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School Change: How Does The IB Middle Years Programme Implementation Impact School Climate?

Jonathan Nakamoto, Erin Murphy, Shannon Nemer McCullough

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Abbreviations

California Department of Education = CDE

California Healthy Kids Survey = CHKS

Career-Related Programme = CP

Diploma Programme = DP

International Baccalaureate = IB

Middle Years Programme = MYP

National School Climate Center = NSCC

Primary Years Programme = PYP

Executive Summary

Context

This study examined the International Baccalaureate (IB) Middle Years Programme (MYP) and its relation to school climate in California public schools. School climate refers to the ways a school fosters safety; promotes a supportive academic, disciplinary, and physical environment; and encourages and maintains respectful, trusting, and caring relationships throughout the school community (National Center on Safe Supportive Learning Environments, 2019). A positive school climate can help prevent academic (Berman et al., 2018), social (Berkowitz et al., 2017), and behavioral issues for students (Huang & Cornell, 2018; Reaves et al., 2018) and increase job satisfaction for school staff (Kraft et al., 2016). Although the IB did not develop the MYP as a school climate intervention, its approach toward learning and focus on community align with several contributors to positive school climate. Previous research has suggested that the MYP is linked to improved academic (Ateşkan et al., 2016) and social-emotional outcomes (Skrzypiec et al., 2014). Additionally, prior research on the Primary Years Programme (PYP) showed improvements on multiple school climate outcomes after PYP authorization (Boal & Nakamoto, 2020). Given these encouraging findings, the current study aimed to understand the MYP's impact on school climate.

Objective

This study addressed the following primary research question with a sample of public schools in California:

- Do school climate outcomes, as assessed by the California Healthy Kids Survey (CHKS), change after schools have been authorized to be MYP schools?

Additionally, WestEd designed the study to determine whether findings from the primary research question aligned with findings from several sensitivity analyses. WestEd conducted sensitivity analyses to demonstrate whether findings were sensitive to different analytic approaches.

Method

For the primary research question, WestEd researchers used student-level data from grades 7 and 9 from 43 MYP and 673 non-MYP schools, spanning the 2003–04 school year through the 2019–20 school year, to examine whether school climate outcomes, as measured by the CHKS, changed after MYP authorization. The sensitivity analyses also included student-level data from

grades 7 and 9, as well as examining post-authorization and post-candidacy changes ("candidacy" refers to a period of trial MYP implementation prior to a school applying to be authorized as an MYP school), and some of the sensitivity analyses used only grade 7 data or aggregate school-level data rather than student-level data. Additionally, some of the sensitivity analyses excluded the non-MYP schools. For both primary and sensitivity analyses, researchers used growth curve modeling to determine whether the following eight school climate outcomes changed in MYP schools:

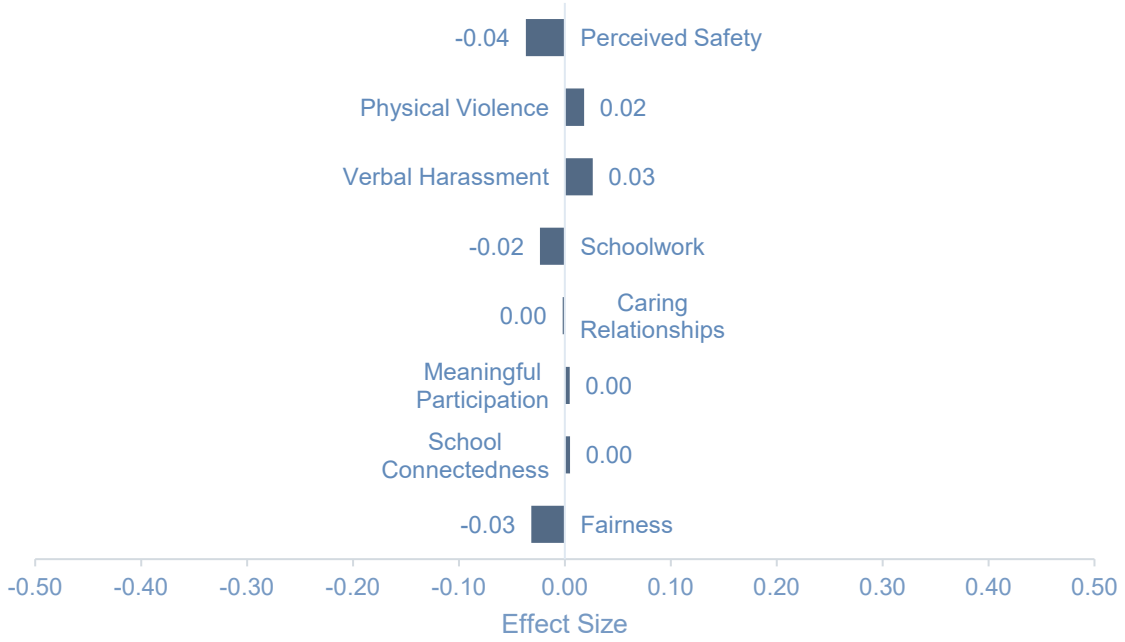
- Perceived Safety
- Physical Violence
- Verbal Harassment
- Schoolwork
- Caring Relationships
- Meaningful Participation
- School Connectedness
- Fairness

Key Findings

Findings from the primary research question revealed no improvements on the eight school climate outcomes at the study schools after they had been authorized as MYP schools,[1] suggesting that MYP did not have an impact on the school climate of those schools. As shown in Figure E–1, all changes in school climate were very close to zero and not statistically significant. Effect sizes, which are used frequently in education research as a standardized way to measure the impact of programs, are shown in Figure E–1. Effect sizes ranged from -0.04 to 0.03 across school climate outcomes, indicating very little change following authorization as MYP schools. Effect sizes in this range are not close to what is considered a "small" effect size (i.e., 0.20; Hill et al., 2008).

[1] The MYP schools' post-authorization trajectory was compared with the MYP schools' pre-authorization trajectory as well as the overall trajectory for the comparison schools.

Figure E–1. Changes for the school climate outcomes after schools were authorized as MYP schools were very close to zero and not statistically significant



Note: None of the effect sizes were statistically significant at $p < .05$.

Future Directions

Though findings from the current study do not identify improvements in school climate associated with schools' MYP implementation, another MYP sample or a different research design could result in a different pattern of findings. Additional understanding of the MYP and its relation to or impact on school climate could also be found through a qualitative study similar to WestEd's evaluation of the IB's PYP (Boal & Nakamoto, 2020). Qualitative case studies could identify other potential dimensions of school climate that have been delineated by the National School Climate Center (NSCC, 2019) and that were not examined in the current study but might associate positively with the MYP.

Because the MYP was not developed as a school climate intervention, the IB may need to shift attention toward specific school climate indicators if it intends to see noticeable improvements that result from introducing that program. One way this shift could begin is through the regular, internal assessment of each MYP school's climate. For example, by collecting school climate data with a single tool across all U.S. MYP schools over time, the IB could directly assess school

climate changes associated with its program.[2] Over time, data may point to changes to specific elements of the MYP that may be necessary for improving school climate.

Finally, during the current study, WestEd researchers recognized an opportunity to collect additional data on the "wall-to-wall" status of schools participating in IB programming. Given that not all MYP schools in California — especially high schools — were wall-to-wall (meaning *all* students in a given school participate in the MYP or other IB program), future research projects would benefit from having access to information on wall-to-wall status, which could have important implications for, among other topics, equity in access to the MYP

[2] A survey tool developed for the U.S. may also be suitable for other English-speaking, Western nations, such as Australia, Canada, New Zealand, and the United Kingdom.

Introduction

The International Baccalaureate (IB) works with schools, governments, and international organizations to create international education programs aimed at developing inquiring, knowledgeable, and caring young people capable of creating a better and more peaceful world. The IB offers four educational programs to more than 1.4 million students worldwide, including the Primary Years Programme (PYP), Middle Years Programme (MYP), Diploma Programme (DP), and Career-Related Programme (CP).

The MYP is a schoolwide curriculum framework that is in use internationally for students aged 11 to 16 in schools that serve students in U.S. grades 6 to 10. The MYP framework aims to help students become creative, critical, and reflective thinkers by encouraging them to make connections between the real world and the content covered in their classes. Students in the MYP develop both subject-specific and interdisciplinary understanding through the MYP curriculum, which includes eight subject groups: language acquisition, language and literature, individuals and societies, sciences, mathematics, arts, physical and health education, and design. Teachers in these subjects organize the curriculum with specific attention to:

- Teaching and learning in context
- Conceptual understanding
- Approaches to learning
- Service as action (community service)
- Language and identity
- Inclusion and learning diversity
- Science, technology, engineering, and mathematics education

Through this curricular framework, the MYP aims for students to develop personal understanding, along with an emerging sense of self and responsibility in their community. Students in the MYP are prompted to demonstrate their learning through either community projects, aimed at implementing service as action in the community, or personal projects that demonstrate their ability to conduct independent work.

Helpful Terminology about the International Baccalaureate Middle Years Programme

- Candidacy = The process through which a school carries out a preliminary analysis of MYP through trial implementation, develops a plan to transition to become an MYP school, and formally requests candidate status
- Authorization = The process through which a school applies and is considered for becoming a MYP school, culminating with formal evaluation that informs the IB's decision whether to designate the school as an MYP school
- MYP Coordinator = A person who provides school-level leadership for the implementation of the MYP and IB processes generally; a school's key liaison with the IB who typically spends at least half their working hours on coordination
- Wall-to-Wall = A term developed for the current study to describe when all students in a given school participate in an IB program such as the MYP

Previous Research on the MYP

Previous research and evaluation suggest that participation in the MYP is linked to improved academic achievement (Ateşkan et al., 2016) and an increased likelihood of taking at least one Advanced Placement or DP exam in high school (Wade & Wolanin, 2015). Further, a study assessing the social, emotional, and psychological well-being of Australian students in the MYP found that most participating students were regularly experiencing a positive outlook or emotional state (Skrzypiec et al., 2014). The same study found that most MYP students were happy and satisfied with school.

Other studies have also examined individual indicators of school climate in MYP schools. For example, most teachers participating in a descriptive study exploring the MYP in the United Kingdom reported that the MYP had a positive impact on school culture (Sizmur & Cunningham, 2012). Similarly, MYP students in grades 6 and 8 responded more positively than non-MYP students on a survey item related to school connectedness (Wade, 2011). However, both these studies are limited by small sample sizes.

