarento, Karna, Hodges, & Salmivalli, 2013). Because students are engaging in regular daily social interactions, the school environment can potentially be a setting event for the maintenance of bullying behaviors (Farmer et al., 2012; Grendron et al., 2011).

School Climate and Bullying

As bullying is maintained within a social context, it may prove fruitful to examine the social-environmental and broader ecological constructs and factors predicting the maintenance of school-based bullying. One construct directly associated with school ecology is school climate, or the quality and character of the school's social environment that sets the occasion for shaping the norms, values, rules, and structures of a school (Cohen, McCabe, Michell, & Pickeral, 2009; Thapa et al., 2013). Positive school climate, or schools that are safe (emotionally and physically), engaged, collaborative (between teachers, students and parents), and respectful (National School Climate Council, 2007), has been linked to myriad positive student outcomes, including decreases in

school-based aggression (Nansel et al., 2001) and student victimization (Gottfredson et al., 2005; Welsh, 2000). Therefore, positive school climates may decrease the likelihood of school-based bullying perpetration (Bandyopadhyay, Cornell & Konold, 2009; Klein, Cornell & Konold, 2012) and improve positive peer interactions, lessening peer rejection and improving both academic achievement and social development (Loukas & Murphy, 2007).

Researchers have identified a number of domains, or factors, of school climate, including (a) safety (e.g., rules and norms, perceived safety, physical safety); (b) social relationships (e.g., teacher-student relationships, peer relationships, social support); and (c) school connectedness (e.g., students' and parents' feelings about school, parent support of student academic success, student enthusiasm; Cohen et al., 2009; Thapa et al., 2013; Zullig et al., 2010). Each of these factors has been directly or indirectly linked to bullying and may be useful for predicting the likelihood of victimization.

School Safety

An important dimension of school climate is the extent students feel safe (socially, intellectually, and physically) within their school (Thapa et al., 2013). School safety involves student perceptions of safety (e.g., feeling safe in school and their self-report of peer victimization), as well as the rules, expectations, and norms of the school. Gregory et al. (2010) examined school safety using three indicators, (a) student reports on being victimized, (b) students' perceptions of the extent of bullying in their school, and (c) teacher perceptions of the extent of bullying. Findings indicated a significant association between the three indicators of safety. Student reports indicated schools that strictly enforced rules, also reported more supportive adult relationships. In addition, students were more likely to trust school authority when they perceived the enforcement to be fair. Schools with high structure and support reported lower levels of student bullying victimization.

When the norms (group-held beliefs) of a school environment are accepting of aggression (physical, verbal, relational), students can become fearful of school and may be more likely to engage in reactive risk behaviors, such as bullying or aggression as a response to a per-

ceived threat to their own safety (Elsaesser, Gorman-Smith, & Henry, 2013; Hong & Espelage, 2012). School environments that allow/accept aggressive student attitudes and interactions as the norm reinforce bullying and students may resort to self-protective bullying because there is a higher risk to their own social well-being if they (a) do not engage in bullying, or (b) defend a victim of bullying (Saarento et al., 2013). However, when there are positive school expectations that encourage nonviolent, alternative ways to deal with conflict, there are lower levels of both bullying perpetration and victimization (Henry, Farrell, Schoeny, Tolan, & Dymnicki, 2011).

Social Relationships

Social relationships, both student–teacher and peer-to-peer, are significant contributors to school climate. Wang, Selman, Dishion, and Stormshak (2010) found student–teacher relationships to be among the most predictive school climate factor associated with school-based bullying. Students’ perceptions of how fairly their teachers treat them have been found to increase a student’s willingness to report an act of bullying (Eliot, Cornell, Gregory, & Fan, 2010). Further, data suggest that if students perceive teachers to be indifferent toward or inconsistently responsive to bullying, there is a greater likelihood of increased bullying (Saarento et al., 2013; Swearer, Espelage, Vailancourt, & Hymel, 2010). Similarly, if bullying occurs without interruption/intervention, victims will be less likely to report acts of bullying (Bandyopadhyay et al., 2009). Willingness to seek help and report bullying incidents appears to be greatly affected by adult support and has been cited as a common barrier to effective bullying prevention programs (Bandyopadhyay et al., 2009; Klein et al., 2012).

Peer relationships also have an impact on school climate (Thapa et al., 2013) and bullying (Farmer et al., 2013). Ahn, Garadeau, and Rodkin (2010) found that the social environment impacts peer relationships, predicting the probability of aggressive interactions and bullying victimization. Peer relationships can also serve as a protective factor against bullying. Peer social support is associated with decreased bullying victimization, and that the quality of friendships (i.e., friends that are caring, trustworthy,

and reliable) buffer against bullying (Demaray & Malecki, 2003; Hong & Espelage, 2012). Similarly, group affiliation appears to be associated with both bullying perpetration and victimization. Farmer et al. (2013) found that bullies that remain peer affiliated with other bullies from fifth to sixth grade are more likely to continue bullying and that victims that remain affiliated with other peer victims are more likely to experience continued victimization.

School Connectedness

Students who report feeling more connected to their school (i.e., an active member of the community) appear to be less likely to engage in risk behaviors and more likely to experience positive health and academic outcomes (Hong & Espelage, 2012; Thapa et al., 2013). Osterman (2000) defined school community as a place where there is shared emotional connection between members, where all feel a sense of importance in the group. Osterman (2000) then reviewed the literature on the association between school community and student outcomes, finding that students who have a sense of belonging are more likely to engage with peers in prosocial ways, and those who feel rejected or excluded turn to negative behavioral responses, including bullying.

Parents and families also play an important role in both school climate and bullying. A component of school connectedness is home–school connectedness, where schools and parents work together to (a) maintain appropriate school behaviors, and (b) increase positive outcomes. The National School Climate Council’s (2007) guidelines and recommendations for measuring and improving school climate note parent–school collaboration as a key construct within the school climate domain and that more parent–school collaboration can lead to increased positive school climate. Similarly, bullying research has found strong associations between parents and students involved in bullying, particularly perpetrators of bullying (Hong & Espelage, 2012). For example, lack of parental involvement and negative parental influence has been found to be predictive of bullying perpetration (Barboza et al., 2009; Espelage, Bosworth, & Simon, 2001), and parent maltreatment may also influence bullying victimization (Duncan, 1999).

