

Identifying the helpfulness of school climate: Skipping school, cheating on tests, and elements of school climate

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Abstract

Prior research demonstrates the importance of school climate in shaping student behavior but tells us less about which aspects of school climate matter. In this paper we consider how distinct elements of school climate relate to skipping school and cheating on tests. Using survey and administrative data from several statewide Delaware sources, we perform a series of random-intercept logistic regression models. We find that students in schools perceived to have a climate with high levels of structure and support are less likely to report cheating on tests. Yet we do not find a robust relationship between most climate measures and skipping school. School climate relates strongly to in-school deviant behavior but much less to school-related deviant behavior occurring outside of schools. By specifying what measures of climate do and do not relate to problematic student behaviors, our results sharpen our understandings of how school climate shapes student behaviors.

Keywords

cheating, education, school climate, skipping school

Studies of students' criminal and deviant behaviors commonly focus on school climate as a protective mechanism against student misbehavior (e.g., Cook et al., 2010). This focus is both supported by empirical evidence and helpful, as it allows educators and policymakers to consider how student behavior is shaped by contexts that adults (teachers, administrators, parents, etc.) create and reinforce (Bear, 2020). But it is also limited by lack of precision regarding what that context itself is, as the term, "school climate" is operationalized in very different ways (Williams

& Guerra, 2011). This results in a lack of analytical clarity in understanding what specific aspects of school climate help students avoid misbehavior.

In this paper we respond to this limitation of the literature by examining how distinct elements of school climate—including elements such as reported perceptions of interpersonal relationships, school rules, safety, behavioral management strategies, and bullying—relate to two student misbehaviors: cheating on tests and skipping school. We focus on these two behaviors because they offer a reasonable test of how school climate shapes students' prosocial behaviors and connections to school norms. Using methods that avoid important limitations from prior studies, we disentangle aspects of school climate and test which ones are (and are not) predictive of self-reported cheating and skipping school. These analyses are important for both analytical and policy reasons. Analytically, it is important to clarify what drives the relationship between school climate and misbehavior. This allows educators and policymakers to better target aspects of school climate to more efficiently and effectively support students and reduce student misbehavior, particularly cheating and skipping school.

2 | PRIOR RESEARCH

2.1 | Defining school climate

Research on how to best prevent school crime and (noncriminal) student misbehavior consistently shows that supportive school climates are effective (Cook et al., 2010; Gottfredson, 2001). Generally, the term “school climate” refers to relationships within schools, supports for students, and students' and staff members' perceptions of the overall school environment (Bear, 2020). Researchers vary in how they conceptualize components of school climate (Williams & Guerra, 2011). Nevertheless, most agree that school climate includes several key domains, particularly relationships (also often called connectedness or social and emotional support) and safety (also often called structure). In emphasizing the importance of relationships, especially teacher-student and student-student relationships, Haynes et al. (1997) defined school climate as “the quality and consistency of interpersonal interactions within the school community that influence children's cognitive, social, and psychological development” (p. 322). Placing greater emphasis on the importance of safety, Cohen et al. (2009) defined school climate as “the quality and character of school life” that includes “norms, values, and expectations that support people feeling socially, emotionally, and physically safe” (p. 182). These definitions are consistent with comprehensive reviews of the research literature on measures of school climate (i.e., Ramelow et al., 2015; Wang & Degol, 2016) which found that connectedness and safety/structure are the two most common domains assessed in measures of school climate. Those reviews also found two additional (though less common) broad domains on multiple measures of school climate: teaching and learning, or academics, and institutional environment, or environmental structure.

In their review of 297 empirical studies, Wang and Degol (2016) identified 13 specific dimensions of school climate that fall within these four broad domains. Dimensions within the community domain are teacher-student relationships, teacher-staff relationships, connectedness (i.e., sense of belonging), respect for diversity (including fairness and autonomy), and partnership (i.e., parent involvement). The safety domain includes the dimensions of social/emotional safety (including lack of bullying), discipline and order (including fairness and clarity of school rules), and physical safety. The academic domain includes the dimensions of teaching and learning, professional development, and administrative leadership. The institutional environment domain includes structural organization (e.g., class size, school size, ability grouping) and availability of resources (i.e., supplies, materials, equipment). This domain and its dimensions were found to be the least common on measures of school climate.

About 90% of studies of school climate assess students' perceptions of school climate (Wang & Degol, 2016). This is consistent with social-cognitive theory (Bandura, 1986) and ecological systems theory (Bronfenbrenner, 1979), which emphasize that how individuals perceive their environments is often more important than their environments per se. Studies have shown that positive perceptions of climate are related to a number of valued

outcomes, including academic engagement and achievement (Bear et al., 2011; Konold et al., 2014), fewer conduct problems (Hung et al., 2015), and less depression, stress, and anxiety (Way et al., 2007). Similar results have been found in studies examining more specific dimensions of school climate. For example, consistent with an authoritative model of school climate, characterized by social and emotional support coexisting with what is commonly referred to as structure or demandingness (i.e., fair rules, order and safety; see Baumrind, 2013; Bear et al., 2005; Brophy, 1996; Gregory & Cornell, 2009), students' perceptions of positive teacher–student relationships predict fewer antisocial and aggressive behaviors (Obsuth et al., 2017), greater academic engagement and achievement (Fredricks et al., 2004), prosocial behaviors (Obsuth et al., 2017), and general mental health (Long et al., 2020). Students' perceptions of clear and fair behavioral expectations, rules, and consequences likewise are associated with greater prosocial behavior (Bradshaw et al., 2012), greater student engagement and academic achievement (Benner et al., 2008), and fewer behavior problems and disruptive behavior (Arum, 2003; Gottfredson et al., 2005) including bullying and peer victimization (Gregory et al., 2010).