A previous evaluation of the IB's PYP used quantitative analyses to examine whether school climate outcomes improved after schools had earned PYP authorization, and the evaluation used qualitative analyses to explore perceptions of change in school climate among schools implementing the PYP (Boal & Nakamoto, 2020). Quantitative results found small, but statistically significant, improvements on six school climate outcomes (Perceived Safety, Caring Relationships, Fairness, Parent Involvement, Bullying, and Victimization) after PYP authorization. Qualitative analyses found numerous school climate improvements attributed to

the PYP, including an increased focus on social-emotional learning, use of transdisciplinary instruction, and teacher collaboration.

Sensitivity Analyses

WestEd researchers conduct sensitivity analyses (see Rosenbaum, 2005; Stuart & Jo, 2015) to determine whether the pattern of findings from one analysis or set of analyses (e.g., the analyses conducted for this study's primary research question) is consistent across different analytic approaches or strategies. When findings from sensitivity analyses align with findings from an initial analysis or set of analyses, this consistency provides more confidence in the reliability of findings from the initial analytic approach.

Research Objectives and Questions

Prior MYP research has suggested that the program is linked to improved academic (Ateşkan et al., 2016) and social-emotional outcomes (Skrzypiec et al., 2014) but has not addressed the program's potential impact on school climate. Furthermore, there has been encouraging research on the PYP showing improvements on multiple school climate outcomes after PYP authorization (Boal & Nakamoto, 2020). Accordingly, WestEd designed this study to use existing school climate data from the California Healthy Kids Survey (CHKS) to examine whether students' reports of school climate changed after their schools began implementing the MYP. Using data from the 2003–04 school year through the 2019–20 school year, the study addressed the following primary research question and sensitivity analyses:

- **Primary Research Question:** Do school climate outcomes, as assessed by the CHKS, change after schools have been authorized to be MYP schools? (Student-level data for grades 7 and 9 were used to address this question.)
- **Sensitivity Analyses:** Are findings from the primary research question consistent with findings from the following sensitivity analyses?
  - Analyses examining changes in school climate outcomes at MYP schools post-candidacy
  - Analyses examining post-authorization and post-candidacy changes using only MYP schools (i.e., excluding non-MYP schools)
  - Analyses examining post-authorization and post-candidacy changes in school climate outcomes for only students in grade 7 at MYP schools
  - Analyses examining post-authorization and post-candidacy changes in school climate outcomes using aggregate school-level data (as opposed to student-level data)

Review of Relevant Academic Literature

School climate and school culture are interrelated concepts focused on the shared perceptions and norms held by members of a school community, including students, teachers, parents, and administrators (MacNeil et al., 2009). Positive school climates can help prevent academic (Berman et al., 2018), social (Berkowitz et al., 2017), and behavioral issues for students (Huang & Cornell, 2018; Reaves et al., 2018) and can increase job satisfaction for school staff (Kraft et al., 2016). The role of school climate can be particularly impactful in the middle grades, when students are in transition and have unique needs for positive support (Juvonen et al., 2004). For example, research conducted in the years before and after the middle school transition found that students with more positive perceptions of school climate in middle school had more positive trajectories of self-concept and self-esteem (Coelho et al., 2020). Though school climate and culture are closely related, the construct of school climate is based on individual experiences, whereas the construct of school culture is based on shared values across individuals and over time (Kane et al., 2016). Given this distinction, school climate is often more easily measured and is, therefore, the focus of the current MYP investigation. However, many researchers and practitioners use the terms school climate and school culture interchangeably.

School climate has been operationalized by many scholars and researchers and is often assessed through quantitative measures administered to students, staff, and parents. Some tools, such as the NSCC's Comprehensive School Climate Inventory (NSCC, 2019), have been developed for broad use, while other tools have been developed by specific states or school districts for local use. For example, California, Delaware, Georgia, and Baltimore City Public Schools, among others, have developed their own tools to operationalize and assess school climate. Although each tool has specific nuances in item wording and response options, the components of school climate assessments tend to be very similar. Given the consistency in content across these tools, the evaluation team elected to focus on the NSCC's dimensions of school climate (NSCC, 2019), which the Comprehensive School Climate Inventory measures, as a framework to explore the various dimensions of school climate and the ways in which these dimensions impact members of a school community.

The NSCC framework outlines various ways schools can cultivate a positive climate with 14 specified dimensions in its conceptualization of school climate. Boal and Nakamoto's (2020) report on IB's PYP has a more in-depth summary of the domains of the NSCC framework. The 14 essential dimensions of a healthy school climate are situated in six broad domains (NSCC, 2019):

- **Safety** includes the following three dimensions: Rules and Norms, Sense of Physical Security, and Sense of Social-Emotional Security.
- **Teaching and Learning** includes the following two dimensions: Support for Learning and Social and Civic Learning.
- **Interpersonal Relationships** includes the following three dimensions: Respect for Diversity, Social Support—Adults, and Social Support—Students.
- **Institutional Environment** includes the following three dimensions: School Connectedness/Engagement, Physical Surroundings, and Social Inclusion.
- **Social Media** includes only one dimension that addresses whether students feel safe online or on electronic devices.
- **Staff Only** includes the following two dimensions: Leadership and Professional Relationships.

Though most of these domains closely align with assessments of school climate (e.g., the CHKS), the Social Media domain is a new addition and somewhat atypical. Because the inclusion of social media as a domain is still gaining traction across measures of school climate, and because social media questions were only recently added to the CHKS, the current study did not examine that domain and its corresponding dimension. Additionally, as the CHKS is a student-report measure and does not include perceptions of school staff, the current study did not include the Staff Only domain.

Method

Data for this study came from the secondary student version of the CHKS collected from 2003–04 through 2019–20. To conduct the analyses, WestEd researchers followed Singer and Willett's (2003) growth curve modeling approach to examine whether eight school climate outcomes, assessed by the CHKS, changed in schools after those schools had been authorized to be MYP schools. Growth curve modeling is a flexible approach that allowed for the examination of the schools' trajectories (e.g., increases or decreases) over time on the school climate outcomes and allowed for an examination of whether the trajectories changed post-authorization.

California Healthy Kids Survey Data

In 1997, the California Department of Education (CDE) and WestEd researchers created the CHKS, which is part of the California School Climate, Health, and Learning Survey system, to measure a range of indicators that are associated with success in school, career, and life.[3] WestEd selected the CHKS for the current study because it captures students' perceptions of school climate, is more widely used than the California School Staff Survey and the California School Parent Survey, and could provide a sufficient number of data points for the growth curve modeling approach. The CHKS includes items that address multiple school climate topics, including perceived safety, verbal harassment, and school connectedness.

The CHKS is administered to secondary school students during school hours in a group format. Districts and schools have the freedom to select their survey administration dates, and administrations occur throughout the school year. Parental permission is collected through an active consent process. District and school staff administer the survey following the CHKS protocol (https://calschls.org/survey-administration/). The survey is anonymous, and students' participation is voluntary. Prior to 2012–13, students completed the survey using a Scantron response sheet. However, an online version of the survey became available in 2012–13, and districts and schools have increasingly used the online option since. Most districts administer the CHKS every other year. However, more than one-third of districts administer it annually. Administration schedules for specific schools within districts can vary substantially.

During 2019–20, the CHKS was administered normally until March 2020 when the COVID-19 pandemic led to the physical school closures in California. After March 2020, many schools and districts cancelled their scheduled CHKS administrations, and some schools and districts had their students complete the survey online from home. Nineteen percent of the surveys in

[3] The California School Climate, Health, and Learning Survey system also includes the California School Staff Survey and California School Parent Survey.

2019–20 were completed in March through June of 2020. Additionally, 9 percent of the students in 2019–20 completed a new "Learning from Home" module that was designed to assess social-emotional well-being while schools and districts implemented remote learning programs. Even with the cancellations due to the COVID-19 pandemic, the number of surveys completed in 2019–20 fell by only 4 percent in comparison to 2018–19.

One requirement for growth curve modeling is that the outcome measure be consistent throughout the period of study (Singer & Willett, 2003). Although some of the items on the CHKS have changed over time, a number of items had consistent wording and response options going back as far as 2003–04. In the planning stages of the current study, WestEd and the IB Research Department reviewed consistent items on the CHKS and identified 22 items that the IB believed the MYP could impact based on the program's focus. Several of the items were part of existing survey scales that are used when reporting CHKS data. WestEd researchers created single scores for each student for the outcomes that included multiple items (i.e., Physical Violence, Verbal Harassment, Caring Relationships, Meaningful Participation, and School Connectedness) by averaging responses to the items in the scales. Appendix A (Table A–1) contains information on the reliability of these scales and correlations among the school climate outcomes. The items are outlined in Table 1 and are mapped onto both the school climate outcome they assess and the corresponding NSCC (2019) domain. Respondents rated items using different response scales, such as 1 (*strongly disagree*) to 5 (*strongly agree*). The means and standard deviations for the eight school climate outcomes, aggregated across all years, are presented in Table A–2 in Appendix A.