Purpose

Although promising, research has not fully examined and established the social-ecological link between school climate factors and bullying victimization (Hong & Espelage, 2012). Therefore, we examined the association between repeated measures of school climate factors, as measured by the Meriden School Climate Survey–Student Version (MSCS-SV; Gage & Larson, 2013) and bullying victimization, across three school years (2011–2013) in a large, very diverse urban school district using latent class growth modeling. Specific research questions included:

R1. What school climate (i.e., social-contextual) factors predict increases and decreases in students' report of school-based bullying, particularly for students at high-risk for bullying victimization?

R2. Are associations similar or different during elementary school, secondary school, and the transition from elementary to middle school?

Method

Sample and Procedures

Data for this study comes from a large New England school district comprised of eight elementary schools, two middle schools, and two high schools, with a total enrollment of ~8,900 students. Based on 2012 state profile reports, the district serves a heterogeneous student population, with 62.2% receiving free or reduced lunch, 11.5% not fluent in English, and 30.4% of students coming from homes where English is not the primary language. Approximately 13.4% of students in the district received special education services. The district was ethnically diverse; 38.9% of students were White, 44.7% Hispanic, 13.5% African American, 2.5% Asian, and 0.3% Native American. The district reported a 91.2% graduation rate and a 3.0% dropout rate for Grades 9 through 12. Of those graduating, approximately 71.6% pursue a higher education degree.

Twice a year (October and June), students in Grades 3–12 complete the MSCS-SV. Before implementing the survey, the district's Research and Evaluation Specialist (third author) randomly assigns teachers for inclusion

and asks them to have their students participate. The majority of teachers (~80% of teachers in Grades 3–12) are assigned to participate; therefore, most of the students in the district complete the assessment annually. The survey is part of the districts' regular assessment program and was not implemented by the research team. Data for this study was completed each fall starting in 2011 and included 4,742 students. We included only assessment data from the fall data collection period to ensure three consecutive time points equally spaced apart for longitudinal modeling, thus we excluded the spring data from 2012 and 2013. Overall ~60% of students in the sample completed all three waves. Forty-eight percent of respondents were in elementary school (Grades 3–5), 29.6% were in middle school (Grades 6–8), and 29.6% were in high school. Student-level characteristic data was not available/released for all students for all years. However, available student information is presented in Table 1. Data files for each wave (Fall, 2011; Fall, 2012; and Fall, 2013) were deidentified and electronically submitted to the first author by the school district for analysis. A university Institutional Review Board confirmed the project was exempt.

Table 1
Cumulative Student Characteristics Across All Years

Characteristic	%
Gender (9.6% missing)	
Male	50.8
Female	49.2
Ethnicity (9.6% missing)	
Native American	0.2
Asian	2.5
Black	15.1
White	36.8
Hispanic	45.4
Lunch status (10.4% missing)	
Not free/reduced	33.4
Free/reduced	66.6
Special education status (9.6 % missing)	
No	87.5
Yes	12.5
English learner (8.7% missing)	
No	90.1
Yes	9.9

Note. *N* = 4,742.

Measures

Meriden school climate survey–Student version (MSCS-SV). In response to state mandates related to bullying and school climate, the school district’s Research and Evaluation Specialist developed the MSCS-SV to assess students’ perceptions of their school and identify students at-risk for victimization or as perpetrators of bullying. The MSCS-SV was developed from a review of existing school climate measures and recommendations from the National School Climate Standards (National School Climate Council, 2007). The survey consisted of 38-items broadly based on three core features of school climate: (a) norms, values, and expectations that support people feeling socially, emotionally, and physically safe; (b) students, families, and educators working together to develop and contribute to a shared school vision; and (c) educators model and nurture attitudes that emphasize the benefits and satisfaction gained from learning (National School Climate Council, 2007). All items use a 5-point Likert scale ranging from *strongly disagree* to *strongly agree*. A team of district staff, including teachers and administrators, vetted all items developed for the survey.

Construct validity and reliability were assessed using classical test theory, resulting in a confirmed seven-factor structure using exploratory and confirmatory factor analysis (Gage & Larson, 2013). Factors were defined as Adult Support at School (11 items; e.g., “*At my school, there is a teacher or other adult who listens to me when I have something to say*”), School Safety (seven items; see below), Respect for Differences (five items; “*A person’s skin color can cause problems at my school*”), Adult

Support at Home (four items; e.g., “*At home, I have a parent or other adult who expects me to follow school rules*”), Academic Support at Home (four items; “*At home, if I need help with homework, a parent or adult will help me*”), Peer Support (four items; e.g., “*I have a friend about my own age that really cares about me*”), and Aggression Toward Others (three items; “*During the past few months, I have hit or pushed other students at school in anger*”). Although the two parent-related factors appear disconnected with school climate, they are included to assess school-connectedness, a key component of school climate (National School Climate Council, 2007). Internal consistency was calculated using Cronbach’s alpha and McDonald’s ω for the full scale and each factor. Overall, results indicated an average Cronbach’s alpha of .80 (95% CI .72 - .84) with only one factor below .70 (Aggression Toward Others) and all McDonald’s ω greater than .70 indicating acceptable reliability (see Table 2).

The School Safety factor was the dependent variable used in this study because it measures student-level reports of bullying. Specific items were: (a) “*Other students in my school hurt my feelings*” (reverse coded); (b) “*I feel sad in school*” (reverse coded); (c) “*Other students at school have spread mean rumors or lies about me*” (reverse coded); (d) “*I get hit or threatened by other students*” (reverse coded); (e) “*I worry about many things*” (reverse coded); (f) “*I feel safe at school;*” (g) “*I feel safe on my way to and from school.*” Although the Aggression Toward Others factor could have been modeled to identify school climate influences on bullying perpetration, the factor (a) consisted of only three items, limiting within factor variability;

Table 2
Reliability Statistics for the Meriden School Climate Survey–Student Version

Factors	# of items	Cronbach’s α	SE α	95% CI of α		ω
				Lower	Upper	
Full-scale	38	0.91	0.03	0.86	0.97	0.93
Adult support at school	11	0.90	0.01	0.87	0.93	0.92
School safety	7	0.76	0.03	0.71	0.81	0.84
Respect for differences	5	0.76	0.03	0.71	0.81	0.82
Adult support at home	4	0.75	0.03	0.68	0.81	0.82
Academic support at home	4	0.72	0.03	0.65	0.79	0.82
Aggression towards others	3	0.69	0.04	0.60	0.76	0.77
Peer support	4	0.75	0.03	0.68	0.82	0.79

and (b) was consistently the least reliable factor because very few students reported bullying others. The factor was included in the analysis to explore whether or not students at high-risk of bullying victimization also reported bullying other students (i.e., self-protective bullying).

