

Association of Grade Configuration With School Climate for 7th and 8th Grade Students

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Educational authorities have questioned whether middle schools provide the best school climate for 7th and 8th grade students, and proposed that other grade configurations such as K–8th grade schools may provide a better learning environment. The purpose of this study was to compare 7th and 8th grade students' perceptions of 4 key features of school climate (disciplinary structure, student support, student engagement, and prevalence of teasing and bullying) in middle schools versus elementary or high schools. Multilevel multivariate modeling in a statewide sample of 39,036 7th and 8th grade students attending 418 schools revealed that students attending middle schools had a more negative perception of school climate than students in schools with other grade configurations. Seventh grade students placed in middle schools reported lower disciplinary structure and a higher prevalence of teasing and bullying in comparison to those in elementary schools. Eighth grade students in middle schools reported poorer disciplinary structure, lower student engagement, and a higher prevalence of teasing and bullying compared to those in high schools. These findings can guide school psychologists in identifying aspects of school climate that may be troublesome for 7th and 8th grade students in schools with different grade configurations.

Keywords: school climate, grade configuration, student engagement, bullying, teacher-student relationships

The concept of middle school is relatively new in American education. Prior to the 1970s, junior high schools (Grades 7–8 or 7–9) commonly served as a transitional phase to prepare

students for the demanding nature of high school. However, studies found that students who attended junior high schools had both academic and socioemotional difficulties in comparison to children who moved directly from elementary school to high school. For instance, Simmons and Blyth (1987) found that students who attended junior high school had a decline in GPA while their K–8th grade peers had an increase in GPA. Moreover, girls in junior high schools experienced lowered self-esteem, and boys reported higher levels of peer victimization, in comparison to students who went to K–8th grade schools. Another study found that students in junior high had decreased motivation and school attachment, and poorer quality teacher–student relationships (Eccles, Lord, & Midgley, 1991).

Starting in the 1980s, educators (see review by Juvonen, Le, Kaganoff, Augustine, & Constant, 2004) began to favor a more independent “middle school” (Grades 6, 7, and 8) that was structured less like high school and would provide a developmentally appropriate educational setting that attended to the unique needs of

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young adolescents (Cook, MacCoun, Muschkin, & Vigdor, 2008). Contrary to this well-intended effort, research has shown that students who attend middle schools have similar difficulties as those who attended junior high schools. For instance, Cook and colleagues (2008) found that students in conventional middle schools had more disciplinary problems and were twice as likely to be disciplined as same-age peers in school configurations that included elementary grades. These disciplinary problems were significant through at least 9th grade. Another study found that students in middle and junior high schools reported poorer school attachment and peer support than students in K—8th grade schools (Kim, Schwartz, Cappella, & Seidman, 2014). Students in middle schools were also more likely to experience academic problems (Byrnes & Ruby, 2007; Kieffer, 2013), poor self-esteem (Weiss & Kipnes, 2006), and increased rates of bullying and victimization (Anderson & Kimweli, 1997; Weiss & Kipnes, 2006) in comparison to students in other grade configurations.

School Climate

School psychologists working in middle schools might consider that school climate could contribute to the declining motivation and increasing discipline problems of their students. Several authorities have suggested that middle school climate is problematic (Wang & Dishion, 2012; Way, Reddy, & Rhodes, 2007). Though there is a large body of research dedicated to school climate (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013), its definition remains quite broad. One definition characterizes school climate as the “quality and character of school life,” including “norms, values, and expectations that support people feeling socially, emotionally, and physically safe” (Cohen, McCabe, Michelli, & Pickeral, 2009, p. 182). Positive school climate has been related to academic success (Jia et al., 2009), higher levels of student engagement (Konold et al., 2014), and lower rates of bullying and victimization (Gregory et al., 2010).

School psychology research has posited that Baumrind's (1968) model of authoritative parenting might inform our understanding of a positive school climate (e.g., Brophy, 1996; Gill, Ashton, & Algina, 2004; Gregory & Cor-

nell, 2009; Hughes, 2002; Pellerin, 2005; Wentzel, 2002). Authoritative parenting research has found that parents are most effective when they are both demanding and supportive (or emotionally responsive) with their children. Parents are less effective when they are demanding but not supportive (authoritarian), emotionally supportive but not demanding (permissive), or lacking in both demandingness and support (disengaged or neglectful; Larzelere, Morris, & Harrist, 2013). Authoritative parenting of adolescents has been associated with high self-esteem (Milevsky, Schlechter, Netter, & Keehn, 2007), academic achievement (Masud, Thurasamy, & Ahmad, 2015), and overall positive psychological adjustment (Steinberg, Mounts, Lamborn, & Dornbusch, 1991).

Authoritative school climate theory suggests that students benefit from high levels of both disciplinary structure (demandingness) and supportive teacher–student relationships (Gregory & Cornell, 2009). A variety of studies have found that schools with authoritative school climate characteristics have better student outcomes. Fair and strict discipline in schools is associated with fewer discipline problems (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Way et al., 2007; Welsh, 2001) and fewer instances of bullying (Ma, 2002). Supportive teacher–student relationships have been associated with greater effort and perseverance on academic tasks and higher academic achievement (Lee, 2012). Students who feel supported by their teachers demonstrate a greater interest in their schoolwork, higher motivation, and a stronger sense of belongingness at school (Lee, 2012; Stroet, Opdenakker, & Minnaert, 2013).