Table 1. Survey items in eight school climate outcomes corresponded to four NSCC domains

School Climate Outcome	NSCC Domain(s)	CHKS Item(s)	Response Options
Perceived Safety	Safety	I feel safe in my school.	1 = *Strongly disagree* 2 = *Disagree* 3 = *Neither disagree nor agree* 4 = *Agree* 5 = *Strongly agree*

School Climate Outcome	NSCC Domain(s)	CHKS Item(s)	Response Options
Physical Violence	Safety	During the past 12 months, how many times on school property have you… 1) been pushed, shoved, slapped, hit, or kicked by someone who wasn't just kidding around? 2) been afraid of being beaten up? 3) been in a physical fight? 4) had your property stolen or deliberately damaged, such as your car, clothing, or books? 5) been offered, sold, or given an illegal drug?	1 = *0 times* 2 = *1 time* 3 = *2 to 3 times* 4 = *4 or more times*
Verbal Harassment	Safety	During the past 12 months, how many times on school property have you… 1) had mean rumors or lies spread about you? 2) had sexual jokes, comments, or gestures made to you? 3) been made fun of because of your looks or the way you talk?	1 = *0 times* 2 = *1 time* 3 = *2 to 3 times* 4 = *4 or more times*
Schoolwork	Teaching and Learning	During the past 12 months, how would you describe the grades you mostly received in school?	1 = *Mostly Fs* 2 = *Mostly Ds* 3 = *Cs and Ds* 4 = *Mostly Cs* 5 = *Bs and Cs* 6 = *Mostly Bs* 7 = *As and Bs* 8 = *Mostly As*

School Climate Outcome	NSCC Domain(s)	CHKS Item(s)	Response Options
Caring Relationships	Interpersonal Relationships	At my school, there is a teacher or some other adult… 1) who really cares about me. 2) who tells me when I do a good job. 3) who notices when I'm not there. 4) who always wants me to do my best. 5) who listens to me when I have something to say. 6) who believes that I will be a success.	1 = *Not at all true* 2 = *A little true* 3 = *Pretty much true* 4 = *Very true*
Meaningful Participation	Institutional Environment	At school… 1) I do interesting activities. 2) I help decide things like class activities or rules. 3) I do things that make a difference.	1 = *Not at all true* 2 = *A little true* 3 = *Pretty much true* 4 = *Very true*
School Connectedness	Interpersonal Relationships and Institutional Environment	1) I feel close to people at this school. 2) I am happy to be at this school. 3) I feel like I am part of this school.	1 = *Strongly disagree* 2 = *Disagree* 3 = *Neither disagree nor agree* 4 = *Agree* 5 = *Strongly agree*
Fairness	Safety and Interpersonal Relationships	The teachers at this school treat students fairly.	1 = *Strongly disagree* 2 = *Disagree* 3 = *Neither disagree nor agree* 4 = *Agree* 5 = *Strongly agree*

The administration schedule for the school climate outcomes is outlined in Table 2. There were three administration patterns. Students in grades 7 and 9 completed the Perceived Safety, Caring Relationships, Meaningful Participation, School Connectedness, and Fairness items in all years with the exception of 2006–07. Additionally, students in grade 7 completed the Physical Violence, Verbal Harassment, and Schoolwork items from 2005–06 through 2019–20. Finally, students in grade 9 completed the Physical Violence, Verbal Harassment, and Schoolwork items from 2003–04 through 2019–20.

Table 2. Administration schedule varied across school climate outcomes

School Climate Outcome and Grade Level	2003–04 and 2004–05	2005–06	2006–07	2007–08 through 2019–20
Perceived Safety, Caring Relationships, Meaningful Participation, School Connectedness, and Fairness for Grades 7 and 9	Administered	Administered	Not Administered	Administered
Physical Violence, Verbal Harassment, and Schoolwork for Grade 7	Not Administered	Administered	Administered	Administered
Physical Violence, Verbal Harassment, and Schoolwork for Grade 9	Administered	Administered	Administered	Administered

The secondary student CHKS is recommended for students in grades 7, 9, and 11. However, some districts and schools administer it to students in grades 6, 8, 10, and 12, along with ungraded students. Given the focus of the MYP on grades 6 to 10, the study researchers included only grades 7 and 9 in the analyses. Across years, students in grade 7 represented more than 31 percent of the survey respondents and students in grade 9 represented 30 percent of the survey respondents. One potential limitation of utilizing students in grades 7 and 9 is the limited exposure many of these students may have had to the MYP. Depending on what time of year the students in grade 7 completed the CHKS, they generally would have participated in the MYP for one to two years. Additionally, students in grade 9 who began the MYP at the start of high school would have participated in the MYP for less than one year at the time they completed the CHKS.

WestEd researchers used students' responses to a question asking for their grade level (i.e., What grade are you in?) to identify the respondents eligible for inclusion in the study and as a contextual variable (i.e., a statistical control variable) in the growth curve models. Researchers also included students' responses to an item on the CHKS that asked for the students' gender (i.e., What is your gender?) and students' race/ethnicity as contextual variables in the models.[4]

[4] Because the race/ethnicity items changed in 2010–11, a description of the different items is included in Appendix A.

Extant School-Level Data

WestEd researchers used school-level free or reduced-price meals percentages and school-level percentages of Asian, Black or African American, Hispanic/Latino, and White students as contextual variables in the growth curve models. WestEd took these data from extant CDE data files and merged them by school and year to, for example, match the students' survey data from 2009–10 to school-level data from 2009–10. In addition, WestEd used CDE data on the schools' grade spans, magnet status, and charter status to describe the sample. Finally, WestEd used locale data from the Common Core of Data to describe the geographic locales of sampled schools. These data sources are outlined in Appendix B.

Analysis Sample

The analysis sample included a total of 43 MYP schools in 33 districts from across California with students who completed the CHKS survey at least once from 2003–04 to 2019–20. Of the 43 MYP schools, 32 had students in grade 7 complete the CHKS survey, eight had students in grade 9 complete the CHKS survey, and three had students in grades 7 and 9 complete the CHKS survey. Additionally, the sample included all non-MYP comparison schools (n = 673) from the 33 districts; these schools had students in grades 7 and 9 who completed the CHKS survey at least once from 2003–04 to 2019–20.

The 43 MYP schools included in the analysis sample completed the CHKS an average of 5.9 times (range = 1 to 13 times) from 2003–04 to 2019–20. Additionally, the MYP schools completed the CHKS an average of 2.5 times (range = 0 to 13 times) post-authorization and 3.2 times (range = 0 to 13 times) post-candidacy over the same period. The non-MYP schools included in the analysis sample completed the CHKS an average of 4.9 times (range = 1 to 13 times) from 2003–04 to 2019–20.

Characteristics of MYP and non-MYP schools included in the analyses are shown in Table 3. Nearly half the MYP schools were middle schools and nearly 20 percent were high schools. In contrast, 38 percent of non-MYP schools included in the analysis were middle schools and 38 percent were high schools. MYP schools were more likely to be magnet schools and less likely to be charter schools, in comparison to non-MYP schools. Finally, consistent with past research across the IB continuum of programs (Thier & Beach, 2020), the vast majority of MYP schools were in city or suburban locales and, in comparison to non-MYP schools, were more likely to be in a suburban locale.

Table 3. Nearly half of MYP schools were middle schools, one-third were magnet schools, and a small percentage were charter schools

Characteristic	MYP Schools (*n* = 43)	Non-MYP Schools (*n* = 673)	Total (*n* = 716)
Middle Schools	48.8%	38.2%	38.8%
High Schools	18.6%	38.2%	37.0%
K–8 Schools	18.6%	16.1%	16.2%
Other Grade-Level Configurations	14.0%	7.6%	8.0%
Magnet Schools	34.9%	21.8%	22.6%
Charter Schools	7.0%	15.6%	15.1%
City Locale	53.5%	69.2%	68.2%
Suburban Locale	44.2%	28.9%	29.8%
Town or Rural Locale	2.3%	1.9%	1.9%

Note: The sample size for the locale analysis was based on the 2018–19 Common Core of Data, and data were only available for 627 non-MYP schools.

Demographic characteristics of students in MYP and non-MYP schools included in the analyses are shown in Table 4. Over two-thirds of students in MYP schools were in grade 7, compared to just over half in non-MYP schools. Conversely, only a third of students in MYP schools were in grade 9, compared to nearly half in non-MYP schools. Demographic characteristics of students in the two groups were similar in their diversity, with students identifying as Hispanic/Latino making up almost half of both samples. Student gender was nearly evenly split between male and female in both groups.

Table 4. Over two-thirds of students in MYP schools were in grade 7 and were racially/ethnically diverse

Demographic Characteristic	MYP Schools Percentage	MYP Schools *n*	Non-MYP Schools Percentage	Non-MYP Schools *n*	Total Percentage	Total *n*
Grade 7	69.0%	34,613	50.2%	316,856	51.6%	351,469
Grade 9	31.0%	15,583	49.8%	314,541	48.4%	330,124
Asian	8.2%	4,136	11.0%	69,410	10.8%	73,546
Black or African American	5.5%	2,751	5.3%	33,576	5.3%	36,327
Hispanic/Latino	49.8%	25,009	47.0%	296,645	47.2%	321,654
White	16.4%	8,234	18.5%	116,916	18.4%	125,150
Other Race/Ethnicity	18.9%	9,512	17.1%	107,661	17.2%	117,173
Missing Race/Ethnicity	1.1%	554	1.1%	7,189	1.1%	7,743
Female	50.6%	25,397	50.2%	316,832	50.2%	342,229
Male	48.6%	24,392	48.9%	308,821	48.9%	333,213
Missing Gender	0.8%	407	0.9%	5,744	0.9%	6,151
Total	**100.0%**	**50,196**	**100.0%**	**631,397**	**100.0%**	**681,593**

Note: Other Race/Ethnicity included American Indian or Alaska Native, Native Hawaiian or Pacific Islander, and two or more races/ethnicities.

The IB initially provided WestEd with a list of all public schools in California that, as of fall 2020, were either MYP candidate schools (*n* = 11), MYP authorized schools (*n* = 53), or schools that had stopped participating in the MYP because they were terminated or withdrew (*n* = 14). WestEd determined that 67 schools on the original list of 78 schools had students in grades 7 or 9 who completed the CHKS secondary survey at least once between 2003–04 and 2019–20 and

were therefore eligible for inclusion in the study. Of the 67 schools with CHKS survey data, 54 were candidate or authorized MYP schools in fall 2020.

Given that the MYP is not always implemented schoolwide (i.e., "wall-to-wall") and that the secondary CHKS survey is administered anonymously, researchers would not have been able to determine with a high level of certainty whether students who completed the survey in post-candidacy and post-authorization years for MYP schools had indeed participated in the MYP. These two factors prompted the study researchers to contact candidate and authorized schools to determine whether they were implementing schoolwide in grades 7 and 9 and, if so, whether they had been implementing schoolwide since they began their involvement with MYP. Because the schools that had stopped participating in the MYP would not likely respond to a request for information, researchers opted to exclude these schools from the study.

In January and February 2021, WestEd and the IB emailed coordinators and/or school heads at the 53 candidate and authorized schools with appropriate CHKS secondary survey data and valid contact information in the IB's database.[5] WestEd researchers sent initial emails to the schools and IB research staff sent follow-up emails to non-responding schools. The emails included the following questions:

- Do all 7th/9th graders at your school participate in the MYP (the MYP is wall-to-wall in 7th/9th grade)?
- If yes, has the MYP been wall-to-wall in the 7th/9th grade at your school since your school began the MYP? If you are unsure, please let me know for how many years you are highly confident that your school has been wall-to-wall in the 7th/9th grade.