2.2 | Research on cheating and skipping school

In this paper we extend these prior studies by considering how school climate relates to two behaviors—cheating on tests and skipping school—that have received less attention than other student behaviors (e.g., aggression or defiance; see Obsuth et al., 2017). Much of the research we summarize above illustrates how school climate influences students to behave better in interactions with other students, teachers, or the school (e.g., Cook et al., 2010). But we know less about how school climate relates to student behaviors that occur in a less social context. Both cheating and skipping school violate rules and show a lack of commitment to normative expectations placed on students, but they do not injure others or disrupt class. Cheating and skipping school thus offer an important opportunity to test the mechanisms of school climate. If supportive school climates are effective because they strengthen the connection between students and the school community, including its norms and behavioral expectations, then we would expect school climate to have a pronounced influence on cheating and skipping school. Yet few prior studies have considered these relationships, focusing instead on students' academic outcomes (e.g., engagement and achievement; see Konold et al., 2018; Wang & Holcombe, 2010) and aggressive behaviors (Espelage et al., 2014; Obsuth et al., 2017). We know that students in more supportive school climates are less willing to hurt others or disrupt educational environments (Hung et al., 2015; Obsuth et al., 2017), but are they also more likely to follow other school rules and norms?

Prior research on cheating behavior finds that it is common among students; a national survey of high school students conducted by the Josephson Institute of Ethics (2012) found that 52% reported having cheated on a test. Justifications for cheating commonly entail school climate, as students are more likely to cheat when they think that rules against it are unclear or unfair (Jensen et al., 2002), there is little likelihood of getting caught, the negative consequences are small (Galloway, 2012), and that “everyone else does it” (McCabe & Trevino, 1993). Cheating is also more likely to occur among students who feel that teachers are uncaring (Murdock et al., 2008) or those who feel alienated from school (Finn & Frone, 2004). Finally, achievement goal theory has found that cheating is more prevalent in classrooms and school climates where students perceive that grades, rewards, and other extrinsic recognitions and social comparisons for performance (i.e., performance goals) are more highly valued than the learning of material (i.e., mastery goals; Galloway, 2012; Murdock & Anerman, 2006; Murdock et al., 2001). Using this framework researchers have found that students who report pressure for high grades from parents, teachers or peers are more likely to cheat (Murdock & Anerman, 2006). One study found that students who moved from a low performance-oriented to a high performance-oriented classroom during their transition from middle school to high school were more likely to report cheating after the transition (Anderman & Midgley, 2004). As students move through high school, pressures for high grades may increase, as Stephens (2004) found that cheating can increase in junior year of high school because of the added weights given to these grades in the college admissions process.

Research on skipping school traditionally focused on individual student factors, however, several recent studies have considered school climate as well (Keppens & Spruyt, 2019). Scholars have identified a consistent trend between a positive school climate and reduction in skipping school (Eck et al., 2017; Hendron & Kearney, 2016). For example, Eck et al. (2017) found that students who perceived their school climate as negative or moderate were more likely to attend schools with higher chronic absence rates than students who reported a positive school climate. Recently, Keppens and Spruyt (2019) found that class skipping occurs less frequently in schools that have an authoritative school climate, regardless of students' personal background or schools' socioeconomic or racial/ethnic composition. A positive school climate also fosters student engagement (Wang & Holcombe, 2010), which has been shown to be an important protective factor against skipping school (Henry, 2007; Hirschfield & Gasper, 2010).

Two methodological limitations are common in the body of research on cheating and skipping school, as well as among tests of school climate's effects on other student behaviors. One is the use of cross-sectional data to test causal relationships (e.g., that an authoritative school climate reduces misbehavior), resulting in finding an association between school climate and student behaviors but with unclear temporal order of their relationship (Cornell & Huang, 2016; Gregory et al., 2010; Wang & Degol, 2016). The other is the failure to control for confounding factors such as school demographics or student disadvantage, leaving researchers unable to rule out spurious explanations (Wang & Degol, 2016; Welsh et al., 1999). In the following analyses, we address both of these limitations using longitudinal models with the inclusion of many covariates. Our models consider how school climate relates to student misbehavior *the following year*, thus specifying temporal order in their relationship. We control for a wide array of potential confounding factors, including school demographics and resources, student disadvantage, and even students' prior experiences with school punishment.

3 | HYPOTHESES

Based on prior research showing that authoritative school climates, marked by both structure and support, tend to suppress student misbehavior, we test the following hypotheses:

Hypothesis 1. *Students in schools with more supportive climates are less likely than others to report cheating on a test.*

Hypothesis 2. *Students in schools with more supportive climates are less likely than others to report skipping school.*

Hypothesis 3. *Among various components of school social climate, those relating to structure and student support will most strongly relate to both reported cheating on a test and skipping school.*

If supportive school climates help students to internalize the norms and behavioral expectations of schools, one would expect a pronounced impact of school climate on both reported cheating and skipping behaviors.

