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

Ashley Boal
Jonathan Nakamoto
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Abbreviations

California Assessment of Student Performance and Progress = CAASPP

California Department of Education = CDE

California Healthy Kids Survey = CHKS

California School Climate, Health, and Learning Survey = CalSCHLS

California School Parent Survey = CSPS

California School Staff Survey = CSSS

Career-Related Programme = CP

Common Core of Data = CCD

Comparative Interrupted Time Series = CITS

Comprehensive School Climate Inventory = CSCI

Diploma Programme = DP

English Language Arts = ELA

International Baccalaureate = IB

Interrupted Time Series = ITS

Middle Years Programme = MYP

National School Climate Center = NSCC

Primary Years Programme = PYP

Social-Emotional Learning = SEL

Science, Technology, Engineering, Arts, and Math = STEAM

Executive Summary

This study examined the International Baccalaureate (IB) Primary Years Programme's (PYP) impact on school climate within public elementary schools in California. *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 and Supportive Learning Environments, 2019). Fostering a positive school climate is important, as it can help prevent academic, social, and behavioral issues for students and increase job satisfaction and reduce turnover for school staff (Battistich & Hom, 1997; Brookover et al., 1978; Haynes et al., 1997; Kraft et al., 2016; MacNeil et al., 2009; Way et al., 2007; Welsh, 2000). Schools can cultivate a positive climate in many ways, such as through having strong leaders, cultivating positive relationships among students and staff, using student feedback, respecting all school community members, and clarifying rules and expectations (Baker et al., 2003; Bosworth et al., 2011; Loukas et al., 2006; Noddings, 2012; Siegel et al., 2018; Welsh, 2000). The IB PYP was not necessarily designed as a school climate intervention, but the PYP's orientation and corresponding resources emphasize an approach toward learning, student supports, staff supports, and community building that are aligned with school climate improvement (e.g., using the IB learner profile and essential agreements; emphasizing student voice). Given that the PYP framework's content and approach are well aligned with important mechanisms to develop a positive school climate and that previous research on the PYP suggests the program may have positive impacts on numerous outcomes, including school climate (Gough et al., 2014), the current study aimed to more deeply understand the PYP's impact on school climate.

Methodology

This study included two research questions, the first focusing on perceptions of change in school climate among a subset of schools recognized as strong implementers of the PYP and the second focusing on whether school climate outcomes on the California Healthy Kids Survey (CHKS) improved after PYP authorization. To address these questions, WestEd used a combination of qualitative and quantitative methodologies. Qualitative analyses relied on interview and focus group data from eight case study sites across the state of California selected based on indicators of strong implementation. WestEd coded transcripts from interviews and focus groups with principals, PYP coordinators, teachers, and parents to identify perceptions of school climate as well as the extent to which elements of school climate either changed after the PYP introduction or represent differences compared with non-PYP schools. Quantitative analyses relied on 16 years of student CHKS data collected from public elementary schools in California. WestEd conducted growth curve modeling analyses to determine whether the trajectory of PYP schools on the school climate outcomes changed post-authorization.

Key Findings

This study suggests that the PYP influenced numerous aspects of school climate among the subset of strong implementation case study sites as well as among the sample of public schools in California. Key findings from both the qualitative and quantitative components of the study are described below.

- The qualitative data revealed numerous improvements to school climate that participants at all or most case study schools attributed to the PYP.
- Participants at every school reported increased focus on social-emotional learning (SEL) and the whole child, use of transdisciplinary instruction and teacher collaboration because of the PYP. Further, participants from at least three-fourths of schools reported that due to the PYP, they observed increased use of inquiry, student voice, global perspectives, open-mindedness, and individualization in instruction as well as celebration of diverse student accomplishments, student learning for life, student action and community service, student agency and ownership over learning, student engagement, teacher relationships, teacher creativity and sense of safety to take risks, teacher engagement, teacher reflection, parent involvement, and parent belief that their children are set up for success. The proportion of case study schools that experienced these improvements suggest they may be common impacts associated with strong PYP implementation.
- Case study participants described the exhibition as unique to the PYP and a useful tool to encourage student action and community service, the use of student voice and choice, the expansion of horizons, and reflection, as well as to engage parents, K–4 students, and the larger community.
- Participants at all case study sites described the IB learner profile, PYP professional development and supports, PYP coordinator, and essential agreements as key contributors to school climate.
- The quantitative data showed small, but statistically significant improvements post-authorization on six school climate outcomes; positive, but not statistically significant trends for two school climate outcomes; and no change post-authorization for one school climate outcome.
    - The six statistically significant outcomes were Perceived Safety, Caring Relationships, Fairness, Parent Involvement, Bullying, and Victimization.
    - The two non–statistically significant outcomes were School Connectedness and Meaningful Participation.
    - The only school climate outcome that did not show a positive trend post-authorization was Schoolwork.
- Exploratory analyses that used different approaches and examined changes post-candidacy were consistent with the initial results and increased WestEd's confidence in the findings.

