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# **Improvement of School Climate Assessment in Virginia Secondary Schools**

## **Final Technical Report**

2017-CK-BX-007

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## EXECUTIVE SUMMARY

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School climate is widely recognized as critical to school safety and violence prevention. As demonstrated by our previous work (Development of a Standard Model for School Climate and Safety Assessment, #2012-JF-FX-0062) an authoritative school climate characterized by high structure (strict but fair discipline and high academic expectations) and high support (positive teacher-student relationships) is associated with many positive outcomes (Cornell et al., 2016). Students who attend schools with an authoritative school climate are more engaged in school, have higher school attendance and academic achievement, and are more likely to graduate. Students who experience a structured and supportive school climate may be more willing to follow school rules, respond to their teachers, and treat one another in a respectful manner. Our previous work found consistent evidence that students in schools with an authoritative school climate are less likely to engage in peer aggression and bullying, as well as aggression toward teachers (Cornell et al., 2016).

In 2013 we began assisting the Virginia Department of Criminal Justice Services and Virginia Department of Education in administering a statewide school climate survey. The survey was administered in alternate years to middle schools and high schools. Over the first four years our work concentrated on the survey content by developing survey scales, examining their psychometric properties, and testing hypotheses about the relations between school climate and school safety (Cornell et al., 2016). We also collected feedback from school stakeholders and developed a standard report of each school's survey results.

The current project was designed to take the next logical steps in improving the school climate survey program for Virginia secondary schools. Thus, the three main goals of this project were to: 1) investigate stakeholder understanding and use of school climate data; 2) improve the school climate reporting process; and 3) identify the longitudinal associations between school climate characteristics, school safety, and equity in student outcomes.

To achieve Goal 1, we conducted a mixed-methods assessment of how administrators, students, parents, teachers, school resource officers, and other school staff understand and make use of school climate data. Data were collected through qualitative interviews and survey responses. First, we conducted qualitative interviews with division level staff members, school level administrators (e.g., principal/assistant principal), school level staff (i.e., student mental health staff, SROs, teachers), and parents regarding their use and understanding of school climate data. Second, secondary school principals, staff, and students responded to written survey questions regarding their previous and planned use of survey results and their perceptions of survey results. We conducted all of the interviews and completed two journal articles reporting our findings (Debnam, Edwards, Maeng, & Cornell, 2020; Debnam, Edwards, Cornell, 2021). These findings documented the value of the school climate surveys for school administrators in formulating school improvement plans, as well as directions for making the reports more useful.

However, we also found that other school staff had little access to the school climate results, despite considerable interest in them.

Our original plan for Goal 2 was to develop a new reporting system that would give schools more immediate survey results as well as more capacity to conduct their own analyses, such as comparisons of student subgroups by gender and race. However, the Governor's Office initiated a new effort to create a modified survey serving the needs of multiple state agencies. As a result, our plans for survey improvement were revised. We were able to develop a system to generate reports more rapidly and to provide reports to school divisions as well as individual schools. We also arranged to provide school divisions with raw data sets upon request. We prepared individual school climate reports for 322 high schools in 2018, 422 middle schools in 2019, and 326 high schools in 2020. These 20+-page reports gave school administrators a wealth of data on their schools and also allowed them to compare their school with state and regional norms. In addition, we prepared 132 division-level reports and a statewide technical report each year. We also developed nine one-page reports that translated technical findings into practical observations for school administrators and policy makers.

Goal 3 was to investigate longitudinal associations between school climate characteristics, school safety, and equity in student outcomes. To achieve this goal, we developed longitudinal data bases for middle schools (data for 2013, 2015, 2017, and 2019) and for high schools (data for 2014, 2016, 2018, and 2020). In addition to survey data, we integrated data on student demographics, discipline rates, and academic outcomes. We constructed school-level statistical models to assess how school climate and safety are associated with lower suspension rates and dropout rates, especially among racial/ethnic minority students. We also examined how the presence of School Resource Officers (SROs) is associated with school climate and safety.

These findings are presented in a series of journal articles and presentations (e.g., Crichlow-Ball, & Cornell, under review; Huang & Cornell, 2021, Konold, Edwards, & Cornell, in press; Maeng, Cornell, & Huang, in preparation). In brief, we found that the survey scales measure the same school characteristics each year (longitudinal measurement invariance), schools statewide made improvements in their climate over an 8-year period, and an increase in school structure is associated with decreases in suspension among middle and high schools (Konold, Edwards, & Cornell, in press). We also found that teacher support for zero tolerance was associated with higher rates of out-of-school suspension and lower feelings of school safety (Huang & Cornell, 2021). Finally, we found that teacher perceptions of SROs in schools were generally positive and positive perceptions of SROs were positively associated with teacher feelings of physical safety, adequate security, and administrative responsiveness and negatively associated with teacher victimization and desire to leave the school due to student behavior (Maeng, Cornell, & Huang, in preparation). Student perceptions of the SRO as making their school safer were significantly associated with increased willingness to report threats of violence such as talk about killing someone and a classmate bringing a gun to school (Crichlow-Ball, & Cornell, under review).

The key recommendations from this project are:

1. The Commonwealth of Virginia should use rigorously developed measures of school climate and safety that meet the highest standards of reliability and validity in order to have dependable results for schools. New items or scales should be subject to rigorous testing.
2. Virginia should continue to provide schools with comprehensive reports that give them results for each survey item as well as key summary scores using rigorously validated indices. Reports must meet the divergent needs for both thoroughness and clarity.
3. Virginia should disseminate the results more widely so that school staff members and other stakeholders have access to school climate results for their school. Reports should not be limited to administrator review. Results could be posted on the school website, reviewed during faculty meetings, used in professional learning communities, and presented to parents during PTO meetings or back-to-school nights. Results could be shared with student councils and summarized in appropriate classroom contexts.
4. Virginia should administer school climate surveys on an annual rather than biannual basis, so that schools can more readily identify trends and respond promptly to emerging needs. We recognize that an interruption due to the COVID-19 pandemic may be appropriate.
5. Virginia should continue to stress the relationship between an authoritative school climate characterized by high staff expectations and support for students and greater school safety, student well-being, and academic achievement.
6. Virginia schools should look carefully and objectively at the role of SROs in making decisions about their role in schools. Overall, staff as well as students across racial/ethnic groups have positive perceptions of their SROs and these perceptions are also associated with greater feelings of safety and willingness to seek help to prevent violence. We recommend use of surveys and focus groups with staff, parents, and students in order to inform decisions about the best use of SROs in each individual school.
7. Virginia schools should continue to use school climate data to measure and improve the safety and climate conditions for teachers and other staff.
8. Virginia schools should continue to use school climate data to monitor and improve the safety and well-being of students across gender, racial, ethnic, and socioeconomic groups. There is good evidence that a positive school climate is associated with greater equity in academic, behavioral, and social-emotional outcomes.

## PROJECT PURPOSE AND GOALS

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The overarching purpose of this project was to improve how Virginia secondary schools make use of school climate survey data by improving the reporting process and using longitudinal survey data to answer questions about safety trends, with particular attention to racial/ethnic disparities in student discipline. Examining longitudinal relationships in school climate provides stronger evidence of causal relationships and informs our understanding of the school improvement process.

School climate has become widely recognized as a critical factor in violence prevention and school safety (Bradshaw et al., 2015; Gottfredson et al., 2005; Hung et al., 2015). Adolescents who attend safe, orderly, and supportive schools are less likely to engage in aggressive and disruptive behavior, substance use, and delinquency (Aspy et al., 2012; Brand et al., 2003; Hung et al., 2015; McEvoy & Welker, 2000; Shackleton et al., 2016; Wang & Dishion, 2011). Schools with a positive school climate have less bullying and peer aggression (Cornell et al., 2015; Rivara & LeMenestrel, 2016), which are associated with student adjustment problems such as anxiety, depression, and underachievement (Copeland et al., 2013; Esbensen & Carson, 2009; Juvonen et al., 2010; McDougall & Vaillancourt, 2015; Rivara & LeMenestrel, 2016; Rueger et al., 2011). A meta-analysis of 153 studies found that school climate is one of the best predictors of bullying and victimization (Cook et al., 2010). Students attending schools with a structured and supportive school climate are more engaged in school, have higher school attendance and academic achievement, and are more likely to graduate (Berkowitz et al., 2016; Davis & Warner, 2015).

Although schools are relatively safe in comparison with many other settings (Nekvasil et al., 2015), there is wide variation in the level of aggression across schools. According to national statistics, 80% of public schools recorded one or more incidents of violent crime in the past year; approximately 2% of students ages 12-18 reported criminal victimization at school during the previous six months and 20% reported being bullied at school in the past year; 10% of public school teachers reported being threatened with injury and 6% reported being physically attacked by a student (Wang et al., 2020).

The U.S. Department of Education's Guiding Principles resource guide (2014) urges schools to "engage in deliberate efforts to create positive school climates" (p 5), to improve school discipline with "clear, appropriate and consistent expectations and consequences" (p. 11) and to "apply school discipline policies and practices in a fair and equitable manner so as not to disproportionately impact students of color, students with disabilities, or at-risk students" (p. 16).

School disciplinary practices that are intended to maintain a safe and orderly environment are not always successful. Most notably, exclusionary practices like suspension and expulsion are not effective at improving student behavior or serving as a deterrent that improves school safety (American Psychological Association Zero Tolerance Task Force, 2008; Fabelo et al., 2011; Osher et al., 2010). On the contrary, school exclusion has negative consequences that



include increased academic difficulties, alienation and disengagement from school, and increased dropout (Losen, 2015; Morgan et al., 2014). Schools that engage in frequent use of suspension generate a school climate that is perceived as harsh, punitive, and rejecting of students (Christle et al., 2004; Ekstrom et al., 1986; Lee et al., 2011). The disproportionate use of school exclusion with minority students, particularly students of African-American and Hispanic background, is a well-documented national problem (Gregory, Skiba, et al., 2010; Losen, 2011; Skiba et al., 2011; Wallace et al., 2008). It leads to disproportionately higher rates of school failure and dropout, and greater involvement in the juvenile justice system (Alliance for Excellent Education, 2010; Christle et al., 2007; Civil Rights Project, 2000; Fabelo et al., 2011; Losen, 2015). The trajectory from school to incarceration has been termed the “school-to-prison pipeline” because school failure so often precedes involvement in the criminal justice system (Wald & Losen, 2003).