Although disciplinary structure and student support are regarded as the defining features of an authoritative school climate, they are linked to at least two other important aspects of school climate: the level of student engagement in school and the prevalence of teasing and bullying at school (Konold & Cornell, 2015a). Many school climate instruments include measures of student engagement and peer aggression but do not specifically link them to an authoritative school climate (Wang & Degol, 2016). In their study of middle school students, Wang and Eccles (2013) found that “school structure support” (defined as the clarity and consistency of teacher expectations) and “teacher emotional support” (defined as level of care and support

from teachers) were linked to higher behavioral, emotional, and cognitive engagement. Another study found that students in schools with an authoritative school climate characterized by high disciplinary structure and student support were more engaged in learning, had higher educational aspirations, and attained higher grades (Cornell, Shukla, & Konold, 2016). In addition, students in an authoritative school climate were less likely to engage in peer aggression that included less teasing and bullying, as well as general peer victimization (Cornell, Shukla, & Konold, 2015). This body of research suggested that the four qualities of disciplinary structure, student support, student engagement, and prevalence of teasing and bullying, were important aspects of school climate.

The Authoritative School Climate Survey (ASCS; Cornell, Huang, et al., 2013) was developed to assess student perceptions of disciplinary structure and student support. High disciplinary structure is defined as a strict but fair school environment where students are aware of school rules and the consequences of misbehavior, and perceive that discipline is fairly administered. High support is demonstrated by positive teacher–student relationships in which students perceive that their teachers convey interest, respect, and a willingness to help them succeed (Gregory & Cornell, 2009).

In addition to disciplinary structure and student support, the ASCS measures student engagement in school and the prevalence of teasing and bullying. Student engagement refers to students' cognitive commitment to learning and emotional attachment to school (Appleton, Christenson, & Furlong, 2008). Student engagement is widely recognized as an important factor in school success. High student engagement in middle grade students is related to several important outcomes, including academic achievement (Froiland & Oros, 2014; Wang & Holcombe, 2010) and likelihood of graduating from high school (Archambault, Janosz, Fallu, & Pagani, 2009). Despite the importance of high student achievement, Juvonen (2007) found that middle grade students in the United States have lower ratings of student engagement and more negative perceptions of school climate in comparison to students in other countries.

School psychologists find that bullying and related forms of peer aggression are a common

problem for young adolescents in middle schools (Perkins, Perkins, & Craig, 2014). However, few studies have compared the bully climate reported by middle grade students in schools with different grade configurations. One large nationally representative study of 8th graders (Anderman & Kimweli, 1997) found that students within 6th–8th grade or 7th–9th grade configurations reported significantly higher levels of victimization than students in K–8th grade or K–12th grade configurations. Eighth graders in middle schools also perceived their school as more unsafe than students in K–8th grade or K–12th grade configurations. These results were supported by Weiss and Kipnes (2006), who also found that adolescents in middle schools felt less safe than those attending K–8th grade schools. A climate of teasing and bullying may affect bystanders as well as victims. For example, studies have found that student observations of teasing and bullying, beyond personal victimization, were associated with lower academic test performance (Lacey, Cornell, & Konold, 2015) and higher dropout rates (Cornell, Gregory, Huang, & Fan, 2013).

Present Study

The purpose of the present study was to investigate the hypothesis that middle schools have a less positive school climate for 7th and 8th grade students than schools with other grade configurations. School climate was measured by four scales from the Authoritative School Climate Survey: disciplinary structure, student support, student engagement, and prevalence of teasing and bullying. This survey was completed by a statewide sample of 39,036 7th and 8th grade students attending 418 schools. Given that previous research indicates that students in middle schools have a more negative school experience than students in schools with other grade configurations, it was hypothesized that 7th and 8th grade students in middle schools would report lower disciplinary structure and student support, poorer engagement, and a higher prevalence of teasing and bullying than students in other grade configurations.

The current study extends previous research in several ways. First, this study examines a large sample of schools that allows us to compare conventional middle schools to both elementary schools and high schools that

include 7th or 8th grades. Although previous studies have examined individual student effects, our research question concerns schools as the unit of analysis and thus requires a large sample of schools. A multilevel analysis of both school and student level effects is valuable because it accounts for the nesting of students within schools, given that students from the same school likely have similar perceptions of their school climate. Multilevel analysis allows us to distinguish within-school variation from between-school variation in the outcomes. The study uses measures of school climate that have been developed to measure an authoritative school climate and that have demonstrated validity at both school and student levels of analysis.

The present study goes beyond previous studies by separately examining 7th and 8th grades. There are a number of reasons why 7th and 8th grade students might have different school experiences. For instance, 8th grade students are typically the oldest students in middle schools, so that they are more familiar with the school, may have higher status in the school, and experience less bullying than 7th grade students. Additionally, 8th grade students in conventional middle schools tend to report a poorer school climate than 7th graders (Wang & Dishion, 2012; Way et al., 2007).

Previous research indicates that school demographic variables influence student perceptions of school climate, student engagement, and bullying (Gottfredson et al., 2005; Klein & Cornell, 2010; Leithwood & Jantzi, 2009; Sullivan, Perry, & McConney, 2014; Tayli, 2013). For instance, school size has been negatively associated with student engagement and academic achievement in secondary school students (Leithwood & Jantzi, 2009). School size has also been associated with rates of teasing and bullying, although findings are mixed (Klein & Cornell, 2010; Tayli, 2013). Additionally, students in high-poverty schools with a high proportion of minority students reported a poorer school climate (Gottfredson et al., 2005). Lastly, an Australian study found that students in urban schools reported more supportive teacher–student relationships and more positive disciplinary practices than students in rural schools (Sullivan et al., 2014). To separate the effects of grade configuration from potentially confounding demographic variables, the analy-

ses controlled for three student-level demographic measures: gender, minority status, and parental education level. At the school level, analyses controlled for school size, community population density, mean parental education level, and percentage of minority students. Parental educational level was chosen as a measure for socioeconomic status over the percentage of students eligible for free or reduced-price meals (FRPM) because parental education was available as a control variable for both the student and school levels of analysis, whereas FRPM was only measured at the school level. Mean parental education level was correlated $r = .76$ with FRPM in this sample.