Student characteristics. In addition to the MSCS-SV, we examined student characteristics by risk-status (see below). All models included time and grade-level as active predictors. Time was coded as 0 for Fall, 2011; 1 for Fall, 2012; and 2 for Fall, 2013. Grade-level was included for all students as a categorical variable, which included Grades 3–12. In addition to the two active predictors, the following student characteristics were included as inactive covariates for descriptive purposes: gender (male/female), minority status (White/non-White), special education status (yes/no), English-learner status (yes/no), and socioeconomic status (receiving free/reduced lunch/not receiving free/reduced lunch). Student-level descriptive statistics were inactive in order to assess descriptive differences by class.

Data Analysis

Factor scores. We sought to examine the influence of school climate, as measured by the MSCS-SV, on bullying victimization (School Safety). Although a longitudinal structural equation model (LSEM) could have been developed (Little, 2013), we wanted to examine the influences of school climate across time on student perceptions based on their risk-status for bullying victimization. Therefore, our latent construct of interest was not measured on a continuous scale like LSEM but as a latent class (i.e., categorical scaling of latent constructs). We did not include a measurement model (i.e., LSEM approach), but instead calculated regression-based standardized z scores ($M = 0.0$, $SD = 1.0$), defined as the linear combination of the observed variables which considers the shared variance between items and factors (DiStefano, Zhu, & Mindrila, 2009), for each factor based on the confirmed MSCS-SV seven-factor structure. We used regression-based standard scores instead of summed total scores because the regression-based factor score is weighted by regression coefficients based on matrices of the observed variables and their factor loadings while summed scores treat all items as equal. As

such, the regression-based standard scores represent an individual's score on a continuous scale on the underlying latent variable, where "0" corresponds to the average for the sample on the underlying latent construct. A factor score was calculated for each student for each factor each time the MSCS-SV was collected, resulting in an average z score of zero for all school climate factors for all three time points for all students. Although a repeated measures ANOVA model could have been modeled with the resulting factor scores, the results would not have identified latent classes of students reporting different levels of bullying victimization.

Latent class growth model. We calculated a series of latent class growth models (Vermunt, Tran, & Magidson, 2008) to estimate the association between students' perceptions of school climate (e.g., adult support, peer support, school connectedness) and students' reporting of bullying victimization (School Safety). Latent class growth modeling is a statistical approach for identifying associations among individuals to classify those individuals into distinct groups, or classes, based on their patterns of responses to observed items. This approach has been referred to as person-centered analysis to conceptually distinguish the procedure from variable-centered analyses, such as regression and structural equation modeling, which describes associations among variables. For this study, we were interested in identifying students consistently at high-risk for being bullied (a latent class) and which school climate factors predicted within class increases (protective factors) or decreases (risk factors) in perceptions of bullying victimization. We used growth modeling across time because it allows us to (a) identify students that are consistently at high-risk for bullying victimization, and (b) examine whether or not changes occur during key transition periods, specifically, between elementary and middle school as it appears to be a critical time due to developmental vulnerability (Pellegrini & Van Ryzin, 2011; Roeser, Eccles, & Sameroff, 2000). As such, we developed three different models for this study to assess (a) associations by school-level (i.e., elementary and secondary); and (b) the transition from elementary to middle school.

The elementary latent class growth model was conducted with students in elementary school (Grades 3–5), and the secondary school

latent class growth model with students in Grades 7–12. We also calculated a transition model that included students in Grades 5–7 to identify whether or not risk and protective factors were similar or different during the transition from elementary to middle school. The transition model included sixth-grade students who were not included in the elementary or secondary models because of the interest in isolating changes at the transition.

Latent class growth models were estimated in LatentGOLD 5.0 (Vermunt & Magidson, 2005), a Windows-based statistical software program designed specifically for latent class modeling, including regression modeling with repeated measures, utilizing maximum likelihood and posterior mode estimation and Bayes constants to eliminate boundary solutions. LatentGOLD models are based on the following general mixture model probability structure:

$$f(y_i | z_i^{pred}) = \sum_{x=1}^K P(x | z_i^{cov}) \prod_{t=1}^{T_i} f(y_{it} | x, z_{it}^{pred}).$$

Where $f(y_i | z_i^{pred})$ is the probability density corresponding to a set of y_i values (School Safety factor scores in this study) given a set of z_i values and $P(x | z_i)$ is the probability of belonging to a latent class, and T_i is repeated observations of a single dependent variable (Vermunt & Magidson, 2013). Latent classes may be influenced by z (covariates and predictors) and y variables may be influenced by x and z variables. Latent class growth models include two exogenous variables: covariates, which influence the latent variable; and predictors, which influence the dependent variable. Predictors can change across time, while covariates are the same value across replications of a particular case (Vermunt & Magidson, 2013). In the latent class growth model, β_{x0} is a class-specific intercept and β_{xq} is a class-specific regression coefficient corresponding to each predictor (q). In the model, neither β differ across repeated measures, thus differences are the result of varying predictor values. In this study, the dependent variable was the factor score for School Safety from the MSCS-SV, which was a continuous variable. Therefore, the regression model was linear with normally distributed residuals. Although ~60% of students completed all three waves, we included all students in the

analysis because the algorithm can accommodate data when students have different numbers of observations across time (Vermunt et al., 2008).

Missing data. Missing data was present at the dependent, predictor, and covariate level due to (a) item-level nonresponse and (b) restricted release of student-level data (characteristics were available in some released datasets, but not all). Missing data at the dependent and predictor level was directly addressed using full information maximum likelihood estimation in LatentGOLD (Vermunt & Magidson, 2013), a recommended procedure for modeling with missing data (Harel, Pellwoski, & Kalichman, 2012). At the covariate level, all included variables were nominal. Therefore, the presence of missingness was handled directly by the design matrix, equating the average effect for categories within the LatentGOLD software. Across all models, 3.6% of data was missing for dependent and predictor variables (range 1.1% to 6.2%) and 3.2% for all covariates (range 1.5% to 7.6%). No cases were excluded in our analyses.