4 | METHODS

4.1 | Data

We analyze recent data from the Delaware Department of Education (DOE) School Survey, the University of Delaware School Survey (UDSS), and Delaware's Open Data Portal. Each of these sources provides a unique set of

data on schools and students from across the state of Delaware. Together, they allow us to analyze the relationship between school climate and student behaviors, while controlling for important student and school characteristics.

Delaware serves as an excellent case study because of its combination of rural, suburban, and urban settings, and its racially diverse student population. Delaware has three counties, New Castle County, Kent County, and Sussex County, and no major metropolitan areas, but rather several small cities throughout the state. New Castle County, the state's mostly densely populated county, has 60% of its high school and middle school population¹ and is home to 4 of the 5 largest cities in Delaware. The other two counties, Kent and Sussex, are less densely populated and have more rural settings. Because of this difference schools in New Castle are more numerous, but smaller, while schools in Kent and Sussex Counties are fewer but larger. This creates a student population that comes from a mix of urban, suburban, and rural communities. Delaware is also home to a racially diverse student population with a statewide student body that is 48% White, 32% Black, 14% Hispanic, and 5% other racial/ethnic groups². In addition to the diversity of its student population, Delaware's location in the mid-Atlantic means that Delaware is neither Northern nor Southern. Finally, Delaware implements a very commonly used program, School-wide Positive Behavioral Intervention and Supports,³ as part of its student behavior management strategy. The fact that 43 other states use this program as well suggests that Delaware's efforts to manage student behaviors are at least somewhat similar to those in other states.⁴ Our ability to analyze data from a diverse student population that is neither predominately from urban or rural settings, nor from students belonging to a single racial group, and that comes from schools implementing a widely-used program for managing student behavior, makes Delaware an ideal state for consideration, and one likely to be representative of other states as well.

4.1.1 | Delaware DOE school survey

Our measures of school climate all come from the Delaware DOE School Survey, administered annually by the Delaware DOE to approximately 140 public schools in Delaware, which comprises 70% of the schools in the state. Participation is voluntary. Schools were provided scripted directions for administering the surveys and recommendations on sampling. Surveys were administered by classroom teachers and completed by students via either Scantron forms or computer. Schools were advised to survey 100% of students in Grade 3 and above in elementary school, 50% of students (randomly selected) in middle and high schools with more than 300 students, and 100% of students in schools serving 300 or fewer students. Students were assured confidentiality of their responses. The survey takes most students approximately 20 min to complete. The DOE and the institutional review board of the researchers' university approved all measures and procedures, which included passive consent by parents.

4.1.2 | University of Delaware School Survey

The UDSS is administered and monitored by the University of Delaware's Center for Drug and Health Studies. Surveys are administered by trained University staff to 5th, 8th, and 11th graders from Delaware public and charter

¹County level enrollment data retrieved from Department of Education Student Enrollment Portal: <https://data.delaware.gov/Education/Student-Enrollment/6i7v-xnmf>

²Student racial composition data retrieved from Department of Education Student Enrollment Portal: <https://data.delaware.gov/Education/Student-Enrollment/6i7v-xnmf>

³Positive Behavioral Interventions and Supports program seeks to teach, model, and reward positive behaviors across entire schools so as to build students' competencies and prevent student misbehavior. When student misbehavior does occur, students are provided with multi-tiered systems of support (for a recent description and review, see Gregory, Osher, Bear, Jagers and Sprague 2021)

⁴<http://www.marylandpublicschools.org/about/Pages/DSFSS/PBIS/index.aspx>

school. We used data only for 8th and 11th graders, who are more likely to skip school and cheat on tests than are 5th graders (based on previous research (see Anderman & Midgley, 2004; Eck et al., 2017; Stephens, 2004) and our preliminary analyses). Participation is voluntary on three different levels. First, schools can choose to participate or not. Second, parents are notified about the survey and offered the opportunity to withdraw their children's participation. Third, before administering the survey, students are informed that participation is voluntary and they can choose to stop the survey at any point. Survey questions ask about a wide array of student health and behaviors, as well as home life and school experiences.

4.1.3 | Delaware's open data portal

To collect information about school demographics, we downloaded data made available by the state's DOE through a statewide student enrollment data portal. The DOE reports school expenditures as well as student enrollment based on counts from September 30th of each year. These counts include the numbers of students per grade, and by race/ethnicity as well as sex.

4.2 | Measures

4.2.1 | Dependent variables

Our two dependent variables, self-reported cheating and skipping school, come from the 2018 UDSS. Both were initially ordinal scales (with categories: never; before, but not in past year; a few times in past year; once or twice a month; once or twice a week; almost every day) and both are highly skewed, with 50.5% and 68.3% of respondents reporting never for cheating and skipping, respectively, and few students reporting either behavior regularly. Thus, we transformed each into a dichotomous variable to indicate whether the respondent reports having ever cheated on a test or skipped a day of school.