Method

Participants

Student data were obtained from the State Secondary School Climate survey, which is part of the state's annual School Safety Audit program (Cornell, Huang, et al., 2013). The survey was administered in the spring of 2013 to all state public schools with 7th and/or 8th grade enrollment. Of the 430 eligible schools, student surveys were returned from 423 schools, a participation rate of 98.4%. Five schools with unusual grade configurations (e.g., 8th grade only) were omitted, reducing the sample to 418 schools. Students were nested in 325 middle or junior high schools (Grades 5–8, 6–8, or 7–8) and 93 schools that variously placed their 7th and 8th graders in elementary or high schools. Given that some schools did not contain both 7th and 8th grades, the number of schools studied varied for each grade. The final sample included 387 schools for 7th grade and 371 schools for 8th grade.

Schools were given the option to give the survey to all 7th and 8th grade students (whole grade option) or, to minimize school burden, randomly select 25 students each from 7th and 8th grade (random sample option). Schools that chose the random sample option were given detailed instructions and a random number list to select participants (author blinded). In 274 schools using the whole-grade option, the estimated participation rate was 85.3% (28,582 of 33,494). For the 149 schools using the random sample option, the estimated participation rate was 83.9% (15,223 of 18,144). The overall stu-

dent participation rate was 84.8% of students invited to take the survey (43,805 of 51,638).

The analytic sample consisted of 20,337 7th graders and 18,699 8th graders. Based on student self-report, the racial/ethnic breakdown of the students (51.7% female; 52.2% 7th grade) was 52.3% Caucasian, 18.3% African American, 12.8% Hispanic, 3.4% Asian American, 1.6% American Indian or Alaska Native, 0.5% Native Hawaiian or Pacific Islander, and 15.6% who identified with more than one race. Students with intellectual disabilities or limited English proficiency that prevented them from completing the survey were not included in the sample.

Grade Configuration Groups

Analyses were conducted separately for 7th and 8th grade. Schools were sorted into four groups: (a) schools with both elementary and middle grade students (labeled “elementary group”), such as schools with Grades K-7 or K-8; (b) conventional middle schools (“middle”), such as schools with Grades 6-8; (c) junior high schools (“junior high”) with Grades 7-8; and (d) schools with middle grade and high school students (“high school”) such as Grades 7-12 or 8-12. Despite being similar in grade structure, middle schools and junior high schools were analyzed separately, given that middle schools were developed with the intention of being an improvement over junior high schools.

Because many schools did not have both 7th and 8th grade students, school groups differed slightly in the analyses for 7th and 8th grade. The grade configuration groups for 7th graders consisted of 50 elementary schools (30 Pre-K, K, or 1st through 7th grade; 11 4th or 5th through 7th grade; and 9 Pre-K through 8th grade), 295 middle schools (271 6th through 8th grade; 18 5th through 8th grade; and six 6th and 7th grade), 30 junior high schools (7th and 8th grade), and 12 high schools (6th or 7th through 12th grade). Eighth grade configuration groupings included 9 elementary schools (Pre-K through 8th grade), 289 middle schools (271 6th through 8th grade; 18 5th through 8th grade), 30 junior high schools (7th and 8th grade), and 43 high schools (31 8th through 12th grade; 12 6th or 7th through 12th grade). Three dummy variables for grade configurations (elementary, ju-

nior high, & high school) were created with middle school as the reference group.

Data Screening and Validity

Surveys were assessed for completion time and answers to validity screening questions. Participants who completed the survey in less time than an empirically determined cut-off (approximately 7.2 min, see [Cornell, Huang, et al., 2013](#)) were excluded from analyses. Two validity-screening items excluded participants who approached the questions in a careless or admittedly dishonest manner ([Cornell, Klein, Konold, & Huang, 2012](#); [Cornell, Lovegrove, & Baly, 2014](#)). The first item, “I am telling the truth on this study,” had four response options, including: *strongly agree*, *agree*, *disagree*, and *strongly disagree*. Participants who selected *disagree* or *strongly disagree* were omitted from the sample. The second validity item, “How many questions on this survey did you answer truthfully?” had five response options: *All of them*, *All but 1 or 2 of them*, *Most of them*, *Some of them*, and *Only a few or none of them*. Those who responded with *Some of them* or *Only a few or none of them* were excluded from the sample.

Measures

The survey of approximately 120 items assessed student perceptions of school climate and safety conditions. The survey was administered anonymously online using Qualtrics software with a median completion time of 18.5 min. Students completed the surveys in classrooms with teacher supervision. Student responses were aggregated within schools to calculate school means.

Four school climate scales relevant to our study were analyzed: Disciplinary Structure, Student Support, Student Engagement, and Prevalence of Teasing and Bullying. Other scales on the survey were not included in these analyses (e.g., Student Values, Peer Aggression, and Personal Experiences of Bullying; see [Cornell, Huang, et al., 2013](#) for a description of additional scales). These scales have been previously assessed for reliability and validity for this sample. [Konold and colleagues \(2014\)](#) used multilevel factor analyses to construct these scales as both student- and school-level measures. Confirmatory factor analyses indicated

that all items on the four school climate scales measured their intended factor in student- and school-level analyses. Students rated all items on a 4-point scale: *strongly disagree*, *disagree*, *agree*, and *strongly agree*.