Results

Model Identification and Descriptive Statistics

The first step in latent class growth modeling is identification of the best fitting model based on the number of classes and model fit statistics. The goal is to identify the best fitting model with the right number of classes as too few classes ignore class differences and too many results in unstable estimates. Determination of the best fitting model was made based on the minimization of the Bayesian information criteria (BIC), the consistent Akaike information criterion (CAIC), and the proportion of total variance explained (R^2). No exact rule of thumb for values exists as values are based on model specific information. However, the goal is to balance (a) minimization of the BIC and CAIC, (b) the Model R^2 , and (c) a defensible theoretical rationale for the final model (Magidson & Vermunt, 2004).

Model fit statistics are presented in Table 3. For the elementary model, the smallest BIC and the CAIC values were present in the three-class model, which explained approximately 70% of

Table 3
Model Fit Statistics for the Elementary, Secondary, and Transition Latent Class Growth Models

Model	Elementary ($n = 3,225$)				Secondary ($n = 4,205$)				Transition ($n = 2,644$)			
	LL	BIC	CAIC	R^2	LL	BIC	CAIC	R^2	LL	BIC	CAIC	R^2
1-Class	-6,181.53	12,460.01	12,472.01	0.39	-7,617.29	15,359.73	15,374.73	0.38	-4,157.61	8,409.78	8,421.78	0.38
2-Class	-5,770.73	11,743.42	11,768.42	0.63	-6,949.86	14,158.38	14,189.38	0.68	-3,770.35	7,737.71	7,762.71	0.67
3-Class	-5,650.87	11,608.73	11,646.73	0.70	-6,667.47	13,727.12	13,774.12	0.76	-3,638.76	7,576.97	7,614.97	0.76
4-Class	-5,600.08	11,612.17	11,663.17	0.74	-6,577.32	13,680.31	13,743.31	0.78	-3,589.17	7,580.22	7,631.22	0.78
5-Class	-5,563.03	11,643.09	11,707.09	0.76	-6,527.29	13,713.75	13,792.75	0.80	-3,562.65	7,629.62	7,693.62	0.82

Note. LL = log-likelihood; BIC = Bayesian information criteria; CAIC = consistent Akaike information criterion.

the variance of the dependent variable. The smallest BIC and CAIC values for the secondary model was present for the four-class model, but the difference in R^2 between the three- and four-class model was minimal ($\sim 2\%$). The smallest BIC and CAIC values for the transition model, which included students in both the elementary and secondary model, was also present for three-class model, explaining 76% of the variance in the dependent variable. Therefore, for model comparison across the three samples, the three-class model was identified.

Descriptive statistics for each class across all three models are presented in Table 4. Across the three models, $\sim 47\%$ of the students were in Class 1, $\sim 30\%$ of the students were in Class 2, and 23% were in Class 3. Examination of the mean values across time for each class on the School Safety score revealed a consistent pattern across all three models, specifically that Class 2 reported very high levels of bullying victimization (-0.61 ; negative values indicate greater than average reports of bullying victimization), Class 3 reported very low levels of bullying victimization (.77), and Class 1 reported low levels of bullying victimization (.11). Based on the class average scores on School Safety, Class 1 was named the control class, indicating that their score was near the mean factor score; Class 3 was named the low-risk class because the students report very low levels of bullying victimization and are at low-risk for bullying victimization; and Class 2 was named the high-risk class because the students reported elevated levels of bullying victimization. Within class student characteristics were similar across all three classes across all three models. Notable differences were that more students receiving special education were consistently in the high-risk class, that girls were more likely to be in the high-risk class and less likely to be in the low-risk class in the secondary model, and that white students were less likely to be in the high-risk class in the secondary model.

Elementary Latent Class Growth Model

The beta parameter (β) for each of the predictors measures the influence of that predictor on School Safety. The Wald statistic, a chi-square test, indicates which predictors

Table 4

Descriptive Statistics for Each Latent Class for the Elementary, Secondary, and Transition Latent Class Growth Models

	Elementary			Secondary			Transition		
	Control	High-risk	Low-risk	Control	High-risk	Low-risk	Control	High-risk	Low-risk
Class size	0.43	0.37	0.20	0.53	0.25	0.22	0.46	0.28	0.26
Mean school safety score	0.13	-0.54	0.79	0.03	-0.72	0.72	0.18	-0.56	0.81
Gender									
Male	0.52	0.46	0.57	0.51	0.42	0.62	0.50	0.46	0.57
Female	0.48	0.54	0.43	0.50	0.58	0.38	0.50	0.54	0.43
SPED									
No	0.87	0.85	0.88	0.85	0.83	0.85	0.88	0.85	0.89
Yes	0.13	0.15	0.12	0.15	0.17	0.15	0.12	0.15	0.11
ELL									
No	0.88	0.88	0.90	0.86	0.86	0.88	0.89	0.87	0.90
Yes	0.12	0.12	0.10	0.14	0.14	0.12	0.12	0.13	0.10
Diversity									
White	0.35	0.35	0.36	0.35	0.37	0.28	0.37	0.37	0.34
Non-White	0.65	0.65	0.64	0.65	0.63	0.72	0.63	0.63	0.66
SES									
Not free/reduced	0.30	0.27	0.32	0.34	0.34	0.29	0.32	0.29	0.31
free/reduced	0.70	0.73	0.68	0.66	0.66	0.71	0.68	0.71	0.69

Note. SPED = special education; ELL = English language learner; SES = socioeconomic status. All statistics are proportions except mean school safety score, which is the average factor score ($M = 0$, $SD = 1$) for each class.

were significant within the model. A nonsignificant Wald statistic indicates that the predictor did not contribute significantly to class identification within the full model. The Wald(=), also a chi-square test, indicates which predictors' parameter estimates were significantly different from each other across the classes. For example, Academic Support at Home is a significant predictor within the elementary model, but the parameter estimates are not different from each other across the classes.

Results for time indicate that students' growth or change in reporting of school safety across time was a significant predictor within the model and that the pattern of change was significantly different across the three classes. Examination of the beta coefficients and z scores that the control and high-risk classes did not significantly (significant defined as z statistic ≥ 1.96) change across time, and the low-risk class significantly changed each year. This finding confirms that students in the high-risk class consistently reported elevated levels of bullying and peer aggression each year, and students in the low-risk class vary year to year in their reporting. Grade-level was a significant predictor within the

model, but no differences were found between the classes at each grade-level.