Reports by the U.S. Department of Education, Department of Justice, and other leading authorities in educational research and violence prevention have called for increased awareness, measurement, and improvement of school climate (Cohen et al., 2009; Morgan et al., 2014; National Research Council, 2014; O'Brennan & Bradshaw, n.d.; U.S. Department of Education, 2013; U.S. Department of Education, 2014; U.S. Department of Education, 2016; U.S. Department of Education, Office of Civil Rights, 2014; U.S. Department of Justice & U.S. Department of Education, 2014). Notably, the 2015 *Every Student Succeeds Act* (ESSA; 2015) has made it a national priority to measure school climate and safety as an indicator of school quality. The nationwide attention to using school climate as an accountability measure highlights the need to help schools assess and make use of school climate data.

As detailed below, the major goals of the project were to: 1) investigate stakeholder understanding and use of school climate data; 2) improve the school climate reporting process; and 3) identify the longitudinal associations between school climate characteristics, school safety, and equity in student outcomes.

Results associated with each of these three goals have been published in peer-reviewed journals including *Psychology of Violence*, *School Psychology Review*, *School Psychology*, *The Journal of Community Psychology*, *The Journal of Experimental Education*, and *Measurement: Interdisciplinary Research and Perspectives*. Findings have been presented at national meetings of the American Educational Research Association and American Psychological Association. Project findings have been widely disseminated at state conferences and webinars for school administrators. Nine one-page research summaries containing practical findings and recommendations have been distributed to Virginia's 737 secondary schools.

## GOAL 1: INVESTIGATE STAKEHOLDER UNDERSTANDING AND USE OF SCHOOL CLIMATE DATA

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To achieve Goal 1, we used a convergent mixed methods approach combining both qualitative and quantitative data concerning stakeholder use of school climate data. These findings have been reported in two articles (Debnam, Edwards, Maeng, & Cornell, 2020; Debnam, Edwards, Cornell, 2021).

As part of the school climate survey process, all secondary school principals were asked several questions regarding their previous and planned use of survey results. They were asked whether they plan to share climate survey results with staff, students, and parents and whether previous climate survey results had been used for school planning and improvement. The results of this analysis are summarized in each of the annual technical reports. Approximately 90% of principals reported that they definitely or probably would share results with their staff, but only approximately two thirds indicated that they would share results with their students (67%) or parents. Although the principals expressed support for sharing results with staff, the survey of staff found that most staff members had not seen the results for their school. Similarly, the student survey found most students were interested in seeing the results; however only 5% had seen the results.

Open-ended questions on the principal survey were, “(1) How were previous school climate results were used for school planning or improvement? (2) What would you like to see in the school climate report that would help improve the school? and (3) Please provide positive or negative feedback about the survey process. Suggestions for improvement are welcome.” Principal survey responses to each of these three open-ended questions were coded by the research team into categories that covered both positive and negative feedback.

Across all three years, middle and high school principals reported several ways that they had used prior reports, such as setting goals for the coming year, identifying areas for improvement, planning professional development, improving school discipline practices, increasing student support efforts, and dealing with bullying. When asked how the report could be improved, most principals left the answer blank or praised the current report and indicated that no improvement was necessary. Among the most common suggestions for report improvement were to identify areas for improvement, include more recommendations for school improvement, compare student and staff results, and provide a demographic breakdown of student results. Across the three years, common suggestions for survey administration improvement were to add more questions about school safety, obtain written comments from staff or students, include more recommendations for school improvement, and translate the survey into multiple languages. Common concerns were overlap with other surveys, survey content, survey length, and timing of administration during the school year. Annual results are summarized in each of the annual technical reports.

On the climate surveys teachers/staff members and students were also asked if they had seen previous climate survey results, if they were interested in seeing climate survey results, and if climate survey results had been used for school improvement (staff survey only). Each year, approximately 80% of staff indicated they were interested in seeing results of the school climate survey. However, only approximately a one third indicated that that previous results had been used for school improvement and only a third said they had seen the previous results. Each year, approximately two-thirds of students said they were interested in seeing the results of this school climate survey, but less than 5% indicated said that they had seen previous results. Annual results are summarized in each of the annual technical reports.

We developed a semi-structured interview protocol and conducted interviews with school stakeholders including 5 division level administrators, 5 school level administrators (e.g., principal/assistant principal), 5 school level student mental health staff, 5 SROs, 5 parents, and 5 teachers regarding their understanding and use of school climate data. During the interviews, participants were provided a copy of the results from their school climate survey administration and asked to provide feedback on their understanding of the school climate survey report, how they use the data, and what they would recommend changing or improving to increase data use. Each interview lasted approximately 30 minutes. Interview data were transcribed and coded using an a priori and inductive coding scheme.

These data resulted in two manuscripts that investigate how school stakeholders perceive school climate, described below.

### **School Leader Perceptions and Use of Climate Data**

In the first study, we explored how school leaders (i.e., division leaders and school-level administrators) perceived and used school climate results from a statewide survey of students and staff (Debnam, Edwards, Maeng & Cornell, 2020). This study used a convergent mixed method research design, school principals (N = 283) completed surveys concerning their use of the school climate results for their school. Simultaneously, semi-structured interviews were conducted with school division leaders and school administrators (N = 10) to deepen our understanding of how the school climate were being used.

Qualitative content analysis was used to identify patterns in the data. Transcripts were read to get a sense of the meaning of the data corpus. During this process, codes were inductively developed from the data and identified a priori based on principal survey responses. The final codes included: decision making, goal setting priorities, reasons for non-use, administration, access, structure, indifference, concerns, improvements, missing content, and validity of student perceptions. Related codes were then grouped together into more general categories, resulting in three categories of codes aligned with the research questions: codes related to how the educational leaders used the data (Decision Making, Goal Setting, Priorities, Reasons for Non-Use), survey process codes (Admin, Access, Marketing, Scoring, Structure), and areas to improve codes (Indifference, Concerns, Confusing, Endorse, Improvements, Missing Content,

Unsure, Validity). The coded data set within these categories was read to inductively develop themes that represent the meaning of the ideas in the data set.

Study results reflect a consensus by educational leaders on the utility of receiving school climate data to make data-based decisions to improve outcomes for students, especially around school improvement and safety. Participants provided thoughtful and constructive feedback on the importance of student relationships, perceptions of student subgroups, comparing their data with other schools, and ways to facilitate data-based decision-making. These findings suggest that increasing the flexibility of school climate data reports and designated time for processing data will increase educational leaders' ability to use school climate surveys.

### **School Staff Perceptions and Use of Climate Data**

In the second study, we investigated how school staff perceived school climate data and school reporting practices (Debnam, Edwards, & Cornell, 2021). Limited research examines how school staff perceive and use school climate data. This mixed-methods study examined the interest, access, and use of survey results of 16,525 staff members in 318 high schools to better understand who was interested in school climate results. Multi-level logistic regression models were used to examine whether staff interest varied by school and staff demographic variables.

Semi-structured interviews with 15 staff members were conducted to gain insight more insight into the quantitative results. Content coding of the qualitative data elaborated on staff interest in reviewing and using the climate data. Initial themes were developed from the codes and revised to provide a holistic representation of the qualitative data.

Survey data showed that although 84% of school staff were interested in seeing the results of their school climate survey, fewer than one-third reported seeing the results or using them for school planning or improvement. Staff other than administrators, staff self-identified as Black, male staff members, and staff who had worked in their school for more than 10 years were less likely to report interest in seeing the data after controlling for staff- and school-level characteristics. Staff expressed interest in seeing climate data due to concern about student and staff safety and interest in comparing their results to others in their division.

Approximately a third of staff members reported having seen and 1/3 reported using the results of their school's climate survey. Administrators were more likely than teachers and other staff to have accessed and used survey results. Participants reported that they would like climate reports to contain both a summary of findings and detailed data and would like the climate survey results to be translated into action by designing and improving school interventions. Given the discrepancy between non-administrative staff interest in the survey results and their actual experience in accessing and using them, the results of this study highlight the need for administrators to collaborate with staff and share school climate survey results with them.

## GOAL 2: IMPROVE THE SCHOOL CLIMATE REPORTING PROCESS

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To achieve Goal 2, to improve the school climate reporting process, we used results from Goal 1 to modify the school climate reports. At the commencement of this project, school climate reports were prepared for each school at the end of the school year and distributed to schools through our primary state agency partner, DCJS. Our original proposal for this project was to create a more efficient online system that would allow schools to generate their own reports online immediately after they have completed their surveys and to obtain state/regional norms when all schools in the state have finished their surveys. The improved reporting system would also have enabled schools to generate customized tables for specific groups (such as breakdowns by grade, gender, and race) and to track school results over several years. We also proposed to create a new scoring system based on feedback from stakeholders. One option was to devise state norms that adjust for school demographics of size and student poverty that have been shown to affect school climate.

However, in 2018 the Governor of Virginia ordered the establishment of a cross-agency committee to create a combined survey across state agencies. This is an ongoing process which to our knowledge has not been completed. We reached an agreement with DCJS that we would continue the present survey through spring 2020, but could not make any plans for further changes. Furthermore, the Governor's change in plans made it no longer feasible to construct a reporting system. Instead, we revised our system of generating reports ourselves so that they were ready more quickly for distribution by DCJS to the schools and school divisions. With this system, we have been able to reduce the turnaround time and cost for producing reports. We have also been able to provide school divisions with division-wide reports and to provide raw data sets upon request.

### 2018 High School Survey

In 2018, we administered school climate surveys for students and staff to Virginia public high schools in collaboration with our state partner, the Virginia Department of Criminal Justice Services. We had a high participation rate among schools (n = 322, 99.3%), students (n = 85,750, 82%), and teachers/staff (n = 16,525, 45.5%).

We prepared individual school climate reports for 322 high schools that DCJS disseminated to each school's principal. We prepared 132 division-level reports that were disseminated to school superintendents. Finally, we prepared a statewide technical report that was posted [online](#).

We also prepared five one-page reports for practitioners (issues 13-17, Appendix A). These one-page reports are a way to translate technical findings into practical observations for school administrators and policy makers. Each report contains a summary of the data and associated recommendations. They are shared on our [website](#) and were disseminated to

principals via DCJS. In 2018, these reports focused on the prevalence of sexual harassment (issues 13 and 22), teen dating aggression (issue 14), and administrator use of school climate reports and data (issues 15-17).