Disciplinary structure. This 7-item scale assessed student perceptions of school discipline as strict but fair. Students answered items such as “The school rules are fair” and “Students at this school are only punished when they deserve it.” Previous studies using confirmatory factor analysis indicated significant loadings for all items at both within (student) and between (school) levels (Gregory et al., 2010; Konold et al., 2014). High disciplinary structure has been associated with lower student victimization (Cornell et al., 2015; Gregory et al., 2010). Cronbach’s alpha was .76 for 7th grade and .78 for 8th grade in this sample.

Student support. This 8-item scale asked students to rate how strongly they agreed that teachers and school staff respect and care about all students (e.g., “Most teachers listen to what students have to say”), and student willingness to seek help from adults at school (e.g., “There are adults at this school I could talk with if I had a personal problem”). Previous studies using the Student Support scale have supported its factor structure, criterion-related validity, and reliability in adolescent populations (Bandyopadhyay et al., 2009; Gregory et al., 2010; Konold et al., 2014; Konold & Cornell, 2015a). High student support is associated with academic success, higher school safety, and lower problem behavior and victimization (Cornell et al., 2015; Gregory et al., 2010). Cronbach’s alpha for the combined scale was .85 for 7th grade and .85 for 8th grade.

Engagement. The 6-item student engagement scale comprises two subscales: Affective Engagement (“I am proud to be a student at this school,” “I feel like I belong at this school”) and Academic Engagement (“I want to learn as much as I can at school,” “Getting good grades is very important to me”). Confirmatory factor analyses indicated that both Student Engagement subscales have good model fit separately and as a combined measure of engagement (Konold et al., 2014). Schools with high student engagement have lower rates of bullying and higher standardized test scores (Lacey et al., 2015; Mehta, Cornell, Fan, & Gregory, 2013).

Cronbach’s alpha for this scale was .76 for 7th grade and .76 for 8th grade.

Prevalence of teasing and bullying. The 5-item Prevalence of Teasing and Bullying scale was used to assess student observations of the types of teasing and bullying that occur at their school. Participants answered items such as “Students here often get teased about their clothing or physical appearance,” and “Bullying is a problem at this school.” Previous studies have found that the Prevalence of Teasing and Bullying scale had a good overall model fit for 6th–8th graders (Bandyopadhyay, Cornell, & Konold, 2009; Konold et al., 2014) and high school students (Bandyopadhyay et al., 2009; Klein, Cornell, & Konold, 2012). High prevalence of teasing and bullying has been associated with poor school performance and high school dropout (Cornell, Gregory et al., 2013; Lacey et al., 2015). In the current study, the prevalence of teasing and bullying scale had an internal consistency of .81 for 7th grade and .81 for 8th grade students.

Data Analysis

Preliminary analyses examined descriptive statistics for all variables. Bivariate correlations among predictor and school-level outcome variables are shown in Table 1. For 7th grade, interclass correlations (ICCs) were .07, .06, .07, and .08 for disciplinary structure, student support, engagement, and prevalence of teasing and bullying, respectively. For 8th grade, ICCs were .09, .06, .07, and .07 for disciplinary structure, student support, engagement, and prevalence of teasing and bullying. Design effects were calculated for each of the four outcome variables to examine the effect of independence violations on standard error estimates. The values ranged from 4.18 to 5.27 for 7th grade and 3.89 to 5.38 8th grade. Design effects of 2.0 or greater indicate the need for multilevel modeling to correct for bias resulting from nested data (Peugh, 2010). Therefore, a multilevel, multivariate analysis was used to account for relationships among the four outcome variables and allowed for between-school comparisons while controlling for within-school variation.

Evaluation of this model proceeded in two steps. The first model examined all student-level variables (gender, minority status, and parental education level) and school-level vari-

Table 1
Correlations Among School-Level Variables By Grade

Measure	1	2	3	4	5	6	7	8
1. Disciplinary Structure	—	.78**	.75**	-.52**	-.01	-.07	.12*	-.29**
2. Student Support	.81**	—	.72**	-.48**	-.08	-.11*	.03	-.18**
3. Student Engagement	.76**	.72**	—	-.51**	.09	-.01	.26**	-.21**
4. Prevalence of Teasing and Bullying	-.61**	-.56**	-.57**	—	.03	-.05	-.22*	.12*
5. School Size	.02	-.02	.17**	.05	—	.48**	.48**	.41**
6. Population Density	-.11*	-.06	.02	.08	.48**	—	.35**	.63**
7. Mean Parental Education	.23**	.14**	.35**	-.25**	.48**	.35**	—	.07
8. Percent Minority	-.39**	-.27**	-.18*	.29**	.41**	.63**	.07	—

Note. Correlations for 7th grade are below the diagonal line; correlations for 8th grade are above diagonal line.

* $p < .05$. ** $p < .01$.

ables (school size, population density, mean parental education level, and percentage of minority students) for each of the four school climate measures. Model 2 included the addition of four school types: elementary, middle, junior high, and high schools. In order to have meaningful intercepts, school-level predictors were grand mean centered (Raudenbush & Bryk, 2002). Student-level predictors and parent education level were school mean centered. Statistical analyses were conducted in Mplus 6.1 using a maximum likelihood estimator with robust standard errors; the nesting of students within schools was accounted for through specification of a two-level analysis.