Across the six school climate factors, three were both significant predictors within the model and different across the three classes. Adult Support at School significantly predicted increased school safety for all three classes, suggesting that students report less bullying if they report more adult support (e.g., "At my school, there is a teacher or other adult whom I can trust") in their school. The beta coefficient was larger for students in the high-risk class ($\beta = .25$), indicating a stronger association between the Adult Support in School and School Safety factors within the high-risk class than within the other classes. Respect for Differences was also significant and positive across all three classes, suggesting that students in schools that respect cultural diversity are more likely to report feeling safer in school. Again, the beta coefficient was largest for the high-risk class ($\beta = .59$). Last, the Aggression Toward Others factor was significant for the control and low-risk classes, suggesting that students in those classes that report bullying others are also more likely to report feeling safer in school. However, as noted above, few stu-

dents reported bullying other students (see Table 5).

Secondary Latent Class Growth Model

Results were different for students in secondary schools. Based on the three-class model, time was a significant factor in the model, but time was not a significant predictor for discrimination between the classes, meaning scores were relatively stable across time for all three classes. Grade-level was also a significant predictor, but unlike the elementary model, significant differences were present between the classes. For the control and low-risk classes, the beta coefficients remain close to zero from seventh to twelfth grade. However, the high-risk class shows a significant positive increase across grade-level going from $\beta = -0.36$ in seventh grade to $\beta = 0.25$ in twelfth grade. This suggests that the older the high-risk students get, the safer they feel.

Four of the six school climate factors were significant predictors in the model and were significantly different between the classes. Respect for Differences was again significant for all three classes and again, the largest beta coefficient was for the high-risk class ($\beta = .60$). Similarly, Aggression Toward Others

was significant, but unlike in the elementary model, the factor was significant for all three classes, suggesting that students in the high-risk class that report bullying others are more likely to report feeling safer. It should be noted that (a) very few students report bullying others in the database, and (b) of all the factors, the Aggression Toward Others is less stable as measured by internal consistency indicators (Gage & Larson, 2013). Therefore, any interpretation should be made with caution. Unlike the elementary model, Academic Support at Home and Peer Support were significant predictors in the model and significantly different across the classes. Academic Support at Home had a significant and positive beta coefficient for all three classes, with the largest positive association in the high-risk class ($\beta = .21$). The Peer Support results indicate that students in the high-risk class that report more peer support (e.g., “I have a friend about my own age who talks with me about my problems”) are more likely to feel safer in their school (see Table 6).

Transition to Middle School Latent Class Growth Model

The last model examined whether or not students' report of school safety was different

Table 5
Elementary Latent Class Growth Model Parameter Estimates

Predictors (β_{xq})	Control	<i>z</i> value	High-risk	<i>z</i> value	Low-risk	<i>z</i> value	Wald	Wald(=)
Intercept (β_{x0})	-0.17	-3.92*	-0.97	-21.88*	0.68	17.04*	1027.39*	1019.23*
Time								
2011	-0.01	-0.36	-0.02	-0.59	0.10	5.23*	68.47*	20.63*
2012	0.04	1.76	0.06	1.90	0.05	2.55*		
2013	-0.03	-1.26	-0.04	-1.24	-0.14	-6.97*		
Grade								
3	-0.06	-2.11*	-0.04	-1.08	-0.02	-0.94	11.97	2.58
4	0.04	1.81	-0.01	-0.31	-0.01	-0.32		
5	0.01	0.63	0.05	1.44	0.03	1.44		
School climate factors								
Adult support	0.15	3.78*	0.25	6.25*	0.12	4.10*	87.83*	7.53*
Respect	0.43	13.33*	0.59	16.67*	0.06	2.48*	583.76*	190.08*
Adult support at home	0.02	0.90	0.03	0.84	0.04	1.46	5.40*	0.15
Academic support at home	0.10	3.91*	0.11	3.29*	0.06	2.38*	44.31*	1.64
Aggression towards others	0.24	5.73*	0.02	0.50	0.15	6.24*	99.06*	9.89*
Peer support	-0.04	-1.58*	0.05	1.94	0.02	1.09	6.34	5.85
Model for classes								
Intercept (γ_x)	0.30	4.18*	0.16	1.88	-0.46	-6.08*	41.70*	
Error variances (σ_x)	0.27	13.71*	0.78	22.56*	0.09	10.26*		

* $p < .05$.

during the transition from elementary to middle school. Similar to the secondary model, time was a significant predictor within the model, but was not significantly different between the classes, and grade-level was a significant predictor of class difference. During fifth grade, students in the control and high-risk classes report feeling less safe in school, but as they transition to middle school, they report feeling more safe, particularly for the high-risk class.

Three of the six school climate factors were significant predictors and significantly discriminate class membership. Respect for Differences was a positive and significant predictor of within class change on the School Safety factor, with the strongest association ($\beta = .62$) again found in the high-risk class. Similar to the secondary model, Academic Support at Home and Peer Support were significant. Unlike previous models, Peer Support was not a significant within-class predictor for either the control class or the low-risk class, but a significant predictor of positive change ($\beta = .13$) for the high-risk class. This suggests that, peer support plays an important role in feeling safe during the transition to

middle school for students in the high-risk class (see Table 7).

Discussion

This study was designed to examine the association between school climate and school-based bullying. A series of latent class growth models were calculated to identify (a) students at high-risk for bullying victimization, and (b) whether or not school climate factors increase or decrease that risk. Results suggest that, across all three models, three latent classes of students were identified: a control class, a high-risk class, and low-risk class. The high-risk class included 37% of students in elementary school, 25% in secondary schools, and 28% of students as they transition from elementary to middle school, similar to national statistics (Espelage & Swearer, 2011). Unlike previous studies (Saarento et al., 2013; Swearer et al., 2010), girls were more likely to be in the high-risk class, as well as non-White students in secondary schools (Hong & Espelage, 2012). School climate factors predicting decreased risk for bullying victimization differed by model, suggesting the association between school climate