### **2019 Middle School Survey**

In 2019, we administered school climate surveys for students and staff to 422 Virginia public middle schools in collaboration with our state partner, the Virginia Department of Criminal Justice Services. We had a high participation rate among schools (n = 422, 100%), students (n = 118,389, 78%), and teachers/staff (n = 15,001, 49%). Principal surveys provided more feedback on their uses and perceptions of the survey content and reporting process. We created 422 school and 132 division reports and prepared the annual technical report of state-level findings that was posted [online](#).

### **2020 High School Survey**

In 2020, we administered school climate surveys for students and staff to 326 Virginia public high schools in collaboration with our state partner, the Virginia Department of Criminal Justice Services. We had a high participation rate among schools (n = 299, 92%), students (n = 106,865, 71%), and teachers/staff (n = 15,707, 46%). Many school divisions in Virginia began to close in mid-March due to the Coronavirus epidemic and on March 23, Governor Northam announced that all schools would remain closed for the remainder of the school year. As a result, it was not feasible for some schools to complete the surveys. Nevertheless, we achieved very large samples of students and staff with very high participation rates. We created 299 school and 131 division reports and prepared the annual technical report of state-level findings that was posted [online](#).

We also created four one-page reports for practitioners that highlight results of the 2020 surveys (issues 18-21, Appendix A). These reports focused on the student (issues 18 and 23) and staff (issue 19) perceptions of SROs, and student perceptions of fairness (issue 20) and belonging (issue 21). They are shared on our [website](#) and were disseminated to principals via DCJS and more broadly through press releases and the media.

## **GOAL 3: IDENTIFY THE LONGITUDINAL ASSOCIATIONS BETWEEN SCHOOL CLIMATE CHARACTERISTICS, SCHOOL SAFETY, AND EQUITY IN STUDENT OUTCOMES**

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To achieve Goal 3, we developed longitudinal data files by combining 2014, 2016, 2018, and 2020 high school climate survey results and 2013, 2015, 2017, and 2019 middle school climate survey results. This resulted in four data files at the individual level including student and staff files for high schools (2014-2020 High School Student Level Data and 2014-2020 High School Staff Level Data) and for middle schools (2013-2019 Middle School Student Level Data and 2013-2019 Middle School Staff Level Data). Together these files included biannual survey data from 737 secondary schools across eight years. Note that students and staff surveys were anonymous, with different students and staff choosing to participate each year. Therefore, it is possible to track longitudinal changes for the schools but not for individual students or staff members.

An additional data file was created at the school level that contained aggregated student and staff data for each school that participated in at least one year of the Virginia Secondary School Climate Survey. This file also included archival information on key school background characteristics, such as student enrollment/membership (disaggregated by grade, sex, and race/ethnicity); grade levels offered; locale codes (city, suburb, town, rural); National School Lunch Program; student performance on Standards of Learning (SOL) assessments; annual dropout statistics; high school graduation and completion; and disciplinary outcomes (suspension and expulsion rates).

### **Changes in Climate Across Time**

An important measurement question is whether our school climate scales show longitudinal measurement invariance, which means that the scales measure the same school characteristics each year, as opposed to having so much variability in what the items in these scales measure that they are not reliable measures over time. Longitudinal measurement invariance testing is a common approach for assessing the degree to which a construct is stable over time. Meaningful comparisons of school climate survey scores from one year to the next rely on the critical assumption that the scores are invariant across measurement occasions. We tested the longitudinal measurement invariance of the two key scales of disciplinary structure and student support (Konold, Edwards, & Cornell, 2020). Disciplinary structure is conceptualized as strict but fair enforcement of school rules. Student support is conceptualized as students' perceptions that teacher and other staff members are supportive, respectful, and willing to help (Konold et al., 2014). Using a statewide sample of 457 middle schools and 330 high schools across eight years (2013-2020), multilevel confirmatory factor analyses were conducted to test the longitudinal measurement invariance of student-reported scale scores. Results of these analyses indicated that the scales demonstrated strong factorial invariance across all time points for both middle and high school samples. Our findings provide evidence to support the use of the

survey scales to evaluate change in school climate over time. To our knowledge, no other school climate survey has demonstrated longitudinal measurement invariance, which is essential to measure changes accurately over time.

After establishing evidence of longitudinal measurement invariance, we examined changes in school climate across time using the sample of 737 secondary schools from 2013 to 2020. Longitudinal analyses were conducted separately for middle and high school samples. Student-reported scale scores were aggregated to the school level for analysis. Descriptive statistics are presented in the following table.

*Descriptive statistics for student school climate survey scales*

Variable	High Schools					Middle Schools				
	<i>N</i>	Mean	<i>SD</i>	Min	Max	<i>N</i>	Mean	<i>SD</i>	Min	Max
Support										
T1	323	3.00	0.14	2.59	3.70	423	2.99	0.16	2.52	3.74
T2	320	2.98	0.14	2.56	3.61	415	3.05	0.16	2.64	3.78
T3	322	3.07	0.13	2.68	3.56	410	3.10	0.15	2.69	3.67
T4	282	3.01	0.13	2.50	3.40	422	3.16	0.14	2.77	3.57
Structure										
T1	323	2.70	0.19	2.22	3.31	423	2.70	0.19	2.14	3.32
T2	320	2.69	0.19	2.19	3.41	415	2.78	0.18	2.28	3.46
T3	322	2.66	0.17	2.09	3.10	410	2.81	0.18	2.30	3.33
T4	282	2.60	0.18	1.92	3.06	422	2.77	0.17	2.26	3.35
Expectations <sup>1</sup>										
T1	323	3.16	0.10	2.90	3.59	0	--	--	--	--
T2	320	3.17	0.10	2.82	3.56	415	3.28	0.11	2.70	3.66
T3	322	3.24	0.09	2.96	3.60	410	3.29	0.11	2.89	3.59
T4	282	3.19	0.09	2.80	3.52	422	3.41	0.09	3.13	3.70
Engagement										
T1	323	3.12	0.15	2.60	3.66	423	3.11	0.16	2.17	3.53
T2	320	3.13	0.14	2.41	3.73	415	3.19	0.15	2.50	3.69
T3	322	3.10	0.14	2.58	3.60	410	3.23	0.15	2.48	3.61
T4	282	3.04	0.14	2.50	3.45	422	3.15	0.14	2.77	3.57
PTB <sup>2</sup>										
T1	323	2.49	0.22	1.50	2.94	423	2.52	0.23	1.68	3.12
T2	320	2.50	0.21	1.73	2.99	415	2.47	0.25	1.60	3.15
T3	322	2.42	0.23	1.51	2.96	410	2.47	0.26	1.45	3.09
T4	282	2.40	0.22	1.49	2.93	422	2.34	0.24	1.53	2.90

*Note.* High schools: T1=2014, T2=2016, T3=2018, T4=2020. Middle schools: T1=2013, T2=2015, T3=2017, T4=2019. <sup>1</sup>Items assessing educational expectations were not included in the 2013 survey. <sup>2</sup>PTB = prevalence of teasing and bullying

A series of multilevel random-effects models, in which measurement occasions were nested within schools, were used to investigate whether there was systematic variation in school climate measures over time. We included school size, proportion of students eligible for free or reduced-price meals (FRPM), and proportion of racial/ethnic minority students as covariates in the models. Estimated parameters of the random-effect models are shown in the table below.



Parameter estimates for random-effects models

	Support	Structure	Expectations	Engagement	PTB <sup>1</sup>
High schools					
Year	0.01 (.001)*	-0.01 (.001)*	0.01 (.001)*	-0.01 (.001)*	-0.02 (.002)*
School size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
% FRPM	-0.06 (.042)	-0.15 (.045)*	-0.04 (.026)	-0.12 (.039)*	0.25 (.062)*
% Minority	-0.06 (.045)	-0.08 (.051)	.04 (.026)	-0.10 (.044)*	-0.15 (.068)*
ICC	.476	.620	.420	.569	.725
Middle schools					
Year	0.03 (.001)*	0.02 (.002)*	0.03 (.002)*	0.01 (.001)*	-0.03 (.002)*
School size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
% FRPM	-0.04 (.026)	-0.11 (.030)*	0.05 (.019)*	-0.16 (.025)*	0.29 (.047)*
% Minority	-0.20 (.022)*	-0.30 (.024)*	-0.09 (.017)*	-0.17 (.021)*	0.20 (.039)*
ICC	.330	.349	.256	.357	.543

Note. Coefficients are unstandardized. Robust standard errors in parentheses. \*  $p < .05$ . <sup>1</sup> PTB = prevalence of teasing and bullying

Among the sample of high schools, school climate varied considerably between schools, even when controlling for school-level covariates. The amount of variation in scale scores attributable to unobserved time-invariant differences between schools was 47.6% for support, 62.0% for disciplinary structure, 42.0% for educational expectations, 56.9% for student engagement, and 72.5% for prevalence of teasing and bullying. These findings indicate that there is considerable variability between schools in these measures of school climate that cannot be explained by demographic differences in the student population. One explanation for this finding is that there are substantial differences in the school climate across schools due to actions and practices by the school staff. In other words, the school staff can influence the school climate beyond the effects of student demographics.

Controlling for time-invariant differences between schools, we found that over time, schools showed small, statistically significant improvements on measures of student support, educational expectations, and prevalence of teasing and bullying. Across the 8-years of data collection, scores on the student support scale ranged from 2.50 to 3.70, with a mean of  $M = 3.01$  and standard deviation of  $SD = 0.14$ . Controlling for school-level covariates, scores on the student support scale increased by 0.01 units per academic year. Likewise, scores on the educational expectations scale ( $M = 3.19$ ,  $SD = 0.10$ ) increased by 0.01 units per academic year, after controlling for school enrollment size, percentage of students eligible for free or reduced-price meals, and the percentage of students from racial/ethnic minority backgrounds. The prevalence of teasing and bullying scale scores ( $M = 2.46$ ,  $SD = 0.22$ ) decreased by 0.02 units per year for high schools, indicating a small improvement on this construct. These findings show that high schools statewide did make improvements in some areas of school climate over the 8-year period. Results of the high school student surveys indicated that staff had become more supportive, teachers' educational expectations for students had increased, and teasing and bullying was less prevalent. However, high schools showed small, statistically significant declines in disciplinary structure and student engagement. On average, school scores decreased by 0.01 units each year on both the disciplinary structure scale ( $M = 2.66$ ,  $SD = 0.18$ ) and the

student engagement scale ( $M = 3.10$ ,  $SD = 0.15$ ). High school students reported that disciplinary practices became less fair over time, and student engagement declined.