4.2.2 | School climate measures

All of our school climate measures come from the DE DOE Survey, which includes five scales. We used scores from three of those scales: The *Delaware School Climate Survey-Students* (DSCS-S; Bear et al., 2011, 2018), the *Delaware Positive, Punitive, and SEL Techniques Scale* (DTS; Bear et al., 2019), and the *Delaware Bullying Victimization Scale-Student* (DBVS-S; Bear et al., 2019).⁵

4.2.3 | Delaware School Climate Survey—Students

The DSCS-S is composed of 30 items organized into seven subscales: teacher–student relationships, student–student relationships, fairness of rules, clarity of behavioral expectations, school safety, student engagement school-wide, and bullying school-wide. Each subscale consists of 3-5 items. Students respond using a 4-point Likert scale (*strongly disagree* to *strongly agree*). The measures demonstrate reliability and validity, as well

⁵The two scales of the DE DOE Survey not included in this study were the Delaware Student Engagement Scale and the Delaware Social and Emotional Competence Scale. They were not included because both scales were revised, with items added and deleted, during the course of this longitudinal study. Revisions changed the factor structure of each of these two scales.

as invariance across grade levels (elementary, middle, and high school), racial/ethnic groups, and gender. For students in middle and high school (grades 6–12), alpha coefficients ranged from 0.89 to 0.90 for the total score and 0.77 to 0.87 for subscale scores (see the instrument's technical manual for details; Bear et al., 2019). We also use a total climate score, which is the mean of the seven climate subscales.

4.2.4 | Delaware Positive, Punitive, and SEL Techniques Scale

The DTS assesses students' perceptions of the extent to which adults in their school use positive, punitive, and social-emotional techniques to manage student behavior. The scale consists of three subscales. One, the use of positive behavioral techniques subscale, consists of five items focusing on the use of praise and rewards in the school, including the popular Positive Behavioral Interventions and Supports approach (Sugai & Horner, 2009). Two, the use of punitive techniques subscale, consists of five items assessing the frequency of harsh (zero-tolerance style) actions of teachers and staff to punish undesired behavior. Three, the social-emotional learning techniques (SEL) subscale, includes six items that assess the use of techniques for developing social and emotional competencies as commonly found in social and emotional learning programs (Collaborative for Academic Social and Emotional Learning, 2019). Students respond to each item using the same 4-point Likert scale used on the school climate measures. Whereas higher scores on positive behavioral techniques and SEL techniques subscales are favorable, high scores on the punitive techniques subscale are unfavorable. To be consistent across subscales, we use a reverse-coded version of the punitive techniques subscale in our analyses. Results of confirmatory factor analyses support the scale's three factors (see Bear et al., 2019). Alpha coefficients for the positive, punitive, and SEL subscales, respectively, are 0.82, 0.72, and 0.80 for middle school students, and 0.85, 0.71, and 0.81 for high school students.

4.2.5 | Delaware Bullying Victimization Scale-Student

The DBVS-S assesses the extent to which the responding student has experienced verbal, physical, and social/relational bullying in school during the current school year. Items on the DBVS-S were adapted from the *Adolescent Peer Relations Instrument: Bully/Target Scale* (Marsh et al., 2011). The DBVS-S consists of three 4-item subscales: Verbal Bullying, Physical Bullying, and Social/Relational Bullying. Students respond to each item using a 6-point Likert scale measuring frequency of bullying experiences (ranging from *never* to *every day*). A total score is derived by averaging the responses across the 12 items. Confirmatory factor analyses conducted on 34,323 students in grades 3–12 supported the scale's three-factor structure, with invariance across grade levels (elementary, middle, and high school), gender, and race/ethnicity (Bear et al., 2019). Based on data from the 2018 to 2019 school year, alpha coefficients for the total score were 0.95 for students in middle school and 0.96 for those in high school.

4.2.6 | Student characteristics

Measured student characteristics all come from the 2018 UDSS. They include self-reported demographic information (sex, race/ethnicity) as well as self-reported indicators of poverty, disability, experiences with school discipline and the justice system, and family instability, each of which might influence both how students experience school climate and how school climate impacts their behaviors (Gottfredson, 2001; Lareau, 2003). Demographic variables include grade (8th grade, with 11th as a contrast), race/ethnicity (indicators for identifying as Black non-Hispanic, Latino/a, or another race/ethnicity, with White non-Hispanic as the contrast), and sex (female). We used the following additional independent variables from the UDSS to control for potential confounding factors: (1) ever

having received an out-of-school suspension or expulsion, (2) ever having received an in-school suspension, (3) having had any family member incarcerated in the past year, (4) having ever been arrested, (5) having gone “hungry because there was not enough food in [their] home” during the past month, (6) having lived “in more than one home” during the past month, (7) having been identified by a doctor or other health care professional as having a physical, learning, or emotional disability, and (8) feeling safe in one's neighborhood at least most of the time. By controlling for prior punishments and justice system exposure, family poverty and instability, neighborhood safety, and disability status, these variables account for experiences and measures of disadvantage that might relate to perceptions of school climate, student misbehavior, and the relationship between the two.

4.2.7 | School characteristics

School-level variables came from either the 2018 state DOE student enrollment data portal or the Delaware DOE School Survey. Variables from the state DOE demographic system include the proportion of a school's student body that is Black, the proportion that are Latino/a, the proportion that are male, the number of students, and total school expenditures. All of our climate measures are aggregated to the school level by taking the mean survey responses across students in that school for that survey year. As we discuss below, we used different school climate measures across models.