Schools that served only grade 7 (n = 31) or grade 9 (n = 15) according to the CDE's Public Schools and Districts Data File were asked about their respective grades. Schools that served both grades 7 and 9 (n = 7) were asked about both grade levels.

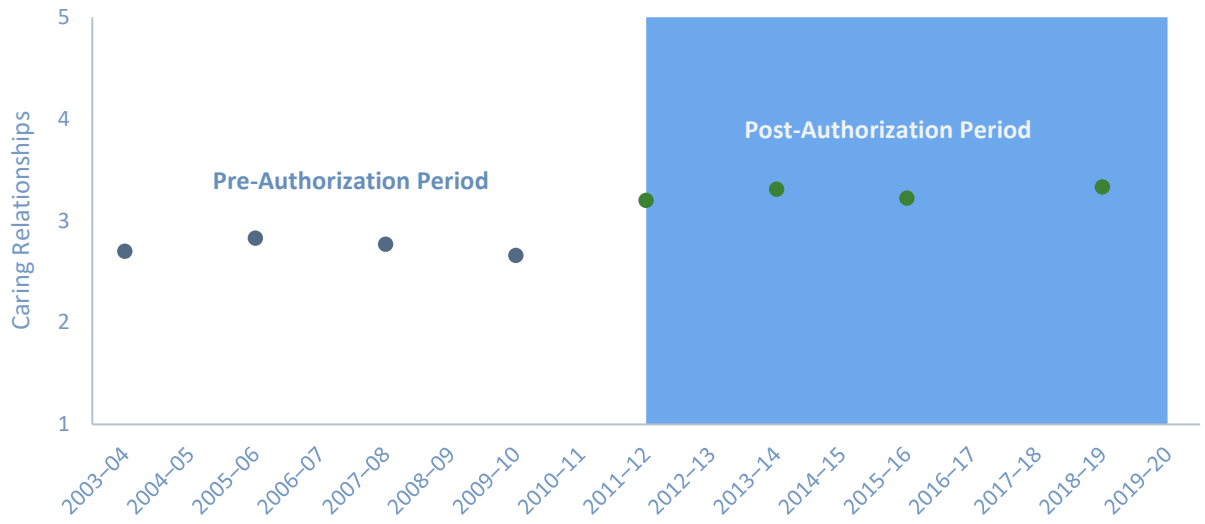
The wall-to-wall status of the responding schools are shown in Table C–1 in Appendix C. Consistent with the IB's prior knowledge about the implementation of the MYP in middle and high schools in California, 84 percent of the schools serving grade 7 indicated that they were wall-to-wall at this grade level. Conversely, 50 percent of the schools serving grade 9 indicated that they were wall-to-wall. WestEd researchers classified a small number of schools as nearly wall-to-wall based on the schools' responses. An example of a school that was nearly wall-to-wall is one that indicated that the school's goal was to implement wall-to-wall, but that scheduling issues had prevented the integration of one component of the MYP for all students. Of all the schools that indicated they were wall-to-wall or nearly wall-to-wall, only one reported that it had not been wall-to-wall since that school first began the MYP.

[5] Contact information was not available for one grade 9 school, but a review of the school's website indicated that it was not wall-to-wall.

Data Analysis Plan

WestEd researchers followed Singer and Willett's (2003) approach to growth curve modeling, which is the same methodology used in its prior examination of the PYP (Boal & Nakamoto, 2020). The general idea underlying the growth curve modeling approach is depicted with hypothetical data in Figure 1. Each data point in Figure 1 represents the average Caring Relationships score for all of the grade 7 and grade 9 students who completed the CHKS at an individual school. The hypothetical school has a relatively stable trend during the pre-authorization period and then shows clear improvement (i.e., students responding more positively to the Caring Relationships items) after the summer of 2011, when the school was authorized as an MYP school. The growth curve modeling approach allowed for the calculation of the overall amount of change post-authorization for all MYP schools included in the sample. The primary analysis also included non-MYP schools. A hypothetical non-MYP school that would support the notion that the MYP improved school climate would have a relatively stable trend throughout the study period (i.e., 2003–04 to 2019–20), indicating that in absence of the MYP, no change in Caring Relationships occurred.

Figure 1. A hypothetical school showing improvements in caring relationships post-authorization



In doing the analyses, researchers included a comparison group that comprised all non-MYP schools from the MYP schools' districts. The strategy of using comparison schools from the same districts is consistent with research on comparative interrupted time series designs that found the use of all district schools, including those not participating in the intervention under study, produced the most reliable estimate of the impact of the intervention (Betts et al., 2010). For these analyses, all schools in each district — including both non-MYP schools and

MYP schools that had not yet been authorized — provided points of comparison for trajectories of MYP schools after they had been authorized.

Following recommendations of Singer and Willett (2003), WestEd researchers determined the shape of trajectories for the eight outcomes prior to examining the magnitude of any changes post-authorization. WestEd tested three models that hypothesized either no growth (i.e., a flat trajectory), linear growth (i.e., a steady increase or decrease), or nonlinear growth (i.e., a quadratic model) over the course of the study. The models also included the following as contextual variables: student's gender, student's race/ethnicity, student's grade-level, school-level free or reduced-price meals percentage, and school-level percentages of Asian, Black or African American, Hispanic/Latino, and White students. Additional details on growth curve models, including equations describing the models, are in Appendix D.

WestEd researchers conducted seven sensitivity analyses for each school climate outcome to determine whether the pattern of findings from the primary analysis was consistent across different analytic approaches or strategies. Specifically, WestEd conducted analyses to determine whether there were changes in school climate outcomes at MYP schools post-candidacy as opposed to post-authorization. WestEd also examined post-authorization and post-candidacy changes in school climate outcomes using only MYP schools (i.e., excluding comparison non-MYP schools) and using only students in grade 7 at MYP schools. Finally, WestEd examined post-authorization and post-candidacy changes in school climate outcomes using aggregate school-level data (as opposed to student-level data). Additional information on these sensitivity analyses is in Appendix D.

Findings

This section begins with an overview of the findings from the study's primary analysis, using growth curve modeling, of whether eight school climate outcomes assessed by the CHKS improved at MYP schools post-authorization (meaning after those schools had officially become MYP schools). Next, it describes the results of the sensitivity analyses that were used to determine whether the pattern of findings was consistent across different analytic approaches.

Statistical Signficance and Effect Sizes

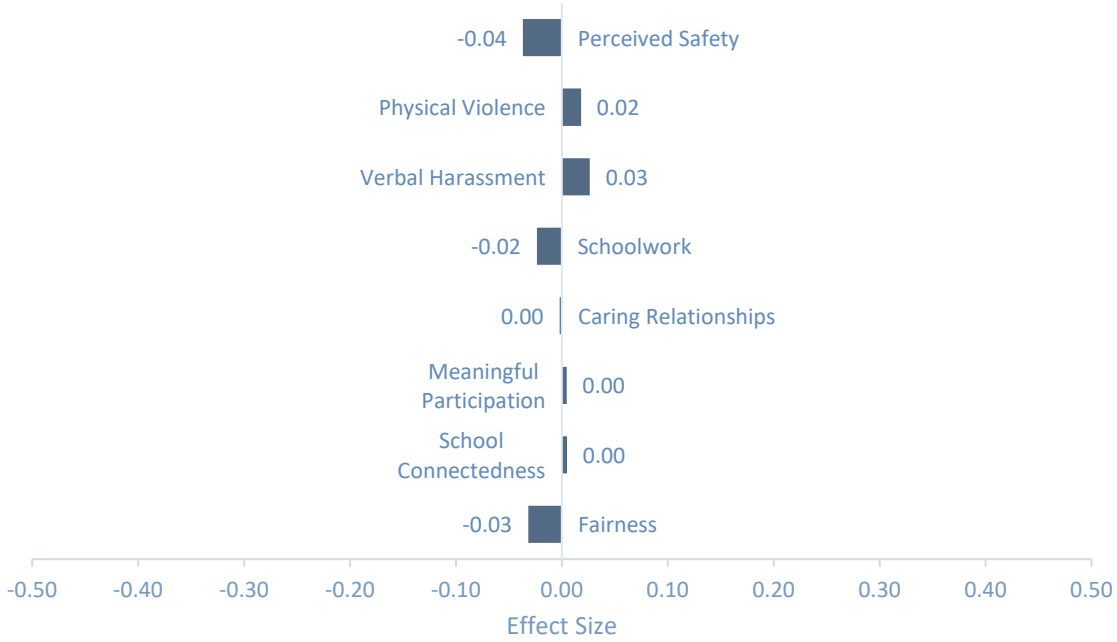
In the context of this study, a finding that is **not statistically significant** means that the observed change in the school climate outcome is not reliably different from zero (i.e., no change post-authorization) and is likely to have occurred by chance alone. The study used a critical probability value of $p < .05$, meaning that any statistically significant findings would have had less than a 5 percent chance of occurring by chance alone.

Effect sizes are used frequently in research as a standardized way to measure the impact of programs. Effect sizes calculated for this study based on post-authorization changes in the school climate outcomes allowed the current findings to be compared with prior research. For this study, effect sizes of zero or close to zero indicate there was no post-authorization change in the school climate outcome. Although no specific rules exist for judging effect sizes, researchers frequently consider effect sizes between -0.20 and 0.20 as "small" (Hill et al., 2008). For this study, WestEd researchers calculated effect sizes by dividing the estimated post-authorization change from the growth curve models by the standard deviation of the corresponding outcome, which is comparable to Cohen's *d*, a well-known measure of effect size.

Overall, findings addressing the primary research question revealed no improvements on the eight school climate outcomes at MYP schools post-authorization. As shown in Figure 2, all post-authorization changes were very close to zero and none was statistically significant. Effect sizes ranged from -0.04 to 0.03 across the school climate outcomes.[6] Most effect sizes trended in a negative direction. Table E–1 in Appendix E has more details on findings from the primary research question, including confidence intervals for estimated post-authorization changes. Confidence intervals showed that the potential range of estimated post-authorization changes included zero (i.e., no difference post-authorization) and indicated that the potential range did not include large post-authorization differences.

[6] See the box above for an explanation of nonsignificant findings and effect sizes.

Figure 2. All of the post-authorization changes for the school climate outcomes were very close to zero and not statistically significant



Note: None of the effect sizes were statistically significant at $p < .05$.