For middle schools, we found that school climate varied considerably between schools, after controlling for school-level covariates. The amount of variation in scale scores attributable to unobserved time-invariant differences between schools was 33.0% for support, 34.9% for disciplinary structure, 25.6% for educational expectations, 35.7% for student engagement, and 54.3% for prevalence of teasing and bullying. Controlling for time-invariant differences between schools, results indicated that over time, middle schools showed small, statistically significant improvements across all measures of school climate. On average, for each additional year from 2013 to 2019, support increased by 0.03 units ( $M = 3.07$ ,  $SD = 0.17$ ); disciplinary structure increased by 0.02 units ( $M = 2.77$ ,  $SD = 0.18$ ); educational expectations increased by 0.03 units ( $M = 3.33$ ,  $SD = 0.12$ ); student engagement increased by 0.01 units ( $M = 3.17$ ,  $SD = 0.16$ ); and prevalence of teasing and bullying decreased by 0.03 units ( $M = 2.45$ ,  $SD = 0.26$ ). Taken together, these results indicate that middle school students perceived their school climate as more favorable over time. Across the 8-year period, middle-school student surveys indicated that staff had become more supportive, teachers' educational expectations for students had increased, disciplinary practices were perceived as fairer, students had become more engaged in school, and teasing and bullying was less prevalent.

### Longitudinal Associations between Climate and School Outcomes

We then constructed school-level statistical models to assess how school climate and safety are associated with school outcomes, especially among racial/ethnic minority students. We also used SRO data to construct school-level statistical models to investigate associations between SROs and school climate and safety.

A longitudinal mixed-effects regression model was used to examine trends in suspension rates and whether school climate predicted changes in suspensions over time. Suspension rates were calculated as the number of unduplicated students receiving a short-term suspension divided by the total number of students enrolled. (Unduplicated suspensions mean that a student who is suspended more than one time is counted only once.) Long-term suspensions were not used because they occurred so infrequently in most schools that it would be difficult to measure reliable trends. School characteristics (school enrollment size, percentage of students eligible for free or reduced-price meals, percentage of students identifying as racial/ethnic minority status) were included as covariates in the model. Prior to analysis, disciplinary structure scale scores were converted to standardized scores with a mean of zero and standard deviation of one.

For high schools, the average estimated suspension rate decreased by 0.93 percentage points each academic year, when controlling for all other model covariates. The estimated between-school effect of structure was  $b = -2.17$  ( $p < .001$ ). Comparing two high schools with a one-standard deviation difference in structure, the estimated difference in suspension rates was 2.17 percentage points, given the other covariates. In other words, in a given year, two high schools that differed by one standard deviation on the disciplinary structure scale were predicted

to differ on suspension rates by 2.17 percentage points. Or, controlling for the effect of time, a one-standard deviation increase in structure was associated with a 2.17 percentage-point decrease in suspension rates. The estimated within-school effect was  $b = -0.87$  ( $p = .002$ ). For a given high school, a one-standard deviation increase on the structure scale from one year to the next, was associated with an estimated 0.87 percentage-point decrease in suspension rates. These results indicate that overall, estimated suspension rates declined slightly in Virginia high schools from 2014 to 2020, after controlling for school enrollment, proportion of students eligible for FRPM, proportion of students from racial/ethnic minority backgrounds, and disciplinary structure. Moreover, in any given year, schools with high levels of disciplinary structure had lower rates of suspension compared to schools with low levels of disciplinary structure. Over time, schools that made improvements in disciplinary structure also showed declining suspension rates.

For middle schools, estimated suspension rates decreased by 0.35 percentage points each academic year, controlling for school covariates. The between-school effect of structure on suspension rates was  $b = -2.55$  ( $p < .001$ ), meaning that two middle schools that differed on structure by one standard deviation, were estimated to differ on suspension rates by 2.55 percentage points. The within-school effect of structure on suspension rates was  $b = -0.72$  ( $p < .001$ ). If a middle school's annual structure scale score improved by one standard deviation, then the school's suspension rate was estimated to decrease by 0.72 percentage points.

### **Associations between Teacher Support for Zero Tolerance and School Safety Indicators**

Although many national associations have condemned the use of zero tolerance discipline as ineffective in improving school safety or motivating students to improve their behavior (APA Zero Tolerance Task Force, 2008), there is little research on the extent to which teachers share this view. There is little research on the extent to which teacher support or rejection of a zero tolerance approach to student discipline is associated with school suspension rates or feelings of safety in school. In this study, we investigated the extent to which Virginia middle school teachers support zero tolerance and whether teacher support differed based on teacher gender and race/ethnicity (Huang & Cornell, 2020). We also investigated whether an association existed between teacher support for zero tolerance and student suspension rates and student and teacher feelings of school safety. We used a sample of survey responses from 108,888 students and 10,990 teachers in 404 Virginia middle schools in the 2019 survey.

Teacher support for zero tolerance was measured using the Likert scale item, "I support the use of zero tolerance discipline at this school. (Zero tolerance is defined as the practice of imposing an automatic and severe punishment for any violation of a certain rule.)" Responses were dichotomized (agree vs disagree) and aggregated to the school level.

Teacher support for zero tolerance was compared by gender and race/ethnicity using linear regression models with cluster robust standard errors to control for the nesting of teachers within schools. We found that most (74%) surveyed teachers supported the use of zero tolerance as an effective discipline practice. Male and female teachers did not differ significantly in their zero tolerance, but Black teachers reported slightly higher support for zero tolerance compared to

White teachers and teachers of other races.

Using school-level variables, we used two linear regression models to predict Black and White suspension rates separately with support for zero tolerance as the predictor of interest while controlling for school-level characteristics (i.e., percent Black students enrolled, enrollment size, urbanicity, poverty, percent English language learners, percent eligible for special education). Support for zero tolerance was associated with a higher suspension rate for Black ( $B = .22, p < .05$ ) and White ( $B = .10, p < .05$ ) students, controlling for all other variables in the model. For every 10-point increase in support for zero tolerance, suspension rates for Black students were 2.2 percentage points higher (i.e.,  $.22 \times 10$ ) compared to around 1.0 percentage points higher for White students (i.e.,  $.10 \times 10$ ). Descriptively, support for zero tolerance was a stronger predictor of Black than White suspension rates.

A series of logistic regression models were run with student (suspensions and safety) and teacher (safety) outcomes. Both student- and school-level predictors were included in the model and cluster robust standard errors were used to account for the nesting of observations within schools. Both school- and individual-level results indicate that support for zero tolerance was associated with lower feelings of safety at the school.

Contrary to the goals of zero tolerance, overall, both students and teachers in schools with greater support for zero tolerance had lower feelings of safety at school, even after controlling for school and student characteristics associated with safety. Analysis using both linear and logistic regression indicated that support for zero tolerance was associated with higher rates of out-of-school suspension. These findings offer new evidence to support efforts by school psychologists to discourage the use of zero tolerance and promote more effective school discipline practices. It is possible that schools introducing discipline practices such as multi-tiered systems of support and social-emotional learning may find their impact diminished if teachers support zero tolerance.

### **Associations between Teacher Perceptions of SROs and School Safety Indicators**

This study investigated middle and high school teacher perceptions of SROs and their associations with school safety indicators (Maeng, Cornell, & Huang, 2020). Research questions were (1) How do middle and high school teachers perceive the SROs in their school? (2) How are teacher perceptions of their SROs associated with indicators of school safety? and (3) How do teacher perceptions of SROs and school safety differ across schools based on enrollment size, percentage of low-income students, percentage of minority students, and urban, suburban and rural locations?

The sample consisted of responses to a statewide school climate survey from 10,642 teachers in 416 middle schools and 11,900 teachers in 284 high schools. The main predictors of interest were taken from the School Climate Teacher Surveys. These items included how often teachers reported speaking with the SRO (every day, about weekly, once or twice a semester, never) and two Likert scale items “The SRO makes me feel safer at school” and “The SRO

makes a positive contribution to my school.” The response options for these items were on a scale of 1 = strongly disagree to 6 = strongly agree. Teachers’ scores for these two items were summed to create a “Teacher Perceptions of SRO” index ( $\alpha = .88$  for middle schools and  $\alpha = .87$  for high schools).

Covariates included both teacher (i.e., gender, race, and number of years working at the school) and school (i.e., percentage of students eligible for Free or Reduced Price Meals, the percentage of non-White students, enrollment, and urbanicity) demographics. The total number of SROs and SSOs at their school served as another covariate. Middle schools reported an average of 1.5 SROs per school ( $SD = 1.2$ ) or approximately 1 SRO per every 500 students. High schools reported a mean of 2.5 SROs in the school ( $SD = 1.96$ ) or approximately 1 SRO per approximately 511 students.

Outcome measures included (1) “I feel physically safe in this school.” (2) “I feel there is adequacy safety and security in this school”, (3) “The challenges of managing student behavior make me consider leaving this school”, (4) “The school administration responds and supports staff when they have problems with student aggression”, and (5) Teacher Victimization, an index of student aggression against teachers. Response options for the first four outcomes ranged from 1 = strongly disagree to 6 = strongly agree. Teacher victimization was measured by a 5-item scale that consisted of the sum of each of these items: “A student stole or damaged my personal property”, “A student threatened to harm me”, “A student physically attacked, pushed, or hit me”, “A student said rude or insulting things to me”, and “A student threatened me with a weapon”. Response options included 0 = No, 1 = One time, 2 = More than once, and 3 = Many times. Psychometric support for this scale was found in prior studies (e.g., Berg & Cornell, 2016).

We used descriptive statistics and five 4-step multilevel regressions for middle and high school teacher individual-level responses and five 3-step multilevel regressions for middle and high school teacher school-level responses to answer the research questions. Continuous variables were standardized in the regression analysis to ease interpretation.

**Perceptions of and interactions with SROs.** Most middle school teachers (87%) and high school teachers (86%) agreed (somewhat to strongly) that the SRO makes them feel safer in their school. Similarly, most middle school teachers (90%) and high school teachers (91%) agreed that the SRO makes a positive contribution to their school. Middle school teachers reported speaking with the SRO every day (18.5%), about weekly (34%), once or twice a semester (34%), and never (13.5%). High school teachers reported speaking with the SRO every day (12.8%), about weekly (30%), once or twice a semester (40%), and never (17%).