4.3 | Analytical strategy

To combine surveys, we merged the individual-level data from the UDSS with the school-level means from the Delaware DOE survey, matching them by using a common school identifier. We then merged in the state DOE student enrollment portal data using the common school identifier.⁶ Due to the voluntary nature of both surveys, the samples of participating schools did not entirely overlap across them. After merging our three data sources together, we were left with a sample of $N = 28$ schools, within which there were $N = 3160$ 8th grade students and $N = 1650$ 11th grade students.⁷ This sample is composed of 45% White students, 29% Black students, 19% Latino/a students, and 3% of students of other or multiple races/ethnicities. Our sample is similar to the racial/ethnic composition of public school students statewide, which consists of 48% White students, 32% Black students, 14% Latino/a students, and 5% students of other or multiple races/ethnicities. For a complete list of sample characteristics, see Table 1.

Some of our aggregate (i.e., schoolwide) demographic variables were missing for some schools in the statewide system for 2018; for these schools we used their aggregate 2017 values instead. Other missing values were more problematic, as they came from nonresponse on individual student surveys. We imputed values for independent variables due to nonresponse, but, following von Hippel (2007) (see also Mowen and Freng, 2019), after using the dependent variable as part of our prediction of missing independent variable values, we excluded from analyses cases with missing values on dependent variables. We also excluded cases with missing values for individual students' race/ethnicity, rather than imputing these values, to avoid assigning racial/ethnic identities to students.⁸

⁶All merging was done using Stata's merge m:1 command.

⁷There were a total of $n = 3909$ UDSS surveys completed by 11th graders and $n = 4678$ surveys completed by 8th graders in 2018, and information on $n = 168$ schools from the Delaware DOE survey. Many of the UDSS respondents attended schools that did not participate in the Delaware DOE survey, and many of the Delaware DOE participating schools were either elementary schools that were not included here or schools that did not participate in the UDSS survey.

⁸This decision did not alter any substantive results. We performed sensitivity analyses in which we imputed race/ethnicity as well; in these models, regression coefficients for total climate scores when imputing race/ethnicity were within 0.001 of the models reported.

TABLE 1 Descriptive statistics of student-level and school-level variables

	%	Mean	SD	Min	Max
Student-level variables					
Ever cheated on a test	49.5				
Ever skipped school	31.8				
8th graders	65.8				
11th graders	34.2				
Student race/ethnicity:					
Black/African American	29.2				
White, Non-Hispanic	44.5				
Latino/a	19.4				
Other/multiracial	2.9				
Female	51.3				
Disabled	17.1				
Student GPA:					
As	40.4				
Bs	37.6				
Cs	18.2				
Ds or lower	3.8				
Neighborhood Safety (safe most of the time)	61.7				
Ever suspended in school	23.6				
Ever suspended out of school	18.3				
Ever arrested	5.8				
Family member incarcerated	21.8				
Experienced hunger	20.4				
Lived in multiple homes	11.3				
School demographics					
Proportion Black/African American		0.29	0.13	0.11	0.55
Proportion Latino/a		0.16	0.13	0.04	0.53
Proportion male		0.50	0.05	0.29	0.58
School climate scores					
Teacher relations [DSCS-S]		3.08	0.17	2.62	3.41
Student relations [DSCS-S]		2.71	0.18	2.29	3.17
Rule clarity [DSCS-S]		3.11	0.10	2.91	3.31
Rule fairness [DSCS-S]		2.91	0.16	2.42	3.20
Safety [DSCS-S]		2.91	0.21	2.49	3.37

(Continues)

TABLE 1 (Continued)

	%	Mean	SD	Min	Max
Engagement [DSCS-S]		2.77	0.17	2.24	3.11
Schoolwide bullying [DSCS-S]		2.30	0.23	1.71	2.67
Positive behavior techniques [DTS]		2.52	0.18	2.07	2.81
Punitive behavior techniques (reverse coded) [DTS]		2.50	0.22	2.25	3.04
Socio-emotional learning [DTS]		2.75	0.13	2.29	2.97
Student-level bullying (aggregated) [DBVS-S]		1.60	0.12	1.37	1.79
Change in climate (2018–2013) [DSCS-S]		0.44	0.19	-0.15	0.67
Total climate score (2017) [DSCS-S]		2.88	0.16	2.50	3.23

For all other missing values, we used multiple imputation with chained equations, specifying 10 imputations, to impute missing values among our independent variables.

Our first set of models include a total climate score, computed as the mean of the DSCS-S school climate measures as described above; we use this as a most general measure of student perceptions of school climate, before expanding to a broader understanding of elements of school climate. Higher scores on this measure indicate more positive perceptions of school climate, including both social support and structure. To ensure that this key independent variable occurs earlier in time than our dependent variables, we use a total climate score from 2017. To consider whether improvements in school climate matter more than a static measure of climate, other models include a variable measuring change in total climate from 2013 to 2018 (calculated as 2018 climate–2013 climate, so that positive values indicate improvement).

Other models expand our analyses by using specific school climate subscales, in addition to the DTS subscales and the aggregate bullying (DBVS-S) total score. These models allow us to test Hypothesis 3 by exploring how more specific elements of school climate relate to student behavior. Recall that our third hypotheses predicts that specific elements of school social climate that indicate structure and student supports will most strongly relate to both cheating and skipping school. Student supports are most clearly indicated by the subscales for teacher relations, student relations, socio-emotional learning, and student engagement; structure is most clearly indicated by the subscales for rule clarity, rule fairness, and positive behavior techniques (Bear, 2020).