Results

Descriptive statistics for school-level measures are presented in Table 2. Spearman rank correlations ranged from .56 to .81 among the

Disciplinary Structure, Student Support, Student Engagement, and Prevalence of Teasing and Bullying scales for 7th grade and .48 to .78 for 8th grade. Schools with a higher proportion of minority students were associated with lower prevalence of teasing and bullying, and higher disciplinary structure, student support, and student engagement for both grades. Schools with higher mean parental education were associated with lower prevalence of teasing and bullying, and higher disciplinary structure, student support, and student engagement for 7th grade. For 8th grade, higher parental education was associated with lower prevalence of teasing and bullying and higher disciplinary structure and student engagement.

Seventh Grade Students

Multilevel path models for 7th grade are presented in Table 3. Model 1 presents relations

Table 2
School-Level Descriptive Statistics

Grade	Measure	N	M	SD	Minimum	Maximum
7th Grade	Disciplinary Structure	385	19.12	1.37	15.00	23.00
	Student Support	385	24.18	1.47	20.00	30.00
	Student Engagement	385	12.60	1.27	16.00	22.00
	PTB	385	12.60	1.28	8.00	16.00
8th Grade	Disciplinary Structure	366	18.54	1.41	14.00	23.00
	Student Support	366	23.56	1.36	20.00	27.00
	Student Engagement	366	18.38	1.08	13.00	22.00
Overall	School Size	418	720.00	417.03	61.00	4,033.00
	Population Density	418	1,023.80	1,704.17	5.60	9,493.00
	Mean Parental Education	418	3.25	.50	2.09	4.69
	Percent Minority	418	.39	.28	0	1.00

Note. PTB = Prevalence of Teasing and Bullying.

Table 3
Standardized Model Coefficients for Grade 7 Students

Measures	Structure		Support		Engagement		PTB	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Student-Level								
Male	.003	.003	.002	.002	-.02*	-.02*	-.06***	-.06***
Parental Education	.03***	.03***	.02**	.02**	.11***	.11***	-.03***	-.03***
Black	-.07***	-.07***	-.02**	-.02**	-.03**	-.03**	.02*	.02*
Hispanic	-.07***	-.07***	-.05***	-.05***	-.05***	-.05***	.03**	.03**
Asian	.01*	.01*	.02**	.02**	.03***	.03***	.001	.001
Multi-Race	-.08***	-.08***	-.05***	-.05***	-.05***	-.05***	.04***	.04***
American Indian	-.02**	-.02**	-.02**	-.02**	-.02**	-.02**	.02*	.02*
R-Squared	.014	.014	.06	.006	.019	.019	.008	.008
School-Level								
Parental Education	.19**	.18*	.15*	.15*	.36***	.34***	-.42***	-.45***
Population Density	.16*	.19**	.14*	.16*	.15*	.16*	-.16***	-.23***
School Size	.08	.09	.02	.04	.11	.10	.16*	.16**
Percent Minority	-.28***	-.24**	-.25***	-.21**	-.12	-.11	.17*	.06
Elementary	—	.17*	—	.14	—	.05	—	-.33***
Junior High	—	.16*	—	.10	—	.11	—	-.14**
High School	—	.03	—	.001	—	.06	—	-.14**
R-Squared	.187	.234	.136	.161	.236	.251	.251	.368
Change R-Squared		.047		.026		.015		.117

Note. PTB = Prevalence of Teasing and Bullying.

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

among the control variables at the student and school levels. At the student level, higher parental education was associated with higher structure, support, and engagement, and lower prevalence of teasing and bullying (all p values $< .01$). Male students reported lower levels of engagement and prevalence of teasing and bullying than female students (all p values $< .05$). Students who identified as African American, Hispanic, Native American, and multiracial reported significantly lower disciplinary structure, student support, and student engagement, and higher prevalence of teasing and bullying than Caucasian students. Asian American students reported the opposite trend: high disciplinary structure, student support, and student engagement. At the school level, higher parental education was associated with favorable school climate ratings for all four measures, and schools in more populated settings had similar trends (all p values $< .05$). Larger schools tended to have higher prevalence of teasing and bullying (PTB; $B = .23$, $p < .01$). A higher percentage of minority students in a school was associated with less favorable ratings for disciplinary structure ($B = .28$, $p < .001$), student support ($B = .25$, $p < .001$, and PTB ($B =$

$-.17$, $p < .05$). These model covariates jointly explained 19%, 14%, 24%, and 25% of between-school variance in disciplinary structure, student support, student engagement, and prevalence of teasing and bullying, respectively.

Model 2 built upon Model 1 with the introduction of the four grade configuration grouping variables: elementary, middle school, junior high, and high school. Model 2 fit the data significantly better than Model 1 as indicated by the likelihood ratio test, $\chi^2[12] = 60.89$, $p < .001$. Controlling for all model covariates, the four grade configuration predictors alone explained 5%, 3%, 2% and 12% of variance in disciplinary structure, student support, student engagement, and prevalence of teasing and bullying, respectively. Seventh grade students in middle schools reported significantly lower disciplinary structure in comparison to 7th graders placed in elementary schools ($B = -.17$, $p < .05$) and junior high schools ($B = -.16$, $p < .05$). Students placed in middle schools also reported higher prevalence of teasing and bullying than those in elementary ($B = .33$, $p < .001$), junior high ($B = .14$, $p < .05$), and high schools ($B = .14$, $p < .01$).