**Feelings of Physical Safety and Adequate Security.** Middle school teachers’ positive perceptions of their SRO were positively associated with feeling physically safe at school ( $B = .29, p < .001$ ) and feeling the school has adequate safety and security ( $B = .36, p < .001$ ) after controlling for the number of SROs and school and teacher demographics. High school teachers’ positive perceptions of their SRO were also positively associated with feeling physically safe at

school ( $B = .31, p < .001$ ) and feeling the school has adequate safety and security ( $B = .38, p < .001$ ).

Middle school teachers' self-reported frequency of speaking with an SRO was negatively associated with feelings of physical safety ( $B = -.02, p < .05$ ) and adequate safety and security ( $B = -.03, p < .01$ ). High school teachers' self-reported frequency of speaking with an SRO was also negatively associated with feelings of physical safety ( $B = -.04, p < .001$ ) and adequate safety security ( $B = -.06, p < .001$ ). Although correlational, one interpretation of this finding is that teachers who felt less safe spoke more frequently with the SRO.

**Teacher Victimization.** Of middle school teachers, 71.3% reported at least one instance of victimization during the school year and 54.1% of high school teachers reported at least one instance of victimization during the school year. Favorable teacher perceptions of their SRO were associated with lower levels of student aggression toward teachers ( $B = -.14, p < .001$  for middle school teachers,  $B = -.18, p < .001$  for high school teachers). Frequency of speaking with an SRO was positively associated with teacher victimization for both middle school ( $B = .09, p < .001$ ) and high school teachers ( $B = .04, p < .001$ ). One interpretation of this correlation is that teachers who were victimized are communicating with an SRO, possibly for support.

**Administrative Responsiveness.** Most middle (78%) and high school (75%) teachers reported that the administration was responsive and supportive in instances of student aggression. Middle school and high school teachers' positive perceptions of their SRO were positively associated with feeling their administration responds and supports them in instances of student aggression ( $B = .28, p < .001$  for middle school teachers and  $B = .33, p < .001$  for high school teachers). Frequency of speaking with an SRO was negatively associated with administrative responsiveness for both middle school ( $B = -.05, p < .001$ ) and high school ( $B = -.05, p < .001$ ) teachers.

In contrast, approximately a third of middle and high school teachers somewhat to strongly agreed that managing student behavior made them consider leaving the school for middle school teachers,  $B = -.20, p < .001$ , for high school teachers,  $B = -.23, p < .001$ . There was no association between frequency of speaking with an SRO and teacher consideration of whether to leave the school due to student behavior for middle school teachers and a positive association between frequency of speaking with an SRO and teacher consideration of whether to leave the school for high school teachers ( $B = .03, p < .01$ ).

**School-level Outcomes.** For both middle and high schools, school-level association patterns were consistent with individual-level association patterns.

To provide a sense of the size of the differences between schools in which teachers reported favorable perceptions of the SRO (high favorable SRO perception schools) were compared to schools in which teachers reported less favorable perceptions of the SRO (low favorable SRO perception schools). High favorable SRO perception schools had mean SRO

perception scores greater than 1 standard deviation above the mean and low favorable SRO perception schools had mean SRO perception schools more than one standard deviation below the mean. Individual teachers scores were dichotomized (1 = strongly agree, agree, somewhat agree, any victimization, 0 = strongly disagree, disagree, somewhat disagree, no victimization) then aggregated to the school level. The mean rate of school-level agreement with outcome variables was then calculated.

For both middle and high schools, in high favorable SRO perception schools, the mean rate of teachers feeling safe, that there was adequate safety and security, and feelings of administrative support were higher than in low favorable SRO perception schools. In contrast, in high favorable SRO perception schools, teacher victimization and consideration of leaving the school was lower than in low favorable SRO perception schools.

*Mean Rate of Agreement with Perceptions of Safety*

	Middle Schools		High Schools	
	Low SRO Perception Schools <sup>1</sup> (n = 79) M (SD)	High SRO Perception Schools <sup>2</sup> (n = 105) M (SD)	Low SRO Perception Schools <sup>1</sup> (n = 40) M (SD)	High SRO Perception Schools <sup>2</sup> (n = 50) M (SD)
I feel physically safe in this school.	.85 (.2)	.96 (.06)	.83 (.2)	.94 (.1)
I feel there is adequate safety and security in this school.	.72 (.2)	.92 (.1)	.61 (.2)	.88 (.1)
The challenges of managing student behavior make me consider leaving this school.	.40 (.3)	.26 (.2)	.35 (.2)	.25 (.2)
The school administration responds and supports staff when they have problems with student aggression.	.76 (.2)	.88 (.1)	.72 (.2)	.86 (.1)
Teacher Victimization	.64 (.2)	.44 (.2)	.55 (.2)	.42 (.2)

Note. <sup>1</sup>Low SRO perception schools reported mean teacher perceptions of SROs below 8.0 or 1 SD below the mean across all schools. <sup>2</sup>High SRO perception schools reported mean teacher perceptions of SROs 1 SD above the mean (10.8 for middle schools and 10.4 for high schools) across all schools.

These results suggest that an effective SRO can be a positive factor in the school. These results were found across a large sample of teachers and schools with statistical controls for teacher and school demographics. Although correlational, these results add a missing teacher perspective that should be considered in policy debates over the role of SROs in schools. For policy makers to make sound decisions about the role of law enforcement in schools, we need careful empirical examination of officer roles and their impact on schools from all stakeholder perspectives.

## Associations between Student Perceptions of SROs and School Safety Indicators

The majority (84%) of U.S. public high schools report having school resource officers (SROs) or security guards (Wang et al., 2020). Officer placement in schools is currently under scrutiny due to concerns that officers criminalize student misbehavior. However, less attention has been given to their role in violence prevention, particularly in schools using threat assessment. SRO advocates assert that students report threats to SROs, which is supported by studies of averted attacks (Allison et al., 2020). However, no empirical study has examined whether SROs facilitate student willingness to report threats. Therefore, this study investigated how the quality and quantity of student interactions with their SROs were related to student willingness to report peers' violent threats (Crichlow-Ball & Cornell, under review). The first research question asked how student belief that the SRO makes them safer at school is associated with their willingness to report a peer talking about killing someone or bringing a gun to school. The second research question asked how the frequency of student interactions with the SRO is related to their willingness to report talk about killing someone or the presence of a gun at school.

Data were from the 2020 Virginia Secondary School Climate Survey. Participants were 99,363 students across 258 high schools. Students responded to “The school resource officer makes me feel safer at school” using Likert scale options ranging from “strongly disagree” to “strongly agree.” They also reported how often they spoke with the SRO over the past school year (“never,” “once or twice a semester,” “about weekly,” and “every day”). Finally, students indicated their willingness to tell report a threat of killing or gun presence. Response options were a four-item Likert scale ranging from “strongly disagree” to “strongly agree.”

Gender, racial/ethnic identity, grade level, and free or reduced-price meal status were entered as student-level covariates because previous research has found that these demographic characteristics are related to help-seeking and threat reporting behaviors. We also entered out-of-school suspensions and physical fights at school as covariates to control for students who might interact with SROs often because of behavior problems.

Consistent with prior research (Crichlow-Ball & Cornell, under review), the vast majority of students agreed (strongly agreed or agreed) that they would report a peer talking about killing someone (83%) or bringing a gun to school (91%). Nearly three-quarters of students ( $n = 71,957$ ) agreed (strongly agreed or agreed) that the SRO made them feel safer at school. Student perceptions of the SRO as making school safer were significantly associated with increased willingness to report both talk about killing someone ( $B = .21, p < .001$ ) and someone bringing a gun to school ( $B = .19, p < .001$ ). A positive view of the SRO was associated with an 18-point increase in the percent of students willing to report a threat of killing someone and a 12-point increase in the percent willing to report a gun.



Slightly over a quarter of students ( $n = 28,609$ ) reported speaking to the SRO at least once or twice a semester, but the majority ( $n = 70,754$ ) responded that they never spoke to the SRO in the past school year. Talking with the SRO at least once or twice per semester was significantly associated with increased willingness to report a peer for talking about killing someone ( $B = .08, p < .001$ ) or bringing a gun to school ( $B = .05, p < .001$ ). Interacting with the SRO was associated with a 2-point increase in the percent of students willing to report a threat of killing someone, but was not associated with an increased percentage of students willing to report a gun.

These findings support the idea that SROs can facilitate student threat reporting. Students who believed the SRO made a positive contribution to their schools and who interacted with the SRO were more likely to report peers' violent threats to school adults. The association between frequency of student-SRO interaction and student willingness to report threats was weaker than the relationship between student views of the SRO and their willingness to report. It appears that favorable views of the SRO may be more meaningfully related to student threat reporting than number of interactions.

# IMPLICATIONS FOR CRIMINAL JUSTICE POLICY AND PRACTICE

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Given that Every Student Succeeds Act (ESSA) now requires the reporting of school quality indicators (e.g., school climate, engagement, safety data) in addition to academic indicators, this project has valuable implications for school safety policy and practice in Virginia and nationwide.

Our project has identified that a high-quality school climate survey provides a wealth of information for researchers, policy makers, and school and state officials. The Authoritative School Climate Survey used in the present study meets high psychometric standards at the school level.

- Results of this project indicate the scales demonstrated strong factorial invariance across all time points for both middle and high school samples, thus supporting the use of the survey scales to evaluate change in school climate over time.
- Among middle and high schools, climate varied considerably between schools after controlling for the effects of student demographics such as race, ethnicity, and family income and school demographics such as enrollment size and urban/rural location. One explanation for this finding is that there are substantial differences in the school climate across schools due to actions and practices by the school staff. In other words, the school staff can influence the school climate beyond the effects of student demographics.
- Results indicated that over time, middle and high schools in Virginia showed small, statistically significant improvements on measures of student support, educational expectations, and prevalence of teasing and bullying that could not be explained by student demographics.
- Over time, high schools that made improvements in disciplinary structure also showed declining suspension rates. For middle schools, improvements in a school's structure scale also were associated with a decrease in suspension rate. These findings suggest that efforts to make school rules fair and consistent, with consequences proportional to the seriousness of the student's behavior, as opposed to following a zero tolerance policy, can lead to improved student behavior.
- Results also indicate that an effective SRO can be a positive factor in a school. Student perceptions of the SRO as making school safer were significantly associated with increased willingness to report threats of violence such as a classmate talking about killing someone or bringing a gun to school. Teacher perceptions of SROs were generally positive and positive perceptions of SROs were positively associated with feeling physically safe and negatively associated with teacher victimization and desire to leave the school. These findings do not negate concerns that arise in some schools about SRO functioning, but suggest the overall SRO program across secondary schools is positively perceived by both students and staff.