Our analyses also explore the extent to which school climate's relationship with misbehavior varies across students. To do so, we include interactions for student grade level and student race/ethnicity. Each of these two characteristics represents an important variable shaping how students experience school climates. Previous research using the DSCS-S has found that students in middle school view school climate less favorably than students in high school (Bear et al., 2019). Differences in the typical size, structure, and overall environment of middle schools and high schools, as well as disparities in student development across grade levels, mean that 8th graders and 11th graders, both of which are included in our sample, may be subjected to different climates and may interpret or respond differently to school climate. Similarly, prior research shows that students of color tend to be treated differently than White students by teachers and administrators, in terms of academic expectations and assessments of or responses to behavior (Carter, 2005; Lewis & Diamond, 2015; Morris, 2016). Thus, it not surprising that studies generally find that students of color, particularly African-Americans, tend to have lower perceptions of school climate than White students (Bear et al., 2019; Koth et al., 2008). To explore whether school climate's relationship with misbehavior might vary across racial/ethnic groups, we include interactions between

total climate X Black, total climate X Latino/a, and total climate X other race/ethnicity. To explore how climate's relationship with misbehavior might vary across school levels we include an interaction between total climate X 8th grade. We calculate each interaction term using a grand-mean centered version of total climate.

To analyze how school and student characteristics relate to students' reports of cheating and skipping school, we estimate a series of random-intercept logistic regression models, using schools as clusters to adjust for unmeasured school-level variation. Our first set of models (in Table 2) shows results using: (1) the 2017 total climate score to predict reported cheating and skipping school, (2) change in total climate over time, from 2013 to 2018, and (3) interactions of total climate and race/ethnicity, and total climate and grade level. In our second set of models (Table 3), we consider how different specific aspects of school climate might impact reported cheating and skipping school differently. In this set of models, we run a separate regression model for each school climate scale, since including multiple scales as separate variables in a single model would introduce substantial problems with multicollinearity, given overlap among climate measures.⁹ This results in eleven models for each of our two outcomes, one for each specific climate measure: teacher-student relationships, student-student relationships, clarity of behavioral expectations, rule fairness, safety, student engagement, and school-wide bullying victimization, use of positive behavior techniques, punitive behavior techniques (reverse coded), and socio-emotional learning techniques, and bullying victimization at the student level. We use Stata SE15.1 for all analyses.

5 | RESULTS

5.1 | Testing Hypothesis 1

Table 2 shows the results of the first series of random intercept logistic regression models, controlling for the student-level and school-level variables. Results from Model 1 support our first hypothesis by showing that total school climate (in 2017) significantly relates to the odds of reporting having cheated on a test (in 2018). More specifically, students who attend schools with 1 point higher total climate scores have 88% lower odds of reporting that they have cheated on a test, after controlling for a wide array of variables, including school characteristics, student disadvantage, and students' prior experiences with school punishment. The additional variable for Model 2, the change in total climate score from 2013 to 2018, is not statistically significant, indicating that school climate itself matters, not recent changes in climate.

In Model 3 we introduce the interaction terms of total climate by race/ethnicity, and total climate by 8th grade. None of the interaction terms for climate by race/ethnicity are statistically significant, suggesting that the relationship between school climate and self-reported cheating behavior is not moderated by race/ethnicity. The interaction term for climate by grade level is positive and significant. Interpreted alongside the coefficient for 8th grade, which is negative (but not significant), this result tells us that 8th graders are somewhat less likely than 11th graders to report having cheated, and that supportive school climate is less likely to prevent their cheating, relative to 11th graders, who have a higher baseline likelihood of reported cheating and who derive greater benefit from a supportive climate.

5.2 | Testing Hypothesis 2

In contrast, we do not find the hypothesized relationship between school climate and skipping school. These results, which fail to support our second hypothesis, are in Table 2, Models 4 through 6. In them, neither total climate

⁹After removing these variables, diagnostic tests showed that multicollinearity is not a threat to the analyses (mean VIF = 1.56).

TABLE 2 Random-intercept logistic regression (Exp(B)) of having cheated and skipped school on school climate, student, and other school characteristics