Findings from sensitivity analyses were generally consistent with findings from primary analyses. As shown in Figure 3, effect sizes from the sensitivity analyses (represented by the lighter dots for each school climate outcome) were generally close to the effect sizes from primary analyses (represented by the darker dot for each school climate outcome). Effect sizes from primary analyses were neither the largest nor smallest effect sizes for each school climate outcome, which increased the study researchers' confidence in the findings presented in Figure 2. Exhibits E–1, E–2, E–3, and E–4 in Appendix E contain details on results of the sensitivity analyses for each school climate outcome.

The largest effect sizes for Perceived Safety, Caring Relationships, Meaningful Participation, School Connectedness, and Fairness resulted from sensitivity analyses that examined post-authorization and post-candidacy changes using only MYP schools. Similarly, the smallest effect size for Schoolwork resulted from the sensitivity analysis that examined post-candidacy changes using only MYP schools. Post-candidacy changes for Schoolwork and Meaningful Participation reached statistical significance. The change for Schoolwork indicated that students reported lower grades during the post-candidacy period, which may be a result of increased rigor at the schools due to the MYP. The change for Meaningful Participation suggested improvements in this school climate outcome in the post-candidacy period. However, the analyses that included non-MYP schools in the same districts resulted in effect sizes closer to zero. Taken together, the

findings suggest that there may have been some changes post-candidacy for MYP schools compared to their own trajectories in the pre-candidacy period, but many non-MYP schools may have shown similar trends during the same time period.

Figure 3. Findings from primary analyses were generally consistent with findings from sensitivity analyses

Note: Positive effect sizes for Physical Violence and Verbal Harassment represent slightly negative trends (i.e., increases in Physical Violence and Verbal Harassment), and negative effect sizes for the other outcomes represent slightly negative trends (i.e., declines in school climate).

Discussion

Overall, findings from this study did not provide evidence that introducing the MYP to middle and high schools in California resulted in improvements in school climate as reported by students. None of the eight school climate outcomes under study showed statistically significant changes after schools had become MYP schools. Additional sensitivity analyses generally did not alter the study's conclusions.

However, conclusions from this study should be viewed cautiously for a number of reasons. Although the growth curve modeling approach used in the study was the most rigorous method available to the research team to address the primary research question, the research design is less rigorous than other designs, such as randomized controlled trials or quasi-experimental designs with statistically equivalent comparison groups (Shadish et al., 2002). Additionally, the findings are based on a relatively small number of public schools in California that had, on average, 2.5 (range 0 to 13) CHKS survey administrations post-authorization. The data available from the CHKS, which is not typically administered on an annual basis to middle and high schools, may not be sensitive to enough identify post-authorization changes on the school climate outcomes under study. Additionally, given the development of scales in this study, it is possible that research examining school climate at the item level or through a different configuration of items could yield different results.

Although it is not generally recommended to describe nonsignificant findings as indicative that a program or intervention has "no effect" (Shadish et al., 2002), the overall pattern of findings does not provide much support for the possibility of identifying post-authorization changes in school climate outcomes by using a different research design. Similarly, the pattern of findings does not suggest that post-authorization improvements could be identified in a subset of MYP schools or students. Effect sizes from primary and sensitivity analyses were all close to zero. Furthermore, upper and lower bounds of the confidence intervals, which represent the likely range of potential post-authorization and post-candidacy changes, did not indicate that an effect size greater than 0.20, which is considered a small impact (Hill et al., 2008), was likely to be observed. Even the upper bound from the one sensitivity analysis that showed a statistically significant improvement post-candidacy (i.e., the analysis of Meaningful Participation in only MYP schools) suggested that the impact would not likely exceed an effect size of 0.15.

The current findings, which are based on an examination of the MYP, contrast notably with the results from a prior study of the PYP (Boal & Nakamoto, 2020). The PYP study reported small, but statistically significant, post-authorization improvements on the following six school climate outcomes: Perceived Safety, Caring Relationships, Fairness, Parent Involvement, Bullying, and Victimization. The two studies used the same growth curve modeling approach to examine post-authorization changes. Both studies used the CHKS to measure outcomes and although

they used different versions of the CHKS (the secondary student version and the elementary student version), both versions use similar items and address the same NSCC (2019) school climate domains. One important difference between the studies is the length of exposure the students had to the IB programming. PYP students who completed the CHKS in grade 5 could have participated in the PYP for up to six years at their elementary school. In contrast, students in grade 7 who completed the CHKS would have, at most, participated in the MYP for two years and many students in grade 9 who completed the CHKS may have had less than one year of exposure to the MYP if they did not participate during middle school. It is possible that positive changes in school climate could have been observed if the MYP students completed the CHKS at the end of grades 8 and 10 after they had more exposure to the program.

The difference between findings from the current study and the prior PYP examination may be attributed to the age of the students (i.e., secondary versus elementary). Although having an impact on students in the earlier grades is not necessarily easier, normative achievement data suggest that small impacts from an intervention in the earlier grades likely represent "smaller substantive change" in comparison to small impacts in the later grades (Hill et al., 2008). Variation in findings may be due, in part, to subtle differences between the PYP and MYP curricular frameworks. IB developed the PYP to be transdisciplinary and tailored to specific ways young children learn, whereas the interdisciplinary MYP aims for students to make important connections between academic subjects. This slight shift in attention toward academics in the MYP may help explain the lack of evidence of impact on school climate outcomes.

The current findings contrast with results from a prior descriptive study conducted on the MYP in the United Kingdom (Sizmur & Cunningham, 2012). As part of that study, approximately three fourths of MYP teachers reported that MYP had a positive impact on school culture. However, this prior study was based on a survey administered to a relatively small sample of teachers at six MYP schools at one point in time.

Another prior study of the MYP conducted in the United States (Wade, 2011) found that MYP students in grades 6 and 8 responded more positively than comparison students to one survey item assessing school connectedness. Additionally, MYP students in grade 6 reported somewhat higher amounts of fairness than did comparison students. However, the same sample of students did not show differences on another item assessing school connectedness or on an item assessing caring relationships. The conclusions that can be drawn from Wade's (2011) study are limited by the relatively small sample size (i.e., five MYP and five comparison schools) and by the analytic method.

Trends from the current study's analyses based on the Schoolwork outcome — namely lower reported grades in the post-authorization and post-candidacy periods — support the notion that the MYP may have shifted the schools' focus to academics rather than school climate. Seven of the eight effect sizes shown in Figure 3 are negative for the Schoolwork outcome, and the sensitivity analysis that produced the most negative effect size was statistically significant.

This pattern of findings could result from the schools having more rigorous programs of study after the introduction of the MYP. Consistent with this notion, the IB promotes the MYP as "emphasizing intellectual challenge," and a prior study on the MYP in the United Kingdom identified the program's heavy student workload as one of its drawbacks (Sizmur & Cunningham, 2012).

Though broad reviews of school climate interventions suggest that schoolwide positive behavioral interventions and supports and social and emotional learning interventions are associated with more positive impacts on school climate (Charlton et al., 2020), relatively few studies have examined outcomes of interventions specifically targeting school climate in secondary schools. Many of the practices identified in a systematic review of secondary school climate interventions (Voight & Nation, 2016) are distinct from successful elementary practices (e.g., violence prevention, mentoring, one-on-one staff-student meetings). Although the PYP has been associated with several improved school climate outcomes for elementary students (Boal & Nakamoto, 2020), it is possible that the unique needs of middle school students may require a more targeted intervention to produce changes in school climate outcomes.

Recommendations

The IB's website outlines a number of benefits for students participating in the MYP.[7] For instance, MYP students can perform better on state mathematics and science assessments than students who do not participate in the MYP (Wade, 2011). Findings from the current study do not support the notion that improvements in school climate are likely to result from schools' participation in the MYP. However, using another sample of MYP schools and/or a different quantitative research design could lead to different conclusions about the MYP's impact on school climate.

Additional understanding of the MYP and its impact on school climate could also be found through qualitative study. A previous evaluation of the PYP used both quantitative and qualitative methods to explore change in school climate (Boal & Nakamoto, 2020). Qualitative case study analyses found numerous school climate improvements attributed to the PYP, including an increased focus on social-emotional learning, use of transdisciplinary instruction, and teacher collaboration. A qualitative study focusing on MYP schools could identify other potential NSCC (2019) school climate dimensions, such as Respect for Diversity or Professional Relationships (among staff), that were not examined as part of the current study but the MYP might impact positively. A qualitative study could also help to clarify reasons why school climate, as assessed by the CHKS, did not appear to improve after the introduction of the MYP in the sample of schools.

Given the resources necessary to conduct another quantitative or a qualitative study, the IB may consider exploring the literature base on the connection between the various components of the MYP and school climate prior to conducting future research. For example, prior studies showing a positive impact of community service projects on school climate would support the idea that school climate could be impacted by the MYP. However, if there is a lack of rigorous research linking the MYP's eight subject groups to improvements in school climate, there may not be enough justification for continued research in this area.

If improving school climate through the MYP is a goal of the IB, there may be value in exploring schools conducting regular, internal assessments of school climate. Through school climate data collected with a single tool across all MYP schools and over time, the IB would be better able to assess programmatic impacts directly. Regular collection of school climate data could also alert the IB to schools that may not be functioning in ways that meet long-term goals of the IB, its programs, and its schools. Over time, such data may also reveal changes to specific MYP elements that may be necessary for improving school climate.

[7] https://www.ibo.org/programmes/middle-years-programme/what-is-the-myp/

Finally, during the course of this study, WestEd researchers became aware that because the IB already collects information on schools' MYP status (i.e., candidate, authorized, terminated, withdrew), there is an opportunity to collect additional data on the wall-to-wall status of schools participating in IB programming. Given the difference that WestEd researchers found across different MYP schools in California — specifically, that 84 percent of schools serving grade 7 were wall-to-wall, whereas only 50 percent of schools serving grade 9 were wall-to-wall — there is a gap in fully understanding the demographics of the students who enroll or do not enroll in the MYP. Ford (2014) notes that examining the placement of African American and Hispanic students in schools, including the extent to which they are enrolled in classes with White students, is critical to eliminating underrepresentation in gifted and talented programs. Similarly, a deeper understanding of the placement of students in IB programs could help promote equity within schools and across the IB network of schools.