Table 6
Secondary Latent Class Growth Model Parameter Estimates

Predictors (β_{xq})	Control	<i>z</i> value	High-risk	<i>z</i> value	Low-risk	<i>z</i> value	Wald	Wald(=)
Intercept (β_{x0})	0.21	10.94*	-0.43	-9.89*	0.81	46.18*	2380.63*	1153.78*
Time								
2011	-0.02	-0.96	0.03	0.96	0.01	0.37	25.01*	3.48
2012	-0.04	-2.71*	-0.06	-1.67	-0.02	-1.68		
2013	0.05	3.65*	0.02	0.64	0.02	1.27		
Grade								
7	-0.07	-2.43*	-0.36	-5.99*	-0.02	-0.71	79.62*	48.11*
8	-0.04	-1.64	-0.23	-4.34*	-0.03	-1.24		
9	0.04	2.00*	0.08	1.67	0.00	-0.21		
10	0.03	1.46	0.14	2.50*	0.00	0.08		
11	0.05	1.72	0.12	1.96*	0.01	0.46		
12	-0.02	-0.67	0.25	4.05*	0.04	1.45		
School climate factors								
Adult support	0.01	0.87	-0.03	-0.96	0.02	1.41	3.43	2.21
Respect	0.36	22.94*	0.60	19.45*	0.12	8.51*	933.22*	280.84*
Adult support at home	0.00	0.32	0.04	1.28	0.03	1.95	5.59	1.71
Academic support at home	0.13	9.36*	0.21	7.33*	0.07	5.08*	178.46*	25.64*
Aggression towards others	0.24	14.84*	0.12	4.14*	0.05	3.92*	313.55*	93.22*
Peer support	0.03	1.95	0.14	5.74*	0.03	1.99*	42.21*	18.35*
Model for classes								
Intercept (γ_x)	0.55	10.41*	-0.22	-3.11*	-0.33	-5.86*	124.16*	
Error variances (σ_x)	0.24	21.79*	0.67	21.57*	0.10	16.08*		

* $p < .05$.

Table 7
Transition Latent Class Growth Model Parameter Estimates

Predictors (β_{xq})	Control	z value	High-risk	z value	Low-risk	z value	Wald	Wald(=)
Intercept (β_{x0})	-0.09	-2.16*	-0.89	-14.46*	0.71	24.02*	1255.74*	915.81*
Time								
2011	0.00	0.17	0.08	1.55	0.04	2.25*	26.68*	1.96
2012	0.04	1.63	0.01	0.13	0.03	1.37		
2013	-0.04	-1.89	-0.09	-1.89	-0.07	-3.80*		
Grade								
5	-0.20	-7.77*	-0.24	-5.35*	-0.03	-1.54	117.43*	45.69*
6	0.01	0.47	0.04	0.82	0.02	1.12		
7	0.19	6.60*	0.20	3.83*	0.01	0.34		
School climate factors								
Adult support	0.16	5.26*	0.17	3.20*	0.11	4.67*	59.18*	1.96
Respect	0.53	17.85*	0.62	12.67*	0.12	4.10*	536.62*	180.87*
Adult support at home	0.01	0.44	-0.03	-0.72	0.00	0.06	0.64	0.64
Academic support at home	0.14	5.33*	0.23	5.16*	0.07	3.33*	69.14*	14.07*
Aggression towards others	0.11	4.42*	0.17	2.98*	0.08	3.26*	40.07*	3.07
Peer support	0.01	0.60	0.13	3.80*	0.00	-0.01	14.96*	11.50*
Model for classes								
Intercept (γ_x)	0.36	4.56*	-0.15	-1.57	-0.20	-2.40*	22.10	
Error variances (σ_x)	0.22	12.31*	0.73	16.45*	0.09	10.79*		

* $p < .05$.

factors and bullying victimization differed based on whether or not students were in elementary or secondary schools. Therefore, specific findings are described by model below.

Elementary School

Overall, no differences were found with regards to bullying victimization between students in third, fourth, and fifth grade, indicating that experiences were similar across all three grades. The significant findings for Adult Support suggest that adults in school, particularly teachers, can have a direct and positive effect on high-risk students' report of bullying victimization. High-risk students attending schools where adults are perceived as trustworthy, respectful, and caring report lower levels of bullying victimization. This finding supports the positive association between the school environment and bullying, further confirming that adults in elementary schools can have a direct effect on the frequency of bullying acts in their school (Hong & Espelage, 2012). In addition to the role of adults, all three classes of students reported decreases in bullying victimization in schools where students respect each other, particularly with regards to racial diversity. The distribution of White students in elementary school was almost identical across the three classes (see

Table 4); therefore no inferences should be made with regards to individual students' ethnicity as a predictor of bullying. What should be inferred is that schools where students (a) respect cultural and linguistic diversity; (b) respect student differences (e.g., special education status); and (c) limit harassment and fighting are less likely to experience bullying victimization. Taken together, for students in elementary school, but particularly high-risk students, adults play a central role in the prevention of bullying by (a) fostering positive adult-student relationships, and (b) creating respectful environments.

Secondary School

The association between school climate and bullying was different at the secondary level. First, unlike students in elementary schools, differences were evident across grade levels, but only for high-risk students. Although student perceptions of bullying did not change across grade levels in the control and low-risk classes, reports of bullying for high-risk students significantly changed as students got older. An increasing positive trend from seventh to twelfth grade for high-risk students suggests that as students get older, they report fewer incidents of bullying. Second, secondary students' reports of

bullying victimization were not significantly associated with Adult Support in School, but instead, Peer Support. For students in the high-risk class, having friends that they can trust and to talk with when they have problems significantly decreased reports of bullying victimization. This finding indicates that peers are more influential as a protective factor during middle and high school, and adults are a protective factor during elementary school. Lastly, unlike during elementary school, parents appear to have a positive and significant association with students' reports of bullying victimization. It's surprising that the Academic Support at Home was a significant predictor (e.g., "*At home, I have time to do my homework*") and not Adult Support at Home, which measures nonacademic support and behavioral expectations (e.g., "*At home, I have a parent or adult who always wants me to do my best*"). Based on the results, students' perception of academic support may be a better predictor of decreased bullying victimization, suggesting that the items may be more correlated with maltreatment (Duncan, 1999) than behavioral expectations. This could be the way a parent interacts with their child about academic expectations, as the MSCS-SV does not allow for description of quality of interactions. More research is necessary to further examine the association between school climate and parents' support at home to further explain that relationship.