Student-level variables	Ever cheated			Ever skipped school		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
8th Grade	0.987	0.999	0.797	0.625**	0.612**	0.669**
Neighborhood safety	0.880***	0.887**	0.881***	0.894**	0.898**	0.892**
GPA	0.910*	0.912*	0.909*	0.751***	0.754***	0.752***
Race/ethnicity (contrast: White)						
Black	0.707***	0.708***	0.706***	0.622***	0.633***	0.611***
Latino/a	0.793*	0.810*	0.800*	1.027	1.056	1.027
Other Race	0.839	0.832	0.840	1.185	1.164	1.179
Female	1.441***	1.426***	1.440***	1.552***	1.551***	1.556***
Suspended in school	1.546***	1.555***	1.542***	1.730***	1.714***	1.736***
Suspended out of school	1.257**	1.254**	1.266***	1.543***	1.545***	1.538***
Family member incarcerated	1.307***	1.303**	1.310***	1.193*	1.188*	1.190*
Experienced hunger	1.387***	1.432***	1.382***	1.492***	1.517***	1.493***
Disabled	0.763**	0.765**	0.764**	0.965	0.972	0.965
Lived in Mult. Homes	1.058	1.044	1.065	1.165	1.153	1.164
Ever arrested	1.169	1.127	1.170	1.535**	1.547**	1.548**
School-level variables						
Proportion Black	0.118**	0.102**	0.270	1.530	1.646	1.076
Proportion Latino/a	0.249**	0.244*	0.293*	0.673	0.590	0.638
Proportion male	0.008***	0.008***	0.005***	0.608	0.606	0.803
Number of students	1.000	1.000	1.000	1.000	1.000	1.000
School expenditures	1.000	1.000	1.000	1.000	1.000	1.000
Total climate score (2017)	0.120***	0.109**	0.136**	0.654	0.659	0.609
Change in climate (2018–2013)		1.086			1.044	
Black* total climate			0.666			0.941
Latino/a* total climate			0.581			2.935
Other Race/Eth* total climate			5.828	5.828		2.034
8th Grade* total climate			4.938*	4.938*		0.408
N	4590	4489	4590	4599	4498	4599

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

(2017), change in climate from 2013 to 2018, nor interactions between total climate and race/ethnicity or total climate and grade level, are significantly related to having skipped school. Though school climate strongly relates to reported cheating, as expected, we do not find any significant relationship between our measure of total school climate and self-reported skipping school.

TABLE 3 Random-intercept logistic regression (Exp(B)) coefficients for specific climate measures, separate equations

	Cheating	Skipping School
Teacher relations	0.107***	1.097
Student relations	0.203**	0.516
Rule clarity	0.063**	0.922
Rule fairness	0.127***	1.230
Safety	0.251*	0.592
Engagement	0.209**	0.594
Schoolwide bullying	2.461	1.792
Positive behavior techniques	0.195***	1.095
Punitive behavior techniques (reverse coded)	0.367	0.740
Socio-emotional learning	0.149**	0.728
Student-level bullying (aggregated)	0.889	6.135**
N in each model	4590	4599

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5.3 | Control variables

Aside from school climate, several of our control variables predict both outcomes. Students who feel safe in their neighborhood most of the time are less likely to report both cheating and skipping school. Females, students with a family member incarcerated, who received either an in-school or out-of-school suspension, and who experienced hunger are all significantly more likely to report having cheated and skipped school. Black students are less likely to report skipping and cheating than White students. Latino/a students are less likely than White students to report cheating, however, there is no difference between the two in terms of self-reported skipping school. We also find that students with higher grade point averages are less likely to report having cheated or skipped school, that 8th graders are less likely than 11th graders to report skipping school, that disabled students are less likely than others to report having cheated, and that students who had been arrested before are more likely to report having skipped school. Students in schools with more Black students, more Latino/a students, and more male students are significantly less likely to report having cheated.

5.4 | Testing Hypothesis 3

We continue our analyses by running separate models for each specific component of school climate and adding the DTS subscales as well as the total bullying score. These extensions of our modeling strategy allow us to specify which aspects of school climate do and do not relate to reports of cheating on a test and skipping school. This stage of our analysis includes 22 distinct random-intercept logistic regression models: one for each of 11 climate subscales we discuss above, and for each of our two outcomes. Because the control variables in these models are all presented in Table 2, we limit the results we display in Table 3 solely to the coefficient for each school climate subscale that is used in each model.

The results indicate that cheating and skipping school are also influenced by different elements of school climate. This breakdown of different elements of school climate reveals that 8 of the 11 specific climate measures

significantly relate to self-reported cheating, while only 1 of the 11 significantly relates to reported rates of skipping school. Further, the lone significant predictor of skipping school is not a significant predictor of cheating.

Results for cheating support our third hypothesis. Of the 8 statistically significant climate subscales, all predict lower odds of reporting having cheated. These include teacher-student relationships, student-student relationships, clarity of behavioral expectations, rule fairness, school safety, student engagement, positive behavior techniques, and socio-emotional learning techniques. Each of these subscales measures student support and/or structure, in contrast to the three subscales that are not significantly related to cheating: punitive behavioral techniques, student-level bullying scores, and school-level bullying climate. Our results thus support Hypothesis 3 and are consistent with prior research showing that self-reported cheating increases with an absence of school bonds, connectedness, and structure (Finn & Frone, 2004).

In contrast, the results for skipping school do not support our third hypothesis. Skipping school is only significantly related to one subscale of school climate, the aggregated student-level bullying score. This score captures how often students experience bullying from their peers, either verbal, physical, or social. The results of the analyses indicate for each unit increase in a school's student-level bullying score, the odds of students having skipped school are nearly six times greater. Thus, skipping may be influenced by more personal experiences of students rather than school-wide climates. While it is surprising that students who attend schools with more supportive climates are no less likely than others to skip school, these results do mirror prior findings about bullying. Specifically, they are consistent with prior research (Gastic, 2008) showing that bullying victimization is positively associated with frequent absences from school.