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Appendices

Appendix A: California Healthy Kids Data

For the California Healthy Kids Survey (CHKS) scales that were used as outcome measures in this study, the WestEd team assessed the reliability of each of the five measures that it constructed from responses to multiple items: Physical Violence, Verbal Harassment, Caring Relationships, School Connectedness, and Meaningful Participation. The internal consistency for the five-item Physical Violence scale (Cronbach's alpha = .68) was below the typical cutoff of .70 for acceptable reliability (John & Benet-Martínez, 2000). A recent factor analysis of the CHKS that included the five items categorized them across a Delinquency factor and a Violence Victimization factor (Mahecha & Hanson, 2020). However, this factor analysis included several other items that were not included in prior versions of the CHKS. Additionally, prior CHKS reporting included three of the items in a scale named Physical Violence on School Property. Given the conceptual difference between Physical Violence and Verbal Harassment items, and the fact that removing items from the Physical Violence scale did not improve its reliability, WestEd opted to create the composite with the five items presented in Table 1 in the main body of the current report.

Reliability of the three-item Verbal Harassment scale was adequate (Cronbach's alpha = .74). Although a recent factor analysis of the CHKS included the Verbal Harassment items along with other items in a Violence Victimization factor (Mahecha & Hanson, 2020), WestEd opted to follow the method used in prior reporting of the CHKS data, which included only the three items grouped together. Additionally, the six-item Caring Relationships scale (Cronbach's alpha = .88) and the three-item School Connectedness scale (Cronbach's alpha = .80) showed good reliability. Finally, the three-item Meaningful Participation scale had adequate reliability (Cronbach's alpha = .74).

Table A–1. School climate outcomes showed small to moderate correlations

School Climate Outcome	1	2	3	4	5	6	7	8
1. Perceived Safety	–							
2. Physical Violence	-0.28	–						

School Climate Outcome	1	2	3	4	5	6	7	8
3. Verbal Harassment	-0.21	0.60	–					
4. Schoolwork	0.17	-0.19	-0.08	–				
5. Caring Relationships	0.37	-0.17	-0.11	0.21	–			
6. Meaningful Participation	0.26	-0.08	-0.06	0.21	0.48	–		
7. School Connectedness	0.59	-0.22	-0.17	0.20	0.45	0.39	–	
8. Fairness	0.48	-0.23	-0.19	0.18	0.40	0.24	0.45	–

Note: Correlations were calculated using all data from 2003–04 through 2019–20 and from all students in grades 7 and 9 in the MYP schools' districts. Sample sizes ranged from 584,076 to 650,109. All correlations were statistically significant at $p < .001$. Lower values for Physical Violence and Verbal Harassment indicate more positive school climate and negative correlations with these outcomes and the other school climate outcomes are expected.

Table A–2. Students included in analyses reported moderately high levels of school climate; students in grade 7 responded more positively than grade 9 peers

School Climate Outcome	Grade 7 Mean	Grade 7 Standard Deviation	Grade 7 *N*	Grade 9 Mean	Grade 9 Standard Deviation	Grade 9 *N*
Perceived Safety	3.64	1.12	330,378	3.46	1.07	317,804
Physical Violence	1.41	0.55	314,328	1.37	0.54	314,308
Verbal Harassment	1.76	0.89	309,447	1.71	0.87	309,511
Schoolwork	6.14	1.77	314,958	5.92	1.88	315,162
Caring Relationships	2.97	0.75	325,448	2.81	0.78	313,590

School Climate Outcome	Grade 7 Mean	Grade 7 Standard Deviation	Grade 7 *N*	Grade 9 Mean	Grade 9 Standard Deviation	Grade 9 *N*
Meaningful Participation	2.27	0.81	322,755	2.15	0.82	311,509
School Connectedness	3.66	0.92	325,938	3.50	0.93	314,079
Fairness	3.48	1.17	331,605	3.35	1.10	318,504

Note: Means are based on all years of available data (2003–04 or 2005–06 through 2019–20) and include all MYP and non-MYP comparison schools. Perceived Safety, School Connectedness, and Fairness items were rated using a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. Physical Violence and Verbal Harassment items were rated using a 1 (*0 times*) to 4 (*4 or more times*) scale. The Schoolwork item was rated using a 1 (*mostly Fs*) to 8 (*mostly As*) scale. Caring Relationships and Meaningful Participation items were rated using a 1 *(not at all true*) to 4 (*very true*) scale.

From 2003–04 to 2009–10, the CHKS included the following question: "How do you describe yourself? (Mark All That Apply)" and provided the following response options: American Indian or Alaska Native; Asian or Asian American; Black or African American (non-Hispanic); Hispanic or Latino/Latina; Native Hawaiian or Pacific Islander; White or Caucasian (non-Hispanic); and Other. For this study, to allow for comparability with the race question used in the later years, the WestEd team coded all students who selected two or more racial/ethnic groups as Mixed. Additionally, WestEd combined American Indian or Alaska Native, and Native Hawaiian or Pacific Islander, with Other.

From 2010–11 to 2019–20, the CHKS included the following question: "Are you of Hispanic or Latino origin?" with the following response options: Yes and No. During this time period, the CHKS also included the following question: "What is your race?" with the following response options: American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Pacific Islander; White; Mixed (two or more) races. For this study, to allow for comparability with the race/ethnicity item used in the prior years, WestEd coded all students as Hispanic or Latino if they selected yes for the ethnicity question regardless of what they selected for the race question. Consistent with the pre-2010–11 categorization, WestEd coded American Indian or Alaska Native, and Native Hawaiian or Pacific Islander, as Other.

Appendix B: Extant School-Level Data Sources

Enrollment by School Data Files

The WestEd team used Enrollment by School Data Files[8] from the California Department of Education (CDE), which include school-level total enrollment data and data for different racial and ethnic groups. The WestEd team downloaded the files for all years from 2003–04 through 2019–20. From these data files, researchers calculated percentages of students comprising the following five racial and ethnic designations: Asian, Black or African American, Hispanic or Latino, White, and Other Race/Ethnicity. The Other Race/Ethnicity category included the following categories: not reported; American Indian or Alaska Native; Pacific Islander, Not Hispanic; Filipino, Not Hispanic; and two or more races, Not Hispanic.

Student Poverty Free or Reduced-Price Meals Data Files

The CDE's Student Poverty Free or Reduced-Price Meals Data Files[9] contain school-level counts of students and percentages of students eligible to receive free or reduced-price meals as part of the National School Lunch Program. For this study, the WestEd team downloaded the files for all years from 2003–04 through 2019–20. For the study's analyses, WestEd used the percentage of students eligible for free or reduced-price meals and calculated this percentage by dividing the number of students eligible for free or reduced-price meals in kindergarten through grade 12 by the total enrollment of students in kindergarten through grade 12.

Public Schools and Districts Data Files

Data for the study also came from the Public Schools and Districts Data Files,[10] which include a listing of all public schools and districts in California. The WestEd team used the Public Schools and Districts Data File downloaded on January 11, 2021. Prior to conducting analyses, researchers removed all district records from the Public Schools and Districts Data File. Data from this file included the grade span (i.e., grades served), charter status, and magnet status of schools.

Common Core of Data

The WestEd team also used data from the U.S. Department of Education's Common Core of Data,[11] a database of all public schools in the country. For the study, the WestEd team downloaded the Public Elementary/Secondary School Universe Survey Data, which is part of the

[8] https://www.cde.ca.gov/ds/ad/filesenr.asp

[9] https://www.cde.ca.gov/ds/ad/filessp.asp

[10] https://www.cde.ca.gov/ds/si/ds/pubschls.asp

[11] https://nces.ed.gov/ccd/files.asp

Common Core of Data, for the 2018–19 school year (i.e., the most recent year available at the time of analysis) and used the locale code for each school in the study. Each school in the Common Core of Data is assigned one of 12 locale codes (Geverdt, 2014). There are three city codes (e.g., "City, Large"), three suburban codes (e.g., "Suburb, Midsize), three town codes (e.g., "Town, Remote), and three rural codes (e.g., "Rural, Remote"). For the analysis, researchers grouped the schools into three categories: city schools, suburban schools, and town or rural schools.

Appendix C: Quantitative Analysis Sample Description

Table C–1. Most schools served grade 7 "wall-to-wall"; half served grade 9 "wall-to-wall"

Wall-to-Wall Status	Number of Schools Serving Grade 7	Percentage of Schools Serving Grade 7	Number of Schools Serving Grade 9	Percentage of Schools Serving Grade 9
Wall-to-Wall	21	84%	9	50%
Nearly Wall-to-Wall	2	8%	2	11%
Not Wall-to-Wall	2	8%	6	33%
No Implementation at Given Grade Level	0	0%	1	6%
Total	**25**	**100%**	**18**	**100%**

Note: "Wall-to-wall" status means *all* students in a given grade level participate in the school's International Baccalaureate program. Thirteen schools serving grade 7 did not respond and four schools serving grade 9 did not respond.

Table C–2. Schools included in analyses had populations that were predominately low-income and Hispanic or Latino

Demographic Characteristic in 2019–20	MYP Schools Mean	MYP Schools Standard Deviation	Non-MYP Schools Mean	Non-MYP Schools Standard Deviation	Total Mean	Total Standard Deviation
Free or Reduced-Price Meals Eligible	60.7%	24.4	70.0%	25.3	69.4%	25.3
English Learners	15.0%	11.0	15.5%	11.0	15.5%	11.0
Asian	6.4%	7.6	6.6%	9.5	6.6%	9.4
Black or African American	6.3%	6.5	7.9%	9.6	7.8%	9.5
Hispanic or Latino	59.1%	25.0	63.4%	25.3	63.1%	25.3
White	20.6%	20.4	15.0%	18.2	15.4%	18.4
Other Race/Ethnicity	7.5%	5.7	7.1%	7.0	7.1%	6.9

Note: The table presents data from 43 MYP schools and 620 non-MYP schools.