Future Directions

Findings from this study are useful to inform next steps for both research and practice. Given the positive findings from this study, future research could explore whether these trends hold true in other contexts. Subsequent studies might include an examination of school climate among PYP schools with varying levels of implementation or could focus on school climate for other IB programs, particularly the Middle Years Programme (MYP) in middle school settings and the Diploma Programme (DP) and Career-Related Programme (CP) in high school settings. Future research may take on different approaches to examine school climate by identifying schools as they first engage with the PYP to assess baseline school climate and then follow them over time. The future research could additionally use recently developed measures of school climate that are administered annually in some states and districts. A more formative evaluation approach focused on identifying challenges PYP schools experience related to school climate and the ways in which the PYP could be leveraged may also be valuable to identify promising practices that can be shared with schools.

PYP practitioners, including IB staff, school leaders, and teachers, can also benefit from the findings of this study. The case study results highlight the importance of leader and teacher buy-in to ensure strong implementation and to realize potential positive impacts on school climate. Professional development addressing school climate, focus on the IB learner profile, and support to integrate the PYP with existing programming and resources on school campuses may be valuable to further support school climate development. If schools want to have a clear understanding of their school's climate, annual surveys can be a helpful tool to determine the current state of school climate and areas for improvement moving forward. Finally, as the IB introduces the PYP to schools and as school staff introduce the PYP to parents, having an "elevator pitch" highlighting the importance of school climate and the ways the PYP helps foster a positive school climate may be informative.

Introduction

The IB PYP is an internationally utilized school-wide curriculum framework for students ages 3 through 12. In addition to fostering growth in student academic knowledge and skills, the PYP places an explicit emphasis on nurturing student social-emotional well-being, independence, ownership of learning and behavior, international-mindedness, and ability to understand and function in the world. All IB programs, including the PYP, work toward these goals by focusing on the development of 10 human capacities and responsibilities captured by the IB learner profile – being inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective (IB, 2013). The PYP organizes learning through six transdisciplinary themes (IB, 2014a):

1. Who we are
2. Where we are in place and time
3. How we express ourselves
4. How the world works
5. How we organize ourselves
6. Sharing the planet

These themes are designed to be relevant to the real world and allow for high-quality instruction that incorporates multiple subject areas. In examining these themes, it appears that they also may provide a platform to infuse the IB learner profile and SEL more extensively than traditional, subject-specific curricula due to their broad nature and emphasis on students' understanding themselves and their place in the world. Through the PYP, teachers are encouraged to collaborate with their students to develop essential agreements, which are co-constructed guidelines and norms for each classroom. Use of essential agreements is also encouraged at the school level with administrators working with their staff to develop essential agreements to guide their work together. These co-construction processes may be valuable for gathering shared buy-in for the school and classroom norms, as well as for ensuring that all stakeholders understand expectations. Previous research and evaluation on the PYP suggest that participation in the PYP is linked to positive differences in the quality of instruction, teacher collaboration, and student achievement, in perceptions, motivation, and critical thinking, and in global and cultural awareness (Gough et al., 2014; Pushpanadham, 2013; Sillisano, et al., 2010). Further, one study of the PYP in Australia found that both principals and teachers believe that the PYP positively influenced their schools' climate (Gough et al., 2014). Given the foci of the PYP, coupled with promising findings from other studies, the current study sought to develop a more comprehensive understanding of the extent to which strong PYP implementation influences school climate.