Transition From Elementary to Middle School

Transitioning from elementary to middle school has been cited as a vulnerable developmental period where students may be at higher risk for bullying victimization (Pellegrini & Bartini, 2000). Therefore, we modeled the transition period using latent class growth models, the only model that included students in sixth grade. Grade-level differences were found. Students in the high-risk class reported elevated levels of bullying victimization during fifth grade and those levels remained constant during sixth grade. However, by seventh grade, students in the high-risk class reported significantly less incidents of bullying. Based on these results, it appears that students that are bullied during fifth grade report similar levels of bullying during sixth

grade, even though they change schools, but that bullying appears to decrease by seventh grade. This finding supports Farmer et al. (2013) report that students at high-risk remain at high-risk during the transition to middle school, but extends their findings with the decreased risk during seventh and eighth grade. With regards to school climate, the results were the same as those found for secondary students, with Respect for Difference and Peer Support significantly predicting decreases in bullying. Interestingly, Adult Support was a significant predictor, with more Adult Support predicting decreased bullying victimization, but all three classes reported similar patterns. This suggests that, in general Adult Support decreases bullying victimization, but is equally important for all students, not just high-risk students.

Limitations

A number of limitations necessitate mention. First, all models focused on student-level perceptions of school climate, but excluded school-level climate and its potential influence on perceptions of bullying victimization. Future research should collect school climate data from more schools to calculate multilevel models to examine whether or not school-level characteristics influenced estimates. We attempted to calculate multilevel LCGMs, but due to the small number of schools, the models were unreliable.

Second, this study is correlational; no causal associations should be inferred. As such, interpretations should be made with caution. Further, the estimates are robust, but only account for ~75% of the total variance in School Safety. Although a three-class model was the best-fitting model, the classes do not fully explain the phenomenon. Lastly, the dependent variable was based entirely on student perception. Although most studies of bullying rely on similar approaches (Merrell et al., 2008), the frequency and intensity by which all students, but particularly the high-risk students, are bullied cannot be confirmed.

Conclusions

Bullying is a significant concern for all schools and all efforts at the individual-student

and whole-school level should be made to decrease bullying perpetration. Results of this study suggest that adults in elementary schools should focus on fostering caring and trustworthy relationships, while maintaining consistent disciplinary actions against bullying behaviors, and working to foster respect for all differences in their schools. Bullying victimization appears to be more influenced by peer and parent relationships during secondary schooling, suggesting a wrap-around approach to supporting students and fostering more caring and supportive peer-relationships as targets for intervention efforts. Similar to elementary school, fostering respect for student differences may protect against bullying behaviors in schools. Lastly, it appears that students at high-risk for bullying victimization remain high-risk even after they transition to middle school; therefore, individual efforts should be consistent across elementary and middle schools. Overall, a clear association exists between school climate and school-based bullying and efforts should be made to increase positive school climate to prevent bullying perpetration and victimization.

References

- Ahn, H. Garadeau, C. F., & Rodkin, P. C. (2010). Effects of classroom embeddedness and density on the social status of aggressive and victimized children. *The Journal of Early Adolescence*, 30, 76–101. doi:10.1177/0272431609350922
- Bandyopadhyay, S., Cornell, D. G., & Konold, T. R. (2009). Validity of three school climate scales to assess bullying, aggressive attitudes, and help seeking. *School Psychology Review*, 38, 338–355.
- Barboza, G. E., Schiamberg, L. B., Oehmke, J., Korzeniewski, S. J., Post, L. A., & Heraux, C. G. (2009). Individual characteristics and the multiple contexts of adolescent bullying: An ecological perspective. *Journal of Youth and Adolescence*, 38, 101–121. doi:10.1007/s10964-008-9271-1
- Bear, G. G., Gaskins, C., Blank, J., & Chen, F. (2011). Delaware school climate survey–student: Its factor structure, concurrent validity, and reliability. *Journal of School Psychology*, 49, 157–174. doi:10.1016/j.jsp.2011.01.001
- Cohen, J., McCabe, E. M., Michell, N. M., & Pickeral, T. (2009). School climate: Research, policy, teacher education and practice. *Teachers College Record*, 111, 180–213.
- DeMaray, K. M., & Malecki, K. C. (2003). Perceptions of the frequency and importance of social support by students classified as victims, bullies, and bully/victim in an urban middle school. *School Psychology Review*, 32, 471–489.
- DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation*, 14, 1–11. Retrieved from <http://pareonline.net/getvn.asp?v=14&n=20>
- Duncan, R. D. (1999). Maltreatment by parents and peers: The relationship between child abuse, bully victimization, and psychological distress. *Child Maltreatment*, 4, 45–55. doi:10.1177/1077559599004001005
- Elsasser, C., Gorman-Smith, D., & Henry, D. (2013). The role of the school environment in relational aggression and victimization. *Journal of Youth and Adolescence*, 42, 235–249. doi:10.1007/s10964-012-9839-7
- Eliot, M., Cornell, D., Gregory, A., & Fan, X. (2010). Supportive school climate and student willingness to seek help for bullying and threats of violence. *Journal of School Psychology*, 48, 533–553. doi:10.1016/j.jsp.2010.07.001
- Espelage, D. L., Bosworth, K., & Simon, T. R. (2001). Short-term stability and prospective correlates of bullying in middle-school students: An examination of potential demographic, psychosocial, and environmental influences. *Violence and Victims*, 16, 411–426.
- Espelage, D. L., & Swearer, S. M. (Eds.). (2011). *Bullying in American schools: A social-ecological perspective on prevention and intervention* (2nd ed.). New York, NY: Routledge.
- Farmer, T. W., Irvin, M. J., Motoca, L. M., Leung, M., Hutchins, B. C., Brooks, D. S., & Hall, C. (2013). Externalizing and internalizing behavior problems, peer affiliations, and bullying involvement across the transition to middle school. *Journal of Emotional and Behavioral Disorders*. Advanced online publication. doi:10.1177/1063426613491286
- Farmer, T. W., Lane, K. L., Lee, D. L., Hamn, J. V., & Lamert, K. (2012). The social functions of antisocial behavior: Considerations for school violence prevention and strategies for students with disabilities. *Behavioral Disorders*, 37, 149–162.
- Gage, N. A., & Larson, A. (2013). *The Meriden school climate survey-student version*. Meriden, CT: Meriden Public Schools.
- Gendron, B. P., Williams, K. R., & Guerra, N. G. (2011). An analysis of bullying among students within schools: Estimating the effects of individual normative beliefs, self-esteem, and school climate. *Journal of School Violence*, 10, 150–164. doi:10.1080/15388220.2010.539166
- Gladden, R. M., Vivolo-Kantor, A. M., Hamburger, M. E., & Lumpkin, C. D. (2014). *Bullying surveillance among youths: Uniform definitions for public health and recommended data elements*, ver-