Table C–3. Most districts had one or two MYP schools included in analyses

District	MYP Schools	MYP Students	Non-MYP Schools	Non-MYP Students	Total Schools	Total Students
District 1	1	225	7	9,090	8	9,315
District 2	2	2,352	25	21,607	27	23,959
District 3	1	102	5	3,762	6	3,864
District 4	1	1,487	1	1,681	2	3,168
District 5	5	867	234	44,472	239	45,339
District 6	1	308	11	6,483	12	6,791
District 7	1	567	10	13,104	11	13,671
District 8	1	762	4	2,512	5	3,274
District 9	1	3,879	8	10,211	9	14,090
District 10	1	2,745	9	22,033	10	24,778
District 11	1	504	20	45,364	21	45,868
District 12	1	643	4	10,349	5	10,992
District 13	2	307	5	943	7	1,250
District 14	1	1,395	3	3,797	4	5,192
District 15	1	4,008	16	58,963	17	62,971
District 16	1	2,780	11	22,037	12	24,817
District 17	1	2,172	9	24,066	10	26,238

District	MYP Schools	MYP Students	Non-MYP Schools	Non-MYP Students	Total Schools	Total Students
District 18	2	2,986	18	29,635	20	32,621
District 19	1	2,167	8	18,068	9	20,235
District 20	1	487	26	21,242	27	21,729
District 21	1	2,903	8	15,899	9	18,802
District 22	1	557	15	8,024	16	8,581
District 23	1	69	5	5,828	6	5,897
District 24	1	332	7	6,436	8	6,768
District 25	2	3,855	85	93,370	87	97,225
District 26	1	1,307	12	14,004	13	15,311
District 27	1	265	56	29,456	57	29,721
District 28	1	3,207	11	34,982	12	38,189
District 29	2	1,139	16	8,269	18	9,408
District 30	1	59	1	842	2	901
District 31	1	3,184	9	22,882	10	26,066
District 32	1	117	7	18,746	8	18,863
District 33	2	2,459	7	3,240	9	5,699
Total	**43**	**50,196**	**673**	**631,397**	**716**	**681,593**

Appendix D: Quantitative Analysis Approach

WestEd researchers used the "xtmixed" command in Stata 15.1 (StataCorp, 2017) and the "lme4" package in R 4.0.2 (R Core Team, 2020) to conduct the growth curve modeling for this study. The growth curve models outlined by Singer and Willett (2003) are consistent with the hierarchical linear modeling (HLM) approach described by Raudenbush and Bryk (2002) to examine individual change. However, growth curve analyses conducted for this study model trajectories of schools rather than individuals, as outlined by Singer and Willett (2003), and therefore, are also analogous to the statistical models proposed by Bloom (2003) for an interrupted time series design. Consistent with this study's analyses, Bloom used student-level data to model school trajectories.

The study team followed Singer and Willett's (2003) model-building approach and specified three models with all Middle Years Programme (MYP) schools and non-MYP schools in the MYP schools' districts for each school climate outcome:

1. An unconditional means model that stipulates that schools' trajectories on school climate outcomes are flat (i.e., no increase or decrease) across time
2. An unconditional growth model that hypothesizes that schools show linear change on school climate outcomes across time
3. A quadratic growth model that posits that schools show a nonlinear trajectory on school climate outcomes across time

The metric for time was centered in the first school year with available data for each school climate outcome such that the intercept in the growth curve models was either 2003–04 or 2005–06, depending on the school climate outcome. Because Physical Violence, Verbal Harassment, and Schoolwork data were not available for grade 7 students in 2003–04 and 2004–05, the study team chose to treat all data (both grade 7 *and* grade 9 data) as missing data for those three outcomes in those years. The linear term for time was coded as zero to 14 or zero to 16, depending on the school climate outcome, and the quadratic term in the models was Time^2 (i.e., time × time). Researchers used the deviance statistic, which provides an indicator of model fit, to determine whether each successive model provided a better fit to the data compared with the prior model (Singer & Willett, 2003). For the primary analyses that used student-level data, the best-fitting model was an unconditional growth model for Physical Violence and a quadratic growth model for the other seven outcomes.

After determining the best-fitting growth model for each outcome, researchers added students' grade level, gender, and race/ethnicity as student-level, dummy-coded contextual variables (i.e., statistical control variables). In addition, free or reduced-price meals rates and percentages of Asian, Black or African American, Hispanic/Latino, and White students were added as school-level contextual variables. The free or reduced-price meals rates and school-level race/ethnicity percentages were time varying (e.g., the 2007–08 free or reduced-price

meals rate was merged to the 2007–08 survey data) and accounted for schools' changing demographics.

The research team used the same method as had been used in the Primary Years Programme (PYP) evaluation to code authorization and candidacy dates, which the IB provided. The MYP schools became candidate and authorized schools throughout an entire year. In addition, prior to when an online version of the CHKS became available in 2012–13, there were not consistent records available indicating what month the schools completed the survey. Consequently, WestEd researchers coded schools authorized in a given calendar year (e.g., January 1, 2012, through December 31, 2012) as being in their first school year post-authorization during a corresponding school year (e.g., 2012–13). Thus, a school authorized late in a school year would not have its CHKS data from that school year count as part of the post-authorization period. WestEd specified the school years for candidacy dates in the same manner as school years for authorization dates.

After determining the best-fitting growth model and adding contextual variables, researchers added dummy-coded variables indicating whether school years were pre- or post-authorization or pre- or post-candidacy. These were school-level, time-varying predictor variables that changed from "0" to "1" following authorization or candidacy. Including these time-varying predictor variables enabled the researchers to examine whether there were changes in MYP schools' trajectories (and specifically a change in the level) following authorization or candidacy. The inclusion of comparison non-MYP schools meant that changes post-authorization and post-candidacy for the MYP schools were contrasted with trajectories of non-MYP schools, of MYP schools that had not yet been authorized, and of MYP schools' own trajectories pre-authorization and pre-candidacy.

The HLM equation for the final growth curve models with school climate outcomes that showed quadratic growth is outlined below. Linear models were consistent with the HLM equation below, but did not include the quadratic term (i.e., Year^2). Final growth curve models are four-level models with students (i.e., Level 1) nested within school years within school (i.e., Level 2), schools (i.e., Level 3), and districts (i.e., Level 4).

Student-Level Model:

$$SchoolClimate_{ijkl} = \gamma_{0000} + \sum_{r=1}^{2} \gamma_{(0+r)000}\, GenderD_{ijkl} + \gamma_{3000} GradeD_{ijkl} + \sum_{r=1}^{5} \gamma_{(3+r)000} RaceD_{ijkl} + \gamma_{0100} FRPL_{jkl} + \sum_{r=1}^{4} \gamma_{0(1+r)00} RacePct_{jkl} + \gamma_{0600} Authorization_{jkl} + \gamma_{0010} Year_{kl} + \gamma_{0020} Year_{kl}^2 + r_{0jkl} + r_{00kl} + r_{000l}$$

In the equation, SchoolClimate$_{ijkl}$ is the school climate score for student *i* in year *j*, school *k*, and district *l*. γ_{0000} is the intercept in the model. γ_{1000} and γ_{2000} are level-1 coefficients that describe the strength and direction of association between student gender (two level-1 dummy-coded variables comparing female to male students and female students to students with missing

gender) and the outcome school climate score. γ_{3000} details the difference in school climate outcome between grade 7 and grade 9 students. γ_{4000} through γ_{8000} describe the difference in the school climate outcome between student *i*'s racial/ethnic group and the reference racial/ethnic group (i.e., Hispanic or Latino). γ_{0100} is the level-2 coefficient describing the strength and direction of association between the school climate outcome and school-level percent of free and reduce-price meal students. γ_{0200} through γ_{0500} represent the relation between school-level race/ethnicity percentages and the school climate outcome. γ_{0600} is a level-2 coefficient and represents the average difference in school climate scores for schools pre-authorization (this includes non-MYP schools for all years) and MYP schools post-authorization. γ_{0010} and γ_{0020} describe schools' yearly rate of change or trajectory on the school climate outcome. γ_{0010} is the coefficient for the linear term (i.e., the instantaneous rate of change), and γ_{0020} is the coefficient for the quadratic term (i.e., the curvature; Singer & Willett, 2003). Finally, the coefficients r_{0jkl}, r_{00kl}, and r_{000l} respectively represent random variability in the intercepts of students within years, years within schools, and schools within districts.

The HLM equation for the final school-level growth curve models (i.e., sensitivity analyses based on aggregate data) with school climate outcomes that showed quadratic growth is outlined below. Linear models were consistent with the HLM equation below, but did not include the quadratic term (i.e., Year^2). Final growth curve models are three-level models with school years (i.e., Level 1) nested within school (i.e., Level 2), and districts (i.e., Level 3).

School-Level Model:

$$SchoolClimate_{jkl} = \gamma_{000} + \gamma_{100}GenderPct_{jkl} + \gamma_{200}FRPLPct_{jkl} + \sum_{r=1}^{4}\gamma_{(2+r)00}Race\_Pct_{jkl} + \sum_{r=1}^{2}\gamma_{(6+r)00}GradeD_{jkl} + \gamma_{900}Authorization_{jkl} + \gamma_{010}Year_{jkl} + \gamma_{020}Year_{jkl}^2 + + r_{0kl} + r_{00l}$$

Similar to the student-level equation, SchoolClimate$_{jkl}$ is the school climate outcome score for year *j*, in school *k*, and district *l*. γ_{000} is the model intercept. γ_{100} describes the association between the school climate outcome and the percentage of female students that completed the CHKS in year *j* at school *k*. γ_{200} describes the association between the school climate outcome and the percentage of free and reduced-price meal students in year *j* at school *k*. γ_{300} through γ_{500} represent the association between the school climate outcome and the percentage of Asian, Black or African American, Hispanic/Latino, and White students that completed the CHKS in year *j* at school *k*. γ_{700} and γ_{800} detail the difference in the school climate outcome between schools serving only grade 7 and schools serving grade 9 or a mixture of grade 7 and grade 9. γ_{900} is the average difference in the school climate outcome between non-MYP schools (including MYP schools that had not yet been authorized) and MYP schools following authorization. γ_{010} and γ_{020} are the linear and quadratic rates of change of the school climate outcome. Lastly, r_{0kl}, r_{00l} are random effects in intercepts for years within schools and schools within districts.

Consistent with models for the PYP study (Boal & Nakamoto, 2020), variance components for linear and quadratic terms could not be consistently estimated (i.e., the models failed to converge) for all school climate outcomes when researchers specified models with both fixed and random effects for these terms. The small number of years that many schools completed the CHKS could have caused this issue. To resolve this issue, researchers included only fixed effects for linear and quadratic terms in the models, which assumes that linear and quadratic terms are constant, as opposed to varying, across schools (Singer & Willett, 2003).