HELPFUL IB PYP TERMINOLOGY

- Authorization = The process through which schools apply to become a PYP school and applications are considered, culminating with the IB's decision on approving the school's designation as a PYP school.
- Candidacy = The process through which a school carries out a preliminary analysis of PYP and develops a plan to transition to a PYP school and formally requests candidate status.
- Essential Agreements = Collaboratively developed and agreed-upon norms, guidelines, and procedures within a classroom and/or school.
- Exhibition = An extended, in-depth, collaborative project focused on inquiry into real-life issues or problems carried out in the final year of the PYP.
- IB Learner Profile = A set of ideals intended to inspire, motivate, and focus the work of schools and teachers, uniting them in a common purpose and providing a set of learning outcomes for each IB student.
- PYP Coordinator = Coordinators provide school-level leadership for the implementation of the PYP and IB processes generally. They are key points of liaison with the IB.
- PYP Planner = A document, provided by the IB, that teachers use to collaboratively plan and reflect upon the PYP units of inquiry.
- Units of Inquiry = Students learn about significant concepts through units that integrate various subject areas, such as math, language arts, science, and social studies, and connect those subjects to the world around them.
- Transdisciplinary = Instruction organized into six themes that go across subject areas.

Research Questions

This study focused on two overarching research questions to unpack the extent to which the PYP might influence school climate as well as the mechanisms in place through the PYP that support improvements in school climate.

1. In schools with strong PYP implementation, what changes and outcomes do key stakeholders attribute to the PYP?
    a. What do key stakeholders believe to be the PYP's impacts on topics such as school climate; school leaders' philosophies, practices, and actions; teachers' development, efficacy, collaboration, pedagogy, and practices for planning and instruction; assessment; and school community members' action and civic engagement?

b. What are key stakeholders' understandings of the role of the PYP exhibition in engaging parents and the larger school community?

2. Do school climate outcomes as assessed by the CHKS improve at PYP schools post-authorization?[1]

It is important to note that these research questions represent modifications from the original research plan. WestEd updated the research questions through consultation with the IB after the WestEd team became familiar with the available data and gathered a clearer sense of what questions were feasible within the constraints of the data. In particular, the qualitative research question (Research Question 1) was modified after a preliminary examination of the quantitative survey data revealed that answering the initial question, which focused on schools with large school climate improvements following the adoption of the PYP, would not be feasible. Thus, this question and the sampling methodology shifted to focus on schools with strong PYP implementation rather than schools with strong measurable effects due to the PYP implementation. Similarly, because the quantitative research question (Research Question 2) relied on extant longitudinal survey data, the research question was modified based on a review of the number of schools that participated in the CHKS data collection and the frequency with which they participated in the data collection. Initially, the research plan had three more detailed quantitative research questions that, for example, addressed changes in school climate at additional implementation stages (e.g., during candidacy) and incorporated school-level demographic characteristics as predictors of changes in school climate. These changes allowed the WestEd team to address the same topics outlined in the original research plan while ensuring the appropriate collection and analysis of data relevant to the study's research questions.

[1] Schools that have been granted authorization by the IB have approval to teach the PYP and are officially designated as PYP schools. The process for becoming authorized includes the following: (1) schools submit an *Application for Authorization*; (2) schools submit additional information following a feedback report from the IB based on the *Application for Authorization*; (3) experienced IB educators conduct a verification visit to confirm that the IB educational principles, required standards, and practices are being implemented; and (4) if necessary, schools provide a timeline for addressing any issues identified during the verification visit.

Literature Review

School climate and school culture are two 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). Fostering a positive school climate and culture is important, as it can help prevent academic, social, and behavioral issues for students and increase job satisfaction and reduce turnover for school staff (Battistich & Hom, 1997; Brookover et al., 1978; Haynes et al., 1997; Kraft et al., 2016; MacNeil et al., 2009; Way et al., 2007; Welsh, 2000). Schools can cultivate a positive climate and culture in various ways, such as having an influential leader, building strong student-teacher relationships, asking for and responding to student feedback, showing respect for students and families, making school rules and expectations clear, and fostering community among parents and students (Baker et al., 2003; Bosworth et al., 2011; Loukas et al., 2006; Noddings, 2012; Siegel et al., 2018; Welsh, 2000).

Although school climate and culture are closely related, the construct of school climate is based on individual experiences and the construct of school culture is based on shared values across individuals and over time (Kane et al., 2016). Given this distinction, school climate tends to be more easily measured and therefore is the focus of the current investigation of the PYP and the majority of other research and evaluation projects. It should be noted, though, that many researchers and practitioners use the terms *climate* and *culture* interchangeably (Kane et al., 2016).