## Recommendations for Implementing School Climate Surveys

School climate data are highly valued and used by Virginia schools for goal setting, identifying areas for improvement, and planning professional development. Ultimately, the findings reported here suggest school climate is an important consideration in school improvement, regardless of the enrollment characteristics of the student body.

Schools receive a massive amount of information in their school climate report. Some suggestions for improving the reports include: identifying specific areas for school improvement more explicitly in the report, comparing student and staff results to identify discrepancies as well as congruence, and providing a demographic breakdown of student results. Some suggestions for improving survey administration were to add more questions about school safety, obtain written comments from staff or students, and to solicit more recommendations for school improvement. Some stakeholders recommended translating the survey into more languages (currently English and Spanish).

Our project has identified several considerations that need to be made in the development, administration, and use of school climate data to support school safety and inform school improvement plans. These considerations drive the following recommendations for school climate survey administration and use:

1. Stakeholders at the state, division/district, and school level have an interest in data from school climate surveys. Therefore, the requirements of all stakeholders need to be included in the survey while balancing administration burden (e.g., survey length).
2. If a climate survey is administered at the state level, it is important to follow up with schools to obtain a sufficiently complete sample that schools finish in a timely manner. The school climate surveys were delayed several weeks each year because of requests from schools for additional time. Each year a number of schools reported that their division administration had not given them sufficient notice of the survey.
3. To make data-based decisions, states and divisions need to have access to school climate data and results. Therefore, results need to be returned to schools promptly. Improvements in the process of generating reports allowed us to provide the reports sooner each year.
4. School officials both praised the large amount of useful information contained in survey results and expressed concern about information overload. Given the quantity of data, school officials wanted support in understanding the reports and interpreting findings. Reports must meet two distinct needs: (1) to provide detailed findings that allow school officials to examine intra-school trends across grade, gender, race, ethnicity, and other groups; yet at the same time (2) provide summaries of findings that are easy to grasp and communicate to a larger audience.

## Future Research

There is a great deal of school climate research that could benefit Virginia schools and advance efforts to improve school climate and safety.

1. Virginia should move to an annual survey so that schools can track trends from year to year and make more timely use of their findings. The biennial administration means that schools have current data at two-year intervals. Research with annual assessment will facilitate longitudinal analyses and show more immediate effects of school improvement efforts and the impact of school events.
2. The use of self-generated identification codes (SGIC) will allow researchers to track individual students from one year to the next. This will greatly enhance the ability to examine the impact of school climate and safety on individual students over time and allow longitudinal studies at the student level for the first time. The SGIC method was piloted in the current project, but biennial administration made it difficult to link students from their initial survey to one administered two years later. This technique is also limited when schools use random samples rather than survey all students.
3. There continues to be national interest in creating summary scores that rank or rate the quality of school climate and/or safety conditions in a school. Some other states have developed procedures that rank or rate their schools, which brings public attention to the schools at the top and bottom of the distribution. School administrators expressed wariness about this kind of system because of the belief that it would bring unfair criticism to schools serving less privileged communities. One of the concerns is that schools would not be compared on a level playing field, because some schools are better funded and serve communities with greater socioeconomic resources and families with higher incomes. Research is needed to determine how to rank or rate schools fairly, and whether scores should be adjusted for community factors outside the control of school authorities.
4. Another important research question is whether students and staff would complete surveys differently knowing that their results would affect their school's status in comparison to other schools. There are questions of self-report validity under high-stakes conditions that have not been examined.
5. There have been large and continuing societal shifts in how individuals are identified by gender, race, and ethnicity. Many students report discomfort with being asked to identify themselves as male or female with no alternatives. It may be useful to ask questions that distinguish gender from sex. In Virginia research to date, there has not been a means to measure the concerns of LGBTQ students.
6. There are limitations to the race and ethnicity categories that arise when students (e.g., middle eastern students, students from multiracial backgrounds) do not clearly fit into one or more categories. Research on the changes to demographic questions and the impact of those changes on our understanding of school climate and safety are needed.

## Dissemination of Project Findings

We have actively disseminated project findings since the first year to both research and practitioner groups (see Appendices A, B, C, D). The project has generated 6 articles published or in press in peer-reviewed journals (Appendix B) and additional articles are in preparation or in review. Published articles include articles in *Psychology of Violence*, *School Psychology Review*, *School Psychology*, *The Journal of Experimental Education*, and *Measurement: Interdisciplinary Research and Perspectives*.

Dr. Cornell and research team members have contributed information on school climate to 2 book chapters for books on school safety and violence prevention (Cornell & Stohlman, 2020; Cornell & Crowley, 2021; Appendix B).

Project findings have been presented at 21 national conferences, including meetings of the American Educational Research Association, American Psychological Association, National Association of School Psychologists, and the Society for Prevention Research and at a state level conference for Virginia educators and practitioners (Appendix C). Every member of our research team has made one or more conference presentations and co-authored journal publications and reports.

The news media have frequently cited our project work in stories about school safety and school climate. Between 2018 and 2020 there have been at least 15 news media reports citing our work (Appendix D). References to our work are found in Education Week, Science Daily, and NPR among others.

## REFERENCES

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- Alliance for Excellent Education. (2010). *High school dropouts in America*. Retrieved from [http://www.all4ed.org/files/GraduationRates\\_FactSheet.pdf](http://www.all4ed.org/files/GraduationRates_FactSheet.pdf)
- Allison, J., Canady, M., & Straub, F. G. (2020). *School Resource Officers: Averted School Violence Special Report*. Office of Community Oriented Policing Services. Washington, DC.
- American Psychological Association Zero Tolerance Task Force. (2008). Are zero tolerance policies effective in the schools? An evidentiary review and recommendations. *American Psychologist*, *63*, 852-862. doi: 10.1037/0003-066X.63.9.852
- Aspy, C. B., Vesely, S. K., Ofman, R. F., Tolma, E., Rodine, S., Marshall, L. Fluhr, J. (2012). School-related assets and youth risk behaviors: Alcohol consumption and sexual activity. *Journal of School Health*, *82*, 3-10.
- Berkowitz, R. Moore H., Astor R. A., & Benbenishty, R. (2016). A research synthesis of the associations between socioeconomic background, inequality, school climate, and academic achievement. *Review of Educational Research*. doi: 10.3102/0034654316669821
- Bradshaw, C. P., Waasdorp, T. E., & Johnson, S. L. (2015). Overlapping verbal, relational, physical, and electronic forms of bullying in adolescence: Influence of school context. *Journal of Clinical Child & Adolescent Psychology*, *44*, 494-508.
- Christle, C. A., Jolivette, K., & Nelson, C. M. (2007). School characteristics related to high school dropout rates. *Remedial and Special Education*, *28*, 325-339.
- Christle, C. A., Nelson, C. M., & Jolivette, K. (2004). School characteristics related to the use of suspension. *Education and Treatment of Children*, *27*, 509-26.
- Civil Rights Project. (2000). *Opportunities suspended: The devastating consequences of zero*

- tolerance and school discipline policies*. Cambridge, MA: Author. Retrieved June 5, 2009 from [http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content\\_storage\\_01/0000019b/80/17/21/dd.pdf](http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/17/21/dd.pdf).
- Cohen, J., McCabe, L., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, & teacher education. *Teachers College Record, 111*, 180–213.
- Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: a meta-analytic investigation. *School Psychology Quarterly, 25*(2), 65.
- Copeland, W., Wolke, D., Angold, A., & Costello, E. (2013). Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry, 70*, 419-426.
- Cornell, D. & Crowley, B. (2021). Strategies to prevent school violence. In P. Lazarus, S. Suldo, & B. Doll (Eds.) *Fostering the emotional well-being of our youth: A school-based approach*. New York: Oxford University Press.
- Cornell, D., Huang, F., Datta, P., Malone, M., Jia, Y., Burnette, A.G., Shukla, K., Konold, T., & Meyer, P. (2016). *Technical Report of the Virginia Secondary School Climate Survey: 2016 Results for 9th–12th Grade Students and School Staff*. Charlottesville, VA: Curry School of Education, University of Virginia.
- Cornell, D., Shukla, K., & Konold, T. (2015). Peer victimization and authoritative school climate: A multilevel multivariate approach. *Journal of Educational Psychology, 107*, 1186-1201. doi: 10.1037/edu0000038
- Crichlow-Ball, C. & Cornell, D. (2020). *Student views of school resource officers and willingness to report threats*. Unpublished manuscript. School of Education and Human Development, University of Virginia.

- Crichlow-Ball, C. & Cornell, D. (under review). *Association of school climate with student willingness to report threats of violence*. [Manuscript submitted for publication]. School of Education and Human Development, University of Virginia.
- Davis, J. R., & Warner, N. (2015). Schools matter: The positive relationship between New York City high schools' student academic progress and school climate. *Urban Education*, doi:10.1177/0042085915613544.
- Debnam, K. J., Edwards, K., Maeng, J., & Cornell, D. (2021). Educational leaders' perceptions and uses of school climate data. *Journal of School Leadership*. Advance online publication.
- Debnam, K. J., Edwards, K., & Cornell, D. (2021). Improving the school environment: School staff perceptions of school climate data and reporting practices. *Journal of Community Psychology*. doi:10.1002/jcop.22500
- Ekstrom, R. B., Goertz, M. E., Pollack, J. M., & Rock, D. A. (1986). Who drops out of high school and why? Findings from a national study. *Teachers College Record*, 86, 356-373.
- Esbensen, F., & Carson, D. C. (2009). Consequences of being bullied: Results from a longitudinal assessment of bullying victimization in a multisite sample of American students. *Youth & Society*, 41, 209-223. doi: 10.1177/0044118X09351067
- Every Student Succeeds Act of 2015*, Pub. L. 114-95, 129 Stat. 1802, codified as amended at 20 U.S.C. § 6301.
- Fabelo, T., Thompson, M. D., Plotkin, M., Carmichael, D., Marchbanks, M. P., & Booth, E. A. (2011). *Breaking schools' rules: A statewide study of how school discipline relates to students' success and juvenile justice involvement*. New York, NY: Council of State Governments Justice Center.