In the PYP study, WestEd researchers and the IB Research Department explored using a comparative interrupted times series design to address the quantitative research question, and determined that the growth curve modeling approach was a better fit for the study due to varying authorization dates and the CHKS administration schedule. A summary of main problems with the CHKS data that made the comparative interrupted times series design untenable is included in Boal and Nakamoto (2020). However, the comparative interrupted times series design could be explored in future studies to examine whether schools participating in the MYP deviated from their baseline trend on the outcomes of interest by a greater amount than a matched group of comparison schools following the introduction of MYP (Somers et al., 2013).

WestEd researchers conducted primary analysis with each school climate outcome and seven sensitivity analyses with each outcome. The eight analyses are outlined below, and detailed findings are presented in Tables E–1, E–2, E–3, and E–4 in Appendix E.

1. Primary Analysis: Post-authorization change, using student-level data with MYP and non-MYP schools
2. Sensitivity Analysis 1: Post-authorization change, using student-level data with only MYP schools
3. Sensitivity Analysis 2: Post-authorization change, using grade 7 student-level data with MYP and non-MYP schools
4. Sensitivity Analysis 3: Post-authorization change, using aggregate school-level data with MYP and non-MYP schools
5. Sensitivity Analysis 4: Post-candidacy change, using student-level data with MYP and non-MYP schools
6. Sensitivity Analysis 5: Post-candidacy change, using student-level data with only MYP schools
7. Sensitivity Analysis 6: Post-candidacy change, using grade 7 student-level data with MYP and non-MYP schools
8. Sensitivity Analysis 7: Post-candidacy change, using aggregate school-level data with MYP and non-MYP schools

The use of student-level data without comparison schools for Sensitivity Analysis 1 makes it analogous to an interrupted times series design without a comparison group, and changes post-authorization for MYP schools are contrasted with MYP schools that had not yet been authorized, and with MYP schools' own trajectories pre-authorization. Sensitivity Analysis 2 compared post-authorization change between MYP and non-MYP schools for students in grade 7. The small number of schools with students in grade 9 who completed the CHKS prevented a similar sensitivity analysis for students in grade 9. To create the school-level dataset for Sensitivity Analyses 3 and 7, WestEd researchers averaged the school climate outcomes within school and year. Because this analysis weighted each school climate score equally regardless of the number of students included in the aggregate, researchers excluded from analysis any school climate scores that were based on 14 or fewer students. In addition to the sensitivity analyses described above, WestEd conducted another set of analyses that removed the four schools that had indicated they were nearly wall-to-wall (see Table C–1). However, excluding these schools had a minimal impact on findings, and the research team elected not to present the results in Appendix E.

Appendix E: Detailed Findings From Growth Curve Models

Table E–1. Primary findings aligned with findings from sensitivity analysis of post-authorization changes with only MYP schools

School Climate Outcome	Primary Analysis: Post-Authorization Change	Primary Analysis: Standard Error	Primary Analysis: Confidence Interval	Primary Analysis: Effect Size	Sensitivity Analysis 1: Post-Authorization Change	Sensitivity Analysis 1: Standard Error	Sensitivity Analysis 1: Confidence Interval	Sensitivity Analysis 1: Effect Size
Perceived Safety	-0.040	0.033	[-0.104, 0.024]	-0.04	0.014	0.042	[-0.067, 0.096]	0.01
Physical Violence	0.010	0.011	[-0.011, 0.031]	0.02	-0.006	0.016	[-0.037, 0.025]	-0.01
Verbal Harassment	0.023	0.016	[-0.008, 0.055]	0.03	0.004	0.024	[-0.044, 0.051]	0.00
Schoolwork	-0.043	0.054	[-0.148, 0.062]	-0.02	0.015	0.072	[-0.125, 0.155]	0.01
Caring Relationships	-0.001	0.018	[-0.037, 0.034]	0.00	0.036	0.022	[-0.007, 0.079]	0.05
Meaningful Participation	0.004	0.017	[-0.030, 0.038]	0.00	0.041	0.023	[-0.003, 0.086]	0.05
School Connectedness	0.005	0.022	[-0.039, 0.048]	0.00	0.045	0.025	[-0.004, 0.094]	0.05
Fairness	-0.036	0.033	[-0.100, 0.028]	-0.03	0.062	0.041	[-0.018, 0.142]	0.05

Note: Primary Analysis = An analysis using student-level data with MYP and non-MYP schools; Sensitivity Analysis 1 = An analysis using student-level data with only MYP schools. None of the changes was statistically significant at $p < .05$. Effect sizes were based on student-level standard deviations.

Table E–2. Primary findings aligned with findings from sensitivity analysis of post-authorization changes with only students in grade 7 and aggregate school-level data

School Climate Outcome	Sensitivity Analysis 2: Post-Authorization Change	Sensitivity Analysis 2: Standard Error	Sensitivity Analysis 2: Confidence Interval	Sensitivity Analysis 2: Effect Size	Sensitivity Analysis 3: Post-Authorization Change	Sensitivity Analysis 3: Standard Error	Sensitivity Analysis 3: Confidence Interval	Sensitivity Analysis 3: Effect Size
Perceived Safety	-0.035	0.035	[-0.104, 0.034]	-0.03	-0.062	0.035	[-0.131, 0.007]	-0.06
Physical Violence	0.007	0.011	[-0.015, 0.028]	0.01	0.016	0.012	[-0.008, 0.040]	0.03
Verbal Harassment	0.013	0.017	[-0.019, 0.046]	0.02	0.028	0.019	[-0.009, 0.065]	0.03
Schoolwork	-0.039	0.056	[-0.149, 0.071]	-0.02	-0.049	0.058	[-0.163, 0.066]	-0.03
Caring Relationships	-0.007	0.019	[-0.044, 0.030]	-0.01	0.002	0.039	[-0.037, 0.041]	0.00
Meaningful Participation	-0.001	0.019	[-0.039, 0.037]	0.00	-0.002	0.020	[-0.041, 0.037]	0.00
School Connectedness	-0.001	0.024	[-0.049, 0.046]	0.00	0.005	0.025	[-0.044, 0.054]	0.01
Fairness	-0.033	0.036	[-0.104, 0.037]	-0.03	-0.037	0.037	[-0.106, 0.033]	-0.03

Note: Sensitivity Analysis 2 = An analysis using grade 7 student-level data with MYP and non-MYP schools. Sensitivity Analysis 3 = An analysis using aggregate school-level data with MYP and non-MYP schools. None of the changes was statistically significant at $p < .05$. Effect sizes were based on student-level standard deviations.

Table E–3. Primary findings aligned with findings from sensitivity analysis of post-candidacy changes with student-level data with MYP and non-MYP schools and that used only MYP schools

School Climate Outcome	Sensitivity Analysis 4: Post-Candidacy Change	Sensitivity Analysis 4: Standard Error	Sensitivity Analysis 4: Confidence Interval	Sensitivity Analysis 4: Effect Size	Sensitivity Analysis 5: Post- Candidacy Change	Sensitivity Analysis 5: Standard Error	Sensitivity Analysis 5: Confidence Interval	Sensitivity Analysis 5: Effect Size
Perceived Safety	-0.030	0.030	[-0.088, 0.028]	-0.03	0.057	0.043	[-0.028, 0.142]	0.05
Physical Violence	0.014	0.010	[-0.005, 0.033]	0.03	-0.001	0.017	[-0.034, 0.033]	0.00
Verbal Harassment	0.021	0.014	[-0.007, 0.049]	0.02	0.000	0.026	[-0.050, 0.051]	0.00
Schoolwork	-0.105*	0.048	[-0.200, -0.010]	-0.06	-0.179*	0.076	[-0.327, -0.031]	-0.10
Caring Relationships	-0.013	0.016	[-0.045, 0.018]	-0.02	0.026	0.023	[-0.020, 0.071]	0.03
Meaningful Participation	0.011	0.015	[-0.019, 0.041]	0.01	0.076*	0.023	[0.030, 0.121]	0.09
School Connectedness	-0.011	0.020	[-0.050, 0.029]	-0.01	0.036	0.026	[-0.016, 0.087]	0.04
Fairness	-0.049	0.029	[-0.107, 0.009]	-0.04	0.063	0.042	[-0.018, 0.145]	0.06

Note: Sensitivity Analysis 4 = An analysis using student-level data with MYP and non-MYP schools. Sensitivity Analysis 5 = An analysis using student-level data with only MYP schools. The changes marked with an asterisk (*) were statistically significant at $p < .05$. Effect sizes were based on student-level standard deviations.

Table E–4. Primary findings aligned with findings from sensitivity analysis of post-candidacy changes with only students in grade 7 and aggregate school-level data

School Climate Outcome	Sensitivity Analysis 6: Post-Candidacy Change	Sensitivity Analysis 6: Standard Error	Sensitivity Analysis 6: Confidence Interval	Sensitivity Analysis 6: Effect Size	Sensitivity Analysis 7: Post-Candidacy Change	Sensitivity Analysis 7: Standard Error	Sensitivity Analysis 7: Confidence Interval	Sensitivity Analysis 7: Effect Size
Perceived Safety	-0.026	0.033	[-0.090, 0.038]	-0.02	-0.040	0.031	[-0.101, 0.021]	-0.04
Physical Violence	0.010	0.010	[-0.009, 0.030]	0.02	0.018	0.011	[-0.003, 0.039]	0.03
Verbal Harassment	0.012	0.015	[-0.018, 0.041]	0.01	0.029	0.017	[-0.004, 0.062]	0.03
Schoolwork	-0.128*	0.052	[-0.230, -0.026]	-0.07	-0.100*	0.052	[-0.163, -0.066]	-0.05
Caring Relationships	-0.014	0.017	[-0.048, 0.020]	-0.02	-0.009	0.018	[-0.044, 0.025]	-0.01
Meaningful Participation	0.009	0.018	[-0.026, 0.043]	0.01	0.006	0.017	[-0.028, 0.041]	0.01
School Connectedness	-0.017	0.022	[-0.060, 0.027]	-0.02	-0.011	0.022	[-0.054, 0.033]	-0.01
Fairness	-0.046	0.033	[-0.111, 0.019]	-0.04	-0.049	0.031	[-0.110, 0.013]	-0.04

Note: Sensitivity Analysis 6 = An analysis using grade 7 student-level data with MYP and non-MYP schools. Sensitivity Analysis 7 = An analysis using aggregate school-level data with MYP and non-MYP schools. The changes marked with an asterisk (*) were statistically significant at $p < .05$. Effect sizes were based on student-level standard deviations.


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