6 | DISCUSSION

Our analyses offer partial support for our hypotheses; they show that school climate is indeed predictive of whether or not students report cheating on a test, but to a much lesser extent predictive of self-reported skipping school. When we look more carefully at the distinct elements of school climate, we see that students are less likely to report cheating when they perceive their school as having positive teacher-student and student-student relationships; clear behavioral expectations, fair rules, and a safe environment; and high student engagement. Likewise, they are less likely to report cheating in schools that emphasize the use of positive behavioral techniques and social and emotional learning techniques, and not punitive techniques. With regard to school climate and skipping school, we find that students are more likely to report having skipped when their schools have worse climates for bullying, even though other aspects of school climate seem unrelated to the propensity of skipping.

Because we control for a wide array of confounding factors and use longitudinal models, our analyses provide the most rigorous test to date of how school climate relates to cheating on tests and skipping school, two behaviors that test the extent to which students have internalized school behavioral norms. These results make a number of unique contributions to how we should think about school climate, and also to the literature on student misbehavior in general. One contribution is informed by the unexpectedly disparate results we find between our two outcomes (that social climate strongly predicts self-reported cheating, but not self-reported skipping school). We find that school climate strongly relates to *in-school* misbehavior (cheating on a test), but less so to *out-of-school* (though school related) misbehavior. School climate may encourage students to adopt prosocial norms, though on a limited scope. Our results suggest that school climate might be a powerful and beneficial mechanism within the school walls, but perhaps one whose impact on students is more limited to those school walls. Clearly, future research will need to explore this hypothesis. If we are correct, it suggests that school climate's beneficial effects might be more limited—perhaps in terms of duration as well as location—than prior supportive results might lead one to assume.

Our results also contribute to understandings of school climate by offering a more nuanced view of the components of school climate than is found in much of the prior work. Rather than solely treating school climate as a single aggregate dimension, we also examine how each of eleven climate components relate to the likelihood of

reporting cheating and skipping school. With regard to cheating, our results strengthen what we know already about school climate's positive influence, showing that two key dimensions of an authoritative approach to school discipline, social-emotional support and structure, improve student behavior, whereas an emphasis on use of punitive techniques and the presence of bullying do not (Bear, 2020).

When we considered school climate as one overarching measure, we found no relationship between climate and skipping, which goes against findings of prior research. By exploring a more nuanced look at school climate, the results show that skipping is indeed related to school climate, though only one component of it. Our finding that students' aggregated reports of bullying are related to reports of skipping school suggests that skipping school may be viewed as a way for students to avoid conflict or a way to minimize the likelihood of further victimization at school. Based on this result, we urge future studies to explore the extent to which concerns about bullying might mediate the beneficial effect of a supportive school climate. We hypothesize that this might happen if bullying concerns result in student avoidance of school, and thus prevent development of strong bonds and support mechanisms within schools.

Our results thus offer a number of novel contributions to the study of student misbehavior and school climate, and are based on research methods with a number of strengths. Our analyses measure perceived school climate and self-reported student misbehavior at different points in time and can specify the temporal order in their relationship, include students in both middle schools and high schools, consider two rarely explored student behaviors (cheating and skipping school), and leverage multiple data sources to include a wide array of important student and school characteristics, allowing us to account for confounding factors of disadvantage and prior experience with school punishment and the justice system. Yet there are a number of limitations to our analyses as well. Perhaps most importantly, our data are based on voluntary surveys from within a single state. The fact that the surveys are statewide is a strength of our research design, as is the fact that our data come from a mid-Atlantic state with a diverse student population. Yet because our data are derived from voluntary surveys, our sample consists of a nonrandom subgroup of the state population. Further, like the results of other school climate studies based on a single geographic area (e.g., Capp et al., 2020; Long et al., 2020), our results may or may not be generalizable to the experiences of students in other states. Only replication across geographic areas can answer this question. The fact that our results confirm the importance of social climate as found in prior work using data from other geographic areas leaves us confident that our results are not specific only to Delaware students. Further, the fact that our measures of cheating and skipping school are self-reported introduces questions about their validity, which could be reduced by students' inability or unwillingness to accurately recall their prior misbehavior.

Though we leverage multiple data sources to compile a relatively comprehensive dataset, our analyses are also limited by our inability to explore additional data points that are not available. For example, the impact of school climate on student behavior might vary based on schools' partnerships with community organizations, such as nonprofits who provide supports for students. Additionally, students' motivations to skip school or cheat might be motivated by other factors external to schools, such as parent-student relationships, family obligations to work or care for younger siblings, or internal motivations or dispositions that are not measured in our dataset. We encourage future researchers to build on our results by exploring the role these external factors may play in shaping student behaviors, or in mediating the effect of school climate on these behaviors.

By confirming and extending prior research showing the effectiveness of an authoritative school climate in reducing student misbehavior, our results clarify how schools can better promote positive student behaviors. Our research demonstrates the importance of the school climate dimensions of support and structure in particular. We interpret this to suggest that schools should divert funding away from punitive school discipline and strategies such as the presence of police in schools, which have little evidence of effectiveness and which might weaken school supports and overall climate (Kupchik, 2010), and toward efforts to build relationships, foster student engagement, and promote socio-emotional skills instead. Our research also suggests that while school climate may be very important for supporting prosocial student behavior in school, school climate is largely unrelated to student prosocial behavior outside of schools. To the extent that this result holds true for other forms of student

misbehavior or even deviant behavior outside of school, our work demonstrates the need for additional strategies to encourage prosocial behavior that may be more durable and transferable to other locations.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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