Eighth Grade Students

The multilevel path models for 8th grade are presented in Table 4. Results from Model 1 show, at the student level, higher levels of parental education were associated with higher structure, support, and engagement, and lower prevalence of teasing and bullying (all p values $< .01$). Male students reported higher disciplinary structure ($B = .02, p < .05$) and lower PTB ($B = -.10, p < .001$) than female students. The pattern of minority group differences for 8th grade students was the same as for 7th grade students (see Table 4).

School-level analyses revealed that high parental education was associated with higher student engagement ($B = .28, p < .001$), and lower prevalence of teasing and bullying ($B = -.44, p < .001$). Larger schools tended to have higher PTB ($B = .20, p < .05$). Generally, schools with a higher percentage of minority students had lower disciplinary structure, student support, and student engagement. These model covariates jointly explained 8%, 8%, 19%, and 19% of between-school variance in disciplinary structure, student support, student engagement, and prevalence of teasing and bullying.

Model 2 included the four grade configuration grouping variables. A likelihood ratio test revealed significantly better fit for Model 2 than Model 1, $\chi^2[12] = 37.2, p < .001$. The four predictors alone explained an additional 4%, $< 1\%$, 6%, and 3% of variance in disciplinary structure, student support, student engagement, and PTB, respectively. Eighth grade students in middle schools reported significantly lower disciplinary structure ($B = -.19, p < .01$) and student engagement ($B = -.26, p < .001$), and higher prevalence of teasing and bullying ($B = .17, p < .05$) in comparison to 8th graders placed in high schools. There were no significant differences between middle schools and junior high schools or elementary schools for any of the four outcome variables.

Discussion

This study compared 7th and 8th grade student perceptions of school climate in elementary, middle, junior high, and high schools. As hypothesized, students in both grades perceived their middle school experience more negatively than students in other grade configurations. Overall, these findings support and extend pre-

Table 4
Standard Model Coefficients for Grade 8 Students

Measures	Structure		Support		Engagement		PTB	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Student-level								
Male	.02*	.02*	.01	.01	.01	.01	-.10***	-.10***
Parental Education	.03***	.03***	.04***	.04***	.12***	.12***	-.02**	-.02**
Black	-.05***	-.05***	.01	.01	-.004	-.004	-.003	-.003
Hispanic	-.07***	-.07***	-.03**	-.03**	-.04***	-.04***	.04***	.04***
Asian	.03***	.03***	.03***	.03**	.04***	.04***	.002	.002
Multi-race	-.07***	-.07***	-.04***	-.04***	-.03***	-.03***	.04***	.04***
American Indian	-.02*	-.02*	-.004	-.004	-.02*	-.02*	.01	.01
R-squared	.012	.012	.005	.005	.019	.019	.014	.014
School-level								
Parental Education	.08	.11	.06	.08	.28***	.33***	-.44***	-.47***
Population Density	.08	.12	.14*	.16*	.09	.15*	-.16*	-.19**
School size	.07	.04	-.05	-.06	.11	.06	.20*	.23**
Percent Minority	-.21**	-.16*	-.18*	-.15	-.21**	-.13*	-.06	-.11
School Type 1	—	.06	—	.005	—	.06	—	-.06
School Type 3	—	.10	—	.01	—	.08	—	-.04
School Type 4	—	.19**	—	.10	—	.26***	—	-.17**
R-squared	.075	.116	.080	.088	.187	.250	.184	.213
Change R-squared		.041		.008		.063		.029

Note. PTB = Prevalence of Teasing and Bullying.

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

vious studies indicating that students placed in middle schools have less favorable experiences than those in other grade configurations (Anderman & Kimweli, 1997; Cook et al., 2008; Kim et al., 2014; Weiss & Kipnes, 2006). Although both 7th and 8th grade students in middle schools reported a less supportive, more adverse school environment when compared to those in other grade configurations, the 7th and 8th graders differed in which grade configuration provided the more favorable school climate conditions.

Seventh Grade Students

Seventh grade students placed in conventional middle schools reported less disciplinary structure than students placed in schools with elementary grades. Disciplinary structure refers to the perceived clarity and fairness of school rules. One explanation for this finding may be that students in middle schools often have classes with multiple teachers who may have different classroom expectations, which can result in a poorer understanding of school rules (Cook et al., 2008). Additionally, students in middle schools have more autonomy and less supervision than those in elementary schools. This may allow for more instances of misbehavior and disciplinary action, which may contribute to the student perception that the adults in middle schools are too strict and that the rules are unfair. Research suggests that schools with poor disciplinary structure have detrimental outcomes, including higher rates of disciplinary infractions and student victimization (Gottfredson et al., 2005; Welsh, 2001).

In addition to low disciplinary structure, 7th graders in middle school reported more teasing and bullying than 7th grade students in elementary and junior high schools. Teasing and bullying were also more prevalent for 7th graders in middle schools than in high schools. Together, these results parallel Ma's (2002) finding that middle grade students in schools with poor disciplinary climates had significantly higher reports of bullying. Although the effect size for disciplinary structure was relatively small, grade configuration accounted for 12% of the variance for prevalence of teasing and bullying, which was significantly greater in middle schools than elementary and high schools at the school level. Although the prevalence of teasing

and bullying scale measured student observations of peer victimization, which is more inclusive than the student's own victim experiences, it is notable that 7th graders in high schools reported less teasing and bullying than 7th graders in middle schools. This is unexpected because 7th graders in a high school would be the youngest in their schools and potentially the most likely to be bullied by older students.