- Gottfredson, G. D., Gottfredson, D. C., Payne, A. A., & Gottfredson, N. C. (2005). School climate predictors of school disorder: Results from a national study of delinquency prevention in schools. *Journal of Research in Crime and Delinquency*, 42, 412-444.
- Gregory, A., Skiba, R., & Noguera, P. (2010). The achievement gap and the discipline gap: Two sides of the same coin? *Educational Researcher*, 39, 59-68.
- Huang, F. L. (2016). Alternatives to multilevel modeling for the analysis of clustered data. *Journal of Experimental Education*, 84(1), 175–196. <https://doi.org/10.1080/00220973.2014.952397>
- Huang, F. L., & Cornell, D. G. (2020). Teacher support for zero tolerance is associated with higher suspension rates and lower feelings of safety. *School Psychology Review*, 1-18.
- Hung, A. H., Luebke, A. M., & Flaspohler, P. D. (2015). Measuring school climate: Factor analysis and relations to emotional problems, conduct problems, and victimization in middle school students. *School Mental Health*, 7(2), 105-119.
- Juvonen, J., Wang, Y., & Espinoza, G. (2010). Bullying experiences and compromised academic performance across middle school grades. *The Journal of Early Adolescence*, 31, 152-173. doi: 10.1177/0272431610379415
- Konold, T. R., Cornell, D. G., Huang, F., Meyer, P., Lacey, A., Nekvasil, E., Heilbrun, A., & Shukla, K. (2014). Multilevel multi-informant structure of the authoritative school climate survey. *School Psychology Quarterly*, 29, 238-255.
- Konold, T. R., Edwards, K. D., & Cornell, D. G. (in press). Longitudinal measurement invariance of the Authoritative School Climate Survey. *Journal of Psychoeducational Assessment*.
- Lee, T., Cornell, D., Gregory, A., & Fan, X. (2011). High suspension schools and dropout rates for black and white students. *Education and Treatment of Children*, 34, 167-192.

- Losen, D. J., (2011). *Discipline policies, successful schools, and racial justice*. Boulder, CO: National Education Policy Center. <http://nepc.colorado.edu/publication/discipline-policies>.
- Losen, D. J. (Ed.) (2015). *Closing the school discipline gap: Equitable remedies for excessive exclusion*. New York, NY: Teachers College Press.
- Maeng, J. M., Cornell, D.G, & Huang, F. (2020). *Teacher Perceptions of School Resource Officers and School Safety*. Unpublished manuscript. School of Education and Human Development, University of Virginia.
- McDougall, P., & Vaillancourt, T. (2015). Long-term adult outcomes of peer victimization in childhood and adolescence: pathways to adjustment and maladjustment. *American Psychologist, 70*, 300-310.
- McEvoy, A., & Welker, R. (2000). Antisocial behavior, academic failure, and school climate a critical review. *Journal of Emotional and Behavioral disorders, 8*, 130-140.
- Morgan, E., Salomen, N., Plotkin, M., & Cohen, R. (2014). *The school discipline consensus report: Strategies from the field to keep students engaged in school and out of the juvenile justice system*. The Council of State Governments Justice Center, New York, NY. Available from: [http://csgjusticecenter.org/wp-content/uploads/2014/06/The\\_School\\_Discipline\\_Consensus\\_Report.pdf](http://csgjusticecenter.org/wp-content/uploads/2014/06/The_School_Discipline_Consensus_Report.pdf)
- National Research Council. (2014). *Implementing juvenile justice reform: The federal role*. Committee on a Prioritized Plan to Implement a Developmental Approach in Juvenile Justice Reform, Committee on Law and Justice, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

- Nekvasil, E. K., Cornell, D. G., & Huang, F. L. (2015). Prevalence and offense characteristics of multiple casualty homicides: Are schools at higher risk than other locations?. *Psychology of violence, 5*, 236-245.
- O'Brennan, L., & Bradshaw, C. (n.d.) Importance of school climate. National Education Association Research Brief. Available at [https://www.nea.org/assets/docs/15584\\_Bully\\_Free\\_Research\\_Brief-4pg.pdf](https://www.nea.org/assets/docs/15584_Bully_Free_Research_Brief-4pg.pdf)
- Osher, D., Bear, G., Sprague, J., & Doyle, W. (2010). How can we improve school discipline? *Educational Researcher, 39*, 48-58.
- Rivara, F., & LeMenestrel, S. (2016). Preventing bullying through science, policy and practice. *Washington, DC: The National Academies Press*. doi: 10.17226/23482
- Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2011). Stability of peer victimization in early adolescence: Effects of timing and duration. *Journal of School Psychology, 49*, 443-464.
- Shackleton, N., Fletcher, A., Jamal, F., Markham, W., Aveyard, P., Mathiot, A., ... & Bonell, C. (2016). A new measure of unhealthy school environments and its implications for critical assessments of health promotion in schools. *Critical Public Health, 1-15*. doi: 10.1080/09581596.2016.1191619
- Skiba, R. J., Horner, R. H. Chung, C. G., Rausch, M. K., May, S. L., & Tobin, T. (2011). Race is not neutral: A national investigation of African American and Latino disproportionality in school discipline. *School Psychology Review, 40*, 85-107.
- U.S. Department of Education. (2013). *Directory of federal school climate and discipline resources*, Washington, D.C. Retrieved from [https://safesupportivelearning.ed.gov/sites/default/files/3\\_Appendix%201\\_Directory%20of%20Federal%20School%20Climate%20and%20Discipline%20Resources.pdf](https://safesupportivelearning.ed.gov/sites/default/files/3_Appendix%201_Directory%20of%20Federal%20School%20Climate%20and%20Discipline%20Resources.pdf)

- U.S. Department of Education. (2014). *Guiding principles: A resource guide for improving school climate and discipline*. Washington, D.C. Available at <http://www2.ed.gov/policy/gen/guid/school-discipline/guiding-principles.pdf>
- U.S. Department of Education. (2016). Department of Education releases resources on improving school climate. Washington, D.C. Available at <http://www.ed.gov/news/press-releases/department-education-releases-resources-improving-school-climate>
- U.S. Department of Education, Office of Civil Rights. (2014). *Civil rights data collection: Data snapshot: School discipline* (Issue Brief No.1). Washington, DC.
- U.S. Department of Justice and U.S. Department of Education. (2014). *Dear Colleague letter on the nondiscriminatory administration of school discipline*. Washington, D.C. Retrieved from <http://www2.ed.gov/about/offices/list/ocr/letters/colleague-201401-title-vi.pdf>
- Wald, J., & Losen, D. (2003). Defining and redirecting a school-to-prison pipeline. *New Directions for Youth Development*, 99, 9-16.
- Wallace, J. M., Goodkind, S., Wallace, C. M., & Bachman, J. G. (2008). Racial, ethnic, and gender differences in school discipline among U.S. high school students: 1991-2005. *Negro Educational Review*, 59, 47-62.
- Wang, K., Chen, Y., Zhang, J., & Oudekerk, B.A. (2020). *Indicators of School Crime and Safety: 2019* (NCES 2020-063/NCJ 254485). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC.
- Wang, K., Chen, Y., Zhang, J., and Oudekerk, B.A. (2020). *Indicators of School Crime and Safety: 2019* (NCES 2020-063/NCJ 254485). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC.

Wang, M. T., & Dishion, T. J. (2011). The trajectories of adolescents' perceptions of school climate, deviant peer affiliation, and behavioral problems during the middle school years. *Journal of Research on Adolescence, 22*, 40-53.

## APPENDIX A: ONE-PAGERS

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1. How do school administrators perceive survey content?
2. What do school administrators want in school climate reports?
3. How do division and school administrators currently use school climate data?
4. Students Perceptions of School Resource Officers
5. Staff Perceptions of School Resource Officers
6. Student Perceptions of School Fairness
7. Students' Perceptions of Belonging at School
8. An Authoritative School Climate is Protective for Students Who Experience Sexual Harassment
9. Students Who View Their SROs Positively Are More Willing to Report Threats

These nine one-page reports translate the technical findings of the project into practical observations for school administrators and policy makers. They can be downloaded from our [website](#).

## APPENDIX B: JOURNAL ARTICLES AND BOOK CHAPTERS

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### Journal Articles

- Crichlow-Ball, C. & Cornell, D. (under review). Association of school climate with student willingness to report threats of violence.
- Crowley, B. Z., & Cornell, D. (2020). Associations of bullying and sexual harassment with student well-being indicators. *Psychology of Violence*. Advance online publication. <http://dx.doi.org/10.1037/vio0000345>
- Crowley, B. Z., Datta, P., Stohlman, S., Cornell, D., & Konold, T. (2019). Authoritative school climate and sexual harassment: A cross-sectional multilevel analysis of student self-reports. *School Psychology, 34*, 469. <https://doi.org/10.1037/spq0000303>
- Crowley, B.Z., Cornell, D., & Konold, T.R. (under review). School climate moderates the relationship between sexual harassment and student well-being.
- Debnam, K. J., Edwards, K., Maeng, J., & Cornell, D. (2021). Educational leaders' perceptions and uses of school climate data. *Journal of School Leadership*. Advance online publication.
- Debnam, K. J., Edwards, K., & Cornell, D. (2021). Improving the school environment: School staff perceptions of school climate data and reporting practices. *Journal of Community Psychology*. doi:10.1002/jcop.22500
- Edwards, K. D., & Konold, T. R. (2020). Moderated mediation analysis: A review and application to school climate research. *Practical Assessment, Research, and Evaluation, 25*, Article 5. Available at: <https://scholarworks.umass.edu/pare/vol25/iss1/5>
- Huang, F. L., & Cornell, D. G. (2020). Teacher support for zero tolerance is associated with higher suspension rates and lower feelings of safety. *School Psychology Review, 1*-18.
- Jia, Y., & Konold, T. (2019). Moving to the next level: Doubly latent multilevel mediation models with a school climate illustration. *The Journal of Experimental Education, 1*-19. <https://doi.org/10.1080/00220973.2019.1675136>
- Konold, T. R., Edwards, K. D., & Cornell, D. G. (under review). Longitudinal measurement invariance of the Authoritative School Climate Survey.
- Konold, T.R., & Sanders, E.A. (2021). A latent variable approach to estimating rater effects and differences in multilevel contexts: A school climate illustration. *Measurement: Interdisciplinary Research and Perspectives, 18*(4).
- Maeng, J. M., Huang, F., & Cornell, D.G. (2020). *Teacher Perceptions of School Resource Officers and School Safety*. Unpublished manuscript. School of Education and Human Development, University of Virginia.
- Malone, M. Cornell, D. & Konold, T.R. (under review). Does school climate mediate the relations between grade configuration and academic achievement?