- sion 1.0. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention and U.S. Department of Education.
- Gottfredson, G. D., Gottfredson, D. C., Payne, A. A., & Gottfredson, N. C. (2005). School climate predictors of school disorder: Results from a national study of delinquency prevention in schools. *Journal of Research in Crime and Delinquency*, 42, 412–444. doi:10.1177/0022427804271931
- Gregory, A., Cornell, D., Fan, X., Sheras, P., Shih, T., & Huang, F. (2010). Authoritative school discipline: High school practices associated with lower bullying and victimization. *Journal of Educational Psychology*, 102, 483–496. doi:10.1037/a0018562
- Harel, O., Pellowski, J., & Kalichman, S. (2012). Are we missing the importance of missing values in HIV prevention randomized clinical trials? Review and recommendations. *AIDS and Behavior*, 16, 1382–1393. doi:10.1007/s10461-011-0125-6
- Henry, D. B., Farrell, A. D., Schoeny, M. E., Tolan, P. H., & Dymnicki, A. B. (2011). Influence of school level variables on aggression and associated attitudes of middle school students. *Journal of School Psychology*, 49, 481–503. doi:10.1016/j.jsp.2011.04.007
- Hong, J. S., & Espelage, D. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior*, 17, 311–322. doi:10.1016/j.avb.2012.03.003
- Klein, J., Cornell, D., & Konold, T. (2012). Relationships between bullying, school climate, and student risk behaviors. *School Psychology Quarterly*, 27, 154–169. doi:10.1037/a0029350
- Little, T. D. (2013). *Longitudinal structural equation modeling*. New York, NY: Guilford Press.
- Loukas, A., & Murphy, J. K. (2007). Middle school student perceptions of school climate: Examining protective functions on subsequent adjustment problems. *Journal of School Psychology*, 45, 293–309. doi:10.1016/j.jsp.2006.10.001
- Maag, J. W., & Katsiyannis, A. (2012). Bullying and students with disabilities: Legal and practice considerations. *Behavioral Disorders*, 37, 78–86.
- Magidson, J., & Vermunt, J. K. (2004). Latent class models. In D. Kaplan (Ed.), *The Sage handbook of quantitative methodology for the social sciences* (pp. 175–198). Thousand Oaks, CA: Sage. doi:10.4135/9781412986311.n10
- Merrell, K. W., Gueldner, B. A., Ross, S. W., & Isava, D. M. (2008). How effective are school bullying programs? A meta-analysis of intervention research. *School Psychology Quarterly*, 23, 26–42. doi:10.1037/1045-3830.23.1.26
- Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and associations with psychosocial adjustment. *Journal of the American Medical Association*, 285, 2094–2100. doi:10.1001/jama.285.16.2094
- National School Climate Council. (2007). *The school climate challenge: Narrowing the gap between school climate research and school climate policy, practice guide- lines and teacher education policy*. Retrieved from <http://www.schoolclimate.org/climate/advocacy.php>
- Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70, 323–367. doi:10.3102/00346543070003323
- Pellegrini, A. D., & Bartini, M. (2000). A longitudinal study of bullying, victimization, and peer affiliation during the transition from primary school to middle school. *American Educational Research Journal*, 37, 699–725. doi:10.3102/00028312037003699
- Pellegrini, A. D., & Van Ryzin, M. J. (2011). Part of the problem, part of the solution: The role of peers in bullying, dominance, and victimization during the transition from primary school to secondary schools. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in North American schools* (2nd ed., pp. 91–100). New York, NY: Routledge.
- Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (2000). School as a context of early adolescent academic and social emotional development: A summary of research findings. *The Elementary School Journal*, 100, 443–471. doi:10.1086/499650
- Saarento, S., Karna, A., Hodges, E., & Salmivalli, C. (2013). Student-, classroom-, and school-level risk factors for victimization. *Journal of School Psychology*, 51, 421–434. doi:10.1016/j.jsp.2013.02.002
- Smith, J. D., Schneider, B. H., Smith, P. K., & Ananiadou, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review*, 33, 547–560.
- Steffgen, G., Recchia, S., & Viechtbauer, W. (2013). The link between school climate and violence in school: A meta-analytic review. *Aggression and Violent Behavior*, 18, 300–309. doi:10.1016/j.avb.2012.12.001
- Swearer, S. M., Espelage, D. L., Vaillancourt, T., & Hymel, S. (2010). What can be done about school bullying? Linking research to educational practice. *Educational Researcher*, 39, 38–47. doi:10.3102/0013189X09357622
- Thapa, A., Cohen, J., Guffrey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83, 357–385. doi:10.3102/0034654313483907

- Vermunt, J. K., & Magidson, J. (2005). *Latent GOLD 4.0 user's guide*. Belmont, MA: Statistical Innovations Inc. Retrieved from <http://www.statisticalinnovations.com/technicalsupport/UG.html>
- Vermunt, J. K., & Magidson, J. (2013). *Technical guide for Latent GOLD 5.0: Basic, advanced, and syntax*. Belmont, MA: Statistical Innovations Inc.
- Vermunt, J. K., Tran, B., & Magidson, J. (2008). Latent class models in longitudinal research. In S. Menard (Ed.), *Handbook of longitudinal research: Design, measurement, and analysis* (pp. 373–385). Burlington, MA: Elsevier.
- Wang, M., Selman, R. L., Dishion, T. J., & Stormshak, E. A. (2010). A tobit regression analysis of the covariation between middle school students' perceived school climate and behavioral problems. *Journal of Research on Adolescence*, 20, 274–286. doi:10.1111/j.1532-7795.2010.00648.x
- Welsh, W. N. (2000). The effects of school climate on school disorder. *Annals of the American Academy of Political and Social Science*, 567, 88–107. doi:10.1177/0002716200567001007
- Zullig, H. J., Koopman, T. M., Patton, J. M., & Ubbes, V. A. (2010). School climate: Historical review, instrument development, and school assessment. *Journal of Psychoeducational Assessment*, 28, 139–152. doi:10.1177/0734282909344205

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