Contrary to our hypotheses, student support and student engagement did not differ across grade configurations. The 7th graders in middle schools had similar perceptions of feeling supported and encouraged by staff members, and felt similarly engaged in school as 7th graders in schools with other grade configurations.

Eighth Grade Students

Previous studies found that 8th grade students in K–8 schools have a better school experience than students in middle schools. For example 8th graders in elementary schools experience less bully victimization (Anderman & Kimweli, 1997), have fewer disciplinary problems (Cook et al., 2008), and report a more positive overall school environment than students in middle schools (Kim et al., 2014). In our study, 8th graders in elementary schools did not perceive their school climate more or less favorably than those in middle schools for each of the four school climate measures.

Contrary to the findings for 7th grade students, which favored elementary schools, 8th grade students in our sample reported more favorable conditions in high schools. Eighth grade students in middle schools reported lower disciplinary structure, less student engagement, and higher prevalence of teasing and bullying when compared to 8th grade students placed in high schools. This might seem unexpected because 8th grade students might be at a disadvantage in high school compared to older students. On the contrary, our findings suggested that high school may be a more appropriate environment for these students and that they might be better able to handle the additional academic and social demands required in a high school. Grade configuration accounted for about 4%, 6%, and 3% of the variance for structure, engagement, and prevalence of teasing and bullying, respectively. Eighth grade students

placed in high schools reported better understanding of school rules and were more engaged in their school experience. Additionally, 8th graders perceived a higher rate of teasing and bullying in middle school, suggesting that the middle schools may be more conducive to bullying than high schools. Previous research clearly suggests that there is a lower prevalence of bullying, as well as fewer disciplinary problems and suspensions, in high schools (Nansel et al., 2001, Virginia Department of Education, 2015). Perhaps 8th grade students follow the lead of the older, more mature students in the school, resulting in fewer overall problem behaviors and higher levels of engagement. To our knowledge, this study is the first to compare 8th graders in middle schools to 8th graders in high schools.

School-Level Demographics

For both grades, higher parental education at the school level was associated with higher student engagement and lower prevalence of teasing and bullying. High parental education was also associated with high disciplinary structure and support for 7th grade students. These findings align with previous meta-analyses that suggest that high socioeconomic status is associated with better school outcomes, including higher academic achievement and lower levels of bully victimization (Sirin, 2005; Tippet & Wolke, 2014). Schools with higher average parental education may be located in communities with better funding and greater parental involvement, thus creating a more positive school atmosphere.

Larger schools had a higher prevalence of teasing and bullying for both grades. Previous research suggests that, although students in larger schools report more teasing and bullying, bully victimization rates do not correlate with school enrollment size. One explanation for these findings may be that students observe more teasing and bullying because there are more students in the school, not because there is a higher proportion of students being bullied (Klein & Cornell, 2010). This explanation makes the high prevalence of teasing and bullying in middle schools more notable, since middle schools tend to be smaller than elementary or high schools because they contain fewer grades. It is plausible that the poor disciplinary

climate in middle schools is conducive to teasing and bullying (Ma, 2002).

Schools with a higher percentage of minority students had lower ratings of disciplinary structure. Additionally, 7th graders in schools with a higher percentage of minority students reported lower student support, and 8th graders reported lower engagement. These findings align with a previous study that suggested that schools with a high proportion of minority students had a poorer school climate (Gottfredson et al., 2005). Schools with high proportions of minority students may be located in high-crime or disadvantaged areas, which may contribute to students' negative perceptions of their school environment.

Lastly, schools in more urban areas (higher population density) had more favorable ratings for student support, student engagement, and prevalence of teasing and bullying, with 7th grade students additionally reporting higher disciplinary structure. Previous research has found that urban school students report more reasonable disciplinary practices, more supportive teacher–student relationships, and less prevalence of teasing and bullying than students in more rural schools (Klein & Cornell, 2010; Sullivan et al., 2014). In Virginia, there are a large number of well-funded urban schools located in the northern region of the state. Schools in more rural regions often have teachers with less experience, have high teacher turnover, and have fewer special education resources (Monk, 2007). Further examination is needed to assess whether urban schools have more resources for teachers and students that are associated with more favorable impressions of school climate.

Limitations and Future Directions

This study has several methodological limitations. First, correlational analyses cannot determine a causal relationship between positive school climate factors and grade configuration. Although an experimental trial that randomly assigned students to different school types would be the most rigorous way to determine any causal effects of grade configuration, it is not feasible to assign children to different schools or create various grade configurations for this purpose. Therefore, the current study takes advantage of existing differences across school systems that have used different config-

urations. Although we controlled for demographic influences of parental education, minority status, and school size, other factors may influence the strength and direction of the relations among the variables. For instance, level of experience and quality of school staff may differ between grade configurations. Another possibility is that the staff of elementary and high schools with 7th or 8th graders may recognize the vulnerability of these students and make special efforts to accommodate them.

Additionally, 7th and 8th students in elementary or high school configurations may not be held to the same expectations as students that are significantly younger or older than them. One study found that middle school students are significantly more likely to be suspended than their same-grade peers in K–8 schools, and that suspensions in middle schools are significantly longer in duration (Arcia, 2007). Research suggests that students in schools with high suspension rates report poorer school climates (Gregory, Cornell, & Fan, 2011). Future studies should consider whether school suspension practices mediate the relation between grade configuration and school climate.