School climate has been operationalized by many different scholars and researchers and is often assessed through quantitative measures administered to students, staff, and parents. Some tools, such as the National School Climate Center's (NSCC) Comprehensive School Climate Inventory (CSCI), have been developed for broad use, and other tools have been developed by specific states and school districts for use within their schools. For example, California, Delaware, Georgia, and Baltimore City Public Schools, among others, have developed their own tools to operationalize and assess school climate. Despite the variety of tools available and nuances regarding the specific question wording and response options, the components of school climate assessed through these tools 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 are measured by the CSCI, as a framework to explore the various facets of school climate and the ways in which these facets impact members of the school community.

Dimensions of School Climate

Based on the NSCC framework, schools can cultivate a positive climate in various ways. The NSCC includes 13 dimensions in its conceptualization of school climate. These 13 essential dimensions of a healthy school climate are situated in six broad domains: (1) **Safety**; (2) **Teaching and Learning**;

(3) **Interpersonal Relationships**; (4) **Social Media**; (5) **Institutional Environment**; and (6) **Staff** (NSCC, 2019). Although most of these domains closely correspond to other assessments of school climate (e.g., the CHKS), the Social Media domain is somewhat atypical, especially regarding assessments of school climate among elementary school students. Because the inclusion of social media as a domain is unusual across the measures of school climate in elementary settings, the current study did not examine the domain and corresponding dimension. The remaining 12 dimensions across five domains are explained in more detail below.

Safety

The NSCC framework designates three dimensions of school climate within the domain of **Safety**: *physical security*, *social-emotional security*, and the presence of clearly communicated and consistent *rules and norms*. With respect to *physical* and *social-emotional security*, most researchers agree that creating a feeling of safety is more complicated than merely securing the absence of violence (Bosworth et al., 2011; Osher et al., 2006). Rather, there are frequent overlaps between *physical* and *social-emotional security*, with bullying posing a threat to both aspects. For example, Kutsyuruba et al. (2015) suggested that when administrators restrict definitions of bullying to physical harm alone, this contributes to unclear and differentiated understandings of bullying by students, staff, and parents, compromising the safety of the school environment. Beyond cultivating security, the NSCC framework suggests that students must have a strong understanding of the norms and expectations within the school (the *rules and norms* dimension). Research demonstrates that the perception of fairness in school discipline is correlated with fewer behavioral issues (Gregory & Cornell, 2009; Osher et al., 2010; Swearer et al., 2010) and that the overuse or inappropriate use of severe disciplinary actions, such as suspension or expulsion, can lead to an inequitable school climate (Welch & Payne, 2010). Thus, a positive school climate is one in which students feel safe from physical harm, teasing, and verbal abuse, have a clear understanding of school norms, guidelines, and expectations, and experience consistent enforcement of the established expectations (NSCC, 2019), making all of these topics important to consider when assessing school climate.

Teaching and Learning

The **Teaching and Learning** domain of the NSCC framework includes two dimensions: *support for learning* and *social and civic learning*. With regard to the first, indicators include the use of supportive teaching practices such as encouragement, support for risk-taking and independent dialogue, academic challenge, and individual attention (NSCC, 2019). A positive school climate promotes cooperative learning, respect, and mutual trust (Thapa et al., 2013), and there is evidence that such an environment contributes not only to immediate student achievements but long-term benefits (Hoy et al., 1998). As for *social and civic learning*, this includes skills such as conflict resolution, self-reflection, emotional regulation, empathy, personal responsibility, and ethical decision-making. While a positive goal in and of itself, there is evidence that SEL has positive effects on students' achievement scores (Battistich et al., 2004; Bradshaw et al., 2009; Durlak et al., 2011; Elias & Haynes, 2008; Payton et al., 2008). These dimensions and corresponding evidence highlighting their importance underscore the value of

high-quality instruction and opportunities for learning when cultivating and maintaining a positive school climate.