## Book Chapters

- Cornell, D. & Stohlman, S. (2020). Violence in schools. In R. Geffner et al. (eds.), *Handbook of interpersonal violence and abuse across the lifespan*. Springer.  
[https://doi.org/10.1007/978-3-319-62122-7\\_40-2](https://doi.org/10.1007/978-3-319-62122-7_40-2)
- Cornell, D. & Crowley, B. (2021). Strategies to prevent school violence. In P. Lazarus, S. Suldo, & B. Doll (Eds.) *Fostering the emotional well-being of our youth: A school-based approach*. New York, NY: Oxford University Press.



## APPENDIX C: CONFERENCE PRESENTATIONS

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### National

- Crowley, B.Z. & Cornell, D. (August, 2018). *Differential Associations of Sexual Harassment and Bullying with Negative Student Outcomes*. American Psychological Association Annual Convention, San Francisco, CA.
- Datta, P., Crowley, B. Z., Stohlman, S., Cornell, D., & Konold, T. (August, 2018). *Authoritative School Climate and Sexual Harassment: A Cross-Sectional Multilevel Analysis of Student Self- Reports*. American Psychological Association Annual Convention, San Francisco, CA.
- Cornell D., & Konold, T. (November, 2018). *Multilevel, Multi-Informant Analysis of Relations Between Authoritative School Climate and School Safety*. The American Society of Criminology Annual Meeting. Atlanta, GA.
- Yuane, J., Konold, T.R., & Edwards, K. (April, 2019). *Doubly Latent Multivariate Mediation Models: An Illustration of School Climate Influences of Teasing and Bullying*. American Education Research Association, Division D, Section 1: Educational Measurement, Psychometrics, and Assessment Toronto, Canada.
- Yuane, J., Konold, T.R., Edwards, K., & Cornell, D. (April, 2019). *Doubly Latent Multilevel Mediation Models with an Illustration of School Climate Effects on Student Suspensions*. American Education Research Association, Division D, Section 2: Quantitative Methods and Statistical Theory, Toronto, Canada.
- Konold, T.R., & Cornell, D. (April, 2019). *Cross-Informant Associations of School Characteristics: A CT-C(M-1) Analysis of Students and Adults*. National Council for Measurement in Education (NCME). Toronto, Canada.
- Konold, T.R., Cornell, D., Yuane, J., & Malone, M. (April, 2019). *Extracting Trait Variance from Multiple Informant Sources in Applications of Multilevel Structural Models*. American Education Research Association, Division D, Section 1: Educational Measurement, Psychometrics, and Assessment Toronto, Canada.
- Cornell, D., Konold, T.R., & Crowley, B. (August, 2019). *School Climate as a Protective Factor for Student Aggression*. American Psychological Association Annual Convention. Division 16. Chicago, IL.
- Crichlow-Ball, C. & Cornell, D. G. (August, 2019). *Does School Climate Facilitate Student Threat Reporting?* American Psychological Association Annual Convention. Division 16. Chicago, IL.
- Konold, T.R. (October, 2019). *Multilevel Multitrait-Multimethod Latent Variable Approaches for Evaluating Rater Differences*. Invited talk. University of Washington College of Education, Seattle, WA.
- Konold, T.R., & Sanders, E.A. (April, 2020). *A Multilevel Latent Variable Approach to Estimating Rater Effects: An Illustration with School Climate Data*. American Education Research Association, Division D, Section 2: Quantitative Methods and Statistical Theory. San Francisco, CA. (Conference Canceled)

- Maeng, J. L., Debnam, K., Edwards, K. D. & Cornell, D. G. (April, 2020) *Educational Leaders' Perceptions of School Climate Data* [Roundtable Session]. American Education Research Association Annual Meeting San Francisco, CA. (Conference Canceled)
- Yuane, J., & Konold, T.R. (April, 2020). *Moving to the Next Level with Doubly Latent Multilevel Mediation Models in School Climate Research*. American Education Research Association, Division D, Section 2: Quantitative Methods and Statistical Theory. San Francisco, CA. (Conference Canceled)
- Edwards, K., & Konold, T.R. (April, 2020). *Moderated Mediation Analysis: A Review and Application to School Climate Research*. A paper for the annual meeting of the American Education Research Association, San Francisco, CA. (Conference Canceled)
- Konold, T.R., & Sanders, E.A. (June, 2020). *Estimating Organizational Traits with Multiple Level 1 Informants: A Latent Variable Approach for Estimating Rater Differences in Multilevel Contexts*. Modern Modeling Methods Conference. Neag School of Education, University of Connecticut.
- Maeng, J., Cornell, D., Konold, T.R. (July, 2020). *Statewide Implementation of Threat Assessment in Virginia Schools: Trends and Challenges*. Society for Prevention Research; Research, Policy, and Practice. Washington, DC.
- Crowley, B.Z., Cornell, D., & Konold, T. (August, 2020). *School Climate Moderates the Association Between Sexual Harassment and Student Well-Being*. American Psychological Association Annual Convention, Division 16. Washington, D.C. (Virtual).
- Ruffa, B., Konold, T.R., & Cornell, D. (August, 2020). *Intersectional Vulnerability to Adolescent Peer Victimization*. American Psychological Association Annual Convention, Division 16. Washington, D.C. (Virtual).
- Crichlow-Ball, B., Konold, T.R., & Cornell, D. (August, 2020). *Is Authoritative School Climate Associated with Greater Willingness to Report Threats of Violence?* American Psychological Association Annual Convention, Division 16. Washington, D.C. (Virtual).
- Edwards, K., & Konold, T.R. (2021). *A Bayesian Approach to Multilevel Mediation Models with Latent Variables*. American Education Research Association, Structural Equation Modeling SIG. Orlando, FL.
- Konold, T.R., & Sanders E.A. (2021). *Measuring School-Level Traits using Multiple Individual-Level Informants*. National Council on Measurement in Education (NCME), Baltimore, MD.

## Virginia

- Cornell, D. & Maeng, J. (August, 2018). *How to Maintain a Safe School Climate*. Presentation for the Virginia School Safety Training Forum. Hampton Roads, VA.

## APPENDIX D: NEWS MEDIA RECOGNITION

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2018

Barshay, J. (2018, September 17). *Early evidence of a 'Trump effect' on bullying in schools*. The Hechinger Report. <https://hechingerreport.org/early-evidence-of-a-trump-effect-on-bullying-in-schools/>.

Kamenetz, A. (2018, March 7). *Here's how to prevent the next school shooting, experts say*. NPR. <https://www.npr.org/sections/ed/2018/03/07/590877717/experts-say-here-s-how-to-prevent-the-next-school-shooting>.

University of Missouri-Columbia. (2018, December 12). Rethinking school suspensions: School climate offers a clue: Improvements in school climate can reduce suspension rates by 10 percent. *ScienceDaily*. [www.sciencedaily.com/releases/2018/12/181212121901.htm](http://www.sciencedaily.com/releases/2018/12/181212121901.htm)

2019

American Educational Research Association. (2019, January 9). *Study finds link between voter preference for Trump and bullying in middle schools*. <https://www.aera.net/Newsroom/News-Releases-and-Statements/Study-Finds-Link-between-Voter-Preference-for-Trump-and-Bullying-in-Middle-Schools>.

American Educational Research Association. (2019, January 9). Voter preference for Trump linked to bullying in middle schools. *ScienceDaily*. [www.sciencedaily.com/releases/2019/01/190109090917.htm](http://www.sciencedaily.com/releases/2019/01/190109090917.htm)

Breen, A. (2019, April 16). *Tom Tom Youth Conference unleashes student ingenuity*. University of Virginia, Curry School of Education and Human Development. <https://curry.virginia.edu/news/tom-tom-youth-conference-unleashes-student-ingenuity>.

Breen, A. (2019, August 20). *Back-to-school tools for those who support students*. UVA Today. <https://news.virginia.edu/content/back-school-tools-those-who-support-students>.

Kowalski, K. (2019, January 30). *School bullying has risen in areas that supported Trump*. Science News for Students. <https://www.sciencenewsforstudents.org/article/school-bullying-has-risen-areas-supported-trump>.

Lombardo, C. (2019, January 9). *Virginia study finds increased school bullying in areas that voted for Trump*. NPR. <https://www.npr.org/2019/01/09/683177489/virginia-study-finds-increased-school-bullying-in-areas-that-voted-for-trump>.

Perry, S. (2019, January 14). Racial bullying in schools rose after 2016 election in areas that voted for Trump, Virginia study finds. *MinnPost*. <https://www.minnpost.com/second-opinion/2019/01/racial-bullying-in-schools-rose-after-2016-election-in-areas-that-voted-for-trump-virginia-study-finds/>

Sparks, S. D. (2019, January 9). *It's not just that racial bullying jumped in schools after the 2016 election. It's where it did.* Education Week - Inside School Research. [http://blogs.edweek.org/edweek/inside-school-research/2019/01/racial\\_bullying\\_Trump\\_Effect\\_in\\_Virginia.html](http://blogs.edweek.org/edweek/inside-school-research/2019/01/racial_bullying_Trump_Effect_in_Virginia.html).

Taylor & Francis Group. (2019, September 20). Staying at elementary school for longer associated with higher student attainment. *ScienceDaily*. [www.sciencedaily.com/releases/2019/09/190920081908.htm](http://www.sciencedaily.com/releases/2019/09/190920081908.htm)

*Zero tolerance for threatening students? Not exactly: Flagler district enacts more reasoned approach.* FlaglerLive. (2019, October 2). <https://flaglerlive.com/144728/zero-tolerance-campus-security/>.

## 2020

Breen, A. (2020, July 13). *Survey: Most VA high schoolers agree SROs make them feel safer, some disagree.* University of Virginia, Curry School of Education and Human Development. <https://curry.virginia.edu/news/survey-most-va-high-schoolers-agree-sros-make-them-feel-safer-some-disagree>.

Knott, K. (2020, July 24). Survey: SROs make majority of Virginia high-schoolers feel safer. *The Daily Progress*. [https://dailyprogress.com/news/local/education/survey-sros-make-majority-of-virginia-high-schoolers-feel-safer/article\\_1545b280-b019-5964-a573-b01455fa8d83.html](https://dailyprogress.com/news/local/education/survey-sros-make-majority-of-virginia-high-schoolers-feel-safer/article_1545b280-b019-5964-a573-b01455fa8d83.html).