Another study limitation is that all measures were based on student self-report. Students might not be the most accurate reporters of school conditions, and teacher perceptions might provide an important perspective. The effect sizes for school climate were relatively small, and there might be stronger measures of school climate or different features of school climate that have a stronger relation to grade configuration. There was much more variance in school climate scores within schools than between schools, which is a common observation in multilevel studies of school climate (e.g., Konold & Cornell, 2015b). For example, individual student engagement within schools may range from the bottom of the scale to the top of the scale, whereas school-level means are aggregated across students and will vary within a more narrow range.

Data were only available for 7th and 8th graders in this study. Given that most conventional middle schools include 6th grade, future research that includes 6th graders can provide a more comprehensive look at school climate in middle schools. Additionally, the small number of high schools that contained 7th graders (12 schools) and elementary schools that contained

8th graders (9 schools) resulted in lower power when these configurations were compared in middle schools. Furthermore, a longitudinal study would be helpful to determine how and when student perceptions of school climate change for students placed various grade configurations. A previous longitudinal study of 6th–8th grade students in a conventional middle school found that student perceptions of teacher support and consistency in school rules declined over the three years (Way et al., 2007).

An important direction for further study is to determine whether differences in school climate are also linked to better academic outcomes. Previous research assessing the association between grade configuration and academic achievement suggests that middle grade students perform better academically in elementary configurations, but it is not clear why students in these configurations are more successful (Byrnes & Ruby, 2007; Kieffer, 2013; Rockoff & Lockwood, 2010; Weiss & Kipnes, 2006). It is possible that the positive school climate observed in non-middle school configurations may contribute to student academic success.

Conclusion and Implications

Educational authorities have made various attempts to improve the historically poor school experience for early adolescent students. The most substantial attempt involved the restructuring of junior high schools into more developmentally responsive middle schools. This shift was widely adopted without research to demonstrate its effectiveness, and more recent research suggests that it did not achieve the desired effects (Juvonen et al., 2004). Results from the current study indicate that there are no significant differences between middle schools and junior high schools for any of the four school climate variables for 8th graders, but that 7th graders in junior high schools report a more favorable school climate than those in middle schools. These findings suggested that the intended purpose of middle schools to provide a more favorable school environment for young adolescents has not been successful, according to student perceptions of school climate.

The schools in our sample included 7th–12th grade configurations that, to our knowledge, have not been examined in other grade config-

uration studies. Whereas other studies compared middle school students to those in configurations that typically include elementary grades, results from the current study indicated that 7th graders reported a more positive climate when grouped with younger students and 8th grade students reported a more positive climate when placed with older students.

Bullying in middle schools continues to be a prevalent problem for many students. Research suggests that bully victimization is associated with poorer student engagement, leading to poor academic achievement in middle school students (Totura, Karver, & Gesten, 2014). Our findings reinforce the need to address bullying in middle schools.

A recent meta-analysis suggests that bully prevention programs have significant effects on bullying for young students, but they lose their effectiveness by 7th grade (Yeager, Fong, Lee, & Espelage, 2015). An examination of middle student perceptions of anti-bullying efforts found that many early adolescents found them unappealing (Cunningham et al., 2016). Students in focus groups complained of boring presentations about bullying, teacher inability or unwillingness to detect bully perpetrators, and ineffective consequences for bullying. One promising alternative to conventional anti-bullying programs is the finding that a more general improvement of school climate can also reduce bullying (Cornell & Bradshaw, 2015).

Given that middle school students in this sample, and also previous studies (e.g., Anderson & Kimweli, 1997; Kim et al., 2014; Weiss & Kipnes, 2006), reported a less favorable school experience than students in other configurations, one implication that deserves serious consideration is that school authorities may consider keeping 6th and 7th graders in elementary schools and placing 8th graders in high school settings. The allocation of resources to create middle schools may not be justified if students do not demonstrate any clear benefits from this grade configuration and on the contrary seem to fare less well than students in other grade configurations. The current literature tends to support the inclusion of 6th and 7th grade students in elementary schools, but there is much less research on the most suitable placement for 8th graders. Although more research is needed, our findings are contrary to the common view that 8th graders might be subject to a

more hostile school climate in high school settings.

Another study implication is that school psychologists should advocate for evidence-based programs and practices that would create a more positive middle school experience for their students. Our findings suggest that although middle school students may feel supported and respected by their teachers, the school rules are perceived as unclear or unfair. Given that both disciplinary structure and student support are related to positive outcomes (Cornell et al., 2015, 2016), it is important that both components are carefully monitored in schools. The Positive Behavioral Interventions and Supports (PBIS) model of school improvement has been found to improve disciplinary practices and reduce the prevalence of bullying in schools by using a multitier approach (Bradshaw, 2013; Horner, Sugai, & Anderson, 2010; Pas & Bradshaw, 2012). An effective PBIS program should help students to regard disciplinary practices as fair and their teachers as supportive, consistent with an authoritative school climate.

Another program that can be used to improve school climate is My Teaching Partner-Secondary (MTP-S). The MTP-S program is designed in part to promote supportive relationships between teachers and students. By strengthening teacher-student relationships, MTP-S has been found to improve student engagement and academic achievement in middle school students (Allen, Pianta, Gregory, Mikami, & Lun, 2011; Gregory, Allen, Mikami, Hafen, & Pianta, 2014).

In addition to advocating for best practices for their schools, school psychologists in middle schools are encouraged to consult with teachers and staff directly to facilitate improvement of the school environment (Yseldyke et al., 2006). Through these consultations, school psychologists can effectively target aspects of their school's climate that may be lacking, such as poor disciplinary practices. Given that most public school students attend conventional middle schools, it is vital that school psychologists, administrators, and other staff members recognize potential problems with the middle school environment and strive to promote a more positive school climate.

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