Interpersonal Relationships

Students spend a substantial proportion of their time within the school environment, and social-motivational processes and socialization experiences are critical to students' development, including their academic achievement (Tschannen-Moran et al., 2006; Wentzel, 1999). The NSCC school climate framework designates *respect for diversity*, the presence of supportive and caring adult relationships (the *social support- adults* dimension), and supportive peer relationships (the *social support- students* dimension) as the dimensions of school climate that fall under the **Interpersonal Relationships** domain. Peer relationships are affected by, and reinforce, prevailing school environments. A lack of positive and inclusive peer relationships, for example when bullying behavior is present, can have profound effects on student well-being and outcomes, as well as a detrimental effect on school climate overall (Eliot et al., 2010; Gendron et al., 2011; Unnever & Cornell, 2003; Wang et al., 2013). Teacher-student relationships are also key, given positive correlations between teachers' interactions with students and outcomes relating to engagement, behavior, and academics (Brown et al., 2010; Hamre & Pianta, 2001; Skinner & Belmont, 1993). Strong interpersonal relationships are important for all members of the school community, regardless of their race, gender, social class, religious affiliation, sexual orientation, and age, along with other characteristics in which individuals identify (Bishop & Pflaum, 2005; Hernandez & Seem, 2004). In fact, the negative consequences of poor interpersonal relationships can be most dramatic for those who may be different from their peers (Birkett et al., 2009; Wernick et al., 2013), making the cultivation of a school climate that respects and celebrates diversity especially important. Because interpersonal relationships are such important aspects of school climate that have profound effects on students and staff, these dimensions are necessary to examine when understanding the impact of programming on school climate.

Institutional Environment

A healthy school climate not only focuses on students, but also requires investment and engagement from staff and parents. Parent engagement is key to the positive school adjustment of children (Baker et al., 2003; Bosworth et al., 2011; Loukas et al., 2006; Noddings, 2012; Welsh, 2000) and is particularly important for students who have diverse needs and backgrounds (Siegel et al., 2018). The **Institutional Environment** domain of the NSCC framework includes two important dimensions of school climate that are relevant to all stakeholders – the extent to which members of the school community positively identify with their school (the *school connectedness and engagement* dimension) and the *physical surroundings* of the campus (i.e., cleanliness, order, appeal of facilities, resources, and materials; NSCC, 2019). The literature largely concurs that school connectedness is a key parameter of youth health and academic outcomes (McNeely et al., 2002; Resnick et al., 1997; Ruus et al., 2007; Shochet et al., 2006; Whitlock, 2006), is an important mediator of school climate (Loukas et al., 2006), and is negatively correlated with student aggression and victimization (Karcher, 2002a, 2002b; Skiba et al., 2004; Wilson, 2004). With respect to the school's physical space, the literature suggests that environmental variables such as quality of school facilities (Uline & Tschannen-Moran, 2008) and classroom layout or activity

schedules (Conroy & Fox, 1994; Van Acker et al., 1996) can influence student behavior. Thus, these are both important dimensions of school climate to explore.

Staff

Although students are the key beneficiaries of a positive school climate, the perspectives and experiences of other actors, such as teachers and administrators, are also highly relevant. The NSCC framework includes teachers' and administrators' perceptions of school climate within the **Staff** domain, comprising the dimensions of *leadership* and *professional relationships*. Principals are key drivers of school climate, given their ability to impact all relevant players, and in order to build and sustain a healthy school climate, principals must support and care for their staff and institute effective and timely communication (Argon, 2015; Halawah, 2005; Noonan, 2004; Winter & Sweeney, 1994). Without such vital supportive relationships between principals and teaching staff, the latter may suffer from decreased job satisfaction and increased burnout, with the resultant staff turnover (Grayson & Alvarez, 2008; Hakanen et al., 2006; Lewis, 1999). However, teachers and administrators who are satisfied at their job are more likely to contribute to a positive school climate precisely because they are committed to such (Anderman et al., 1991). Another aspect of teachers' work environments that is an important contributor to school climate is their relationship with one another, with the impacts of programs on school climate outcomes being mediated by teacher work environment in some studies (Guo, 2012; Thapa et al., 2013). Combined, this information suggests that staff perceptions of both their school leadership and their relationships with peers are important to understand when examining school climate.

Framing the Current Study

The conceptualization of school climate offered by the NSCC provides a useful frame of reference to investigate whether school climate improves after the PYP is introduced, as well as ways PYP schools differ from non-PYP schools regarding school climate. The study uses the five domains and corresponding dimensions throughout, especially in the context of the qualitative study components. The methodology for each aspect of the study is described next, followed by a detailed account of the findings related to how the PYP might influence school climate.

Methodology

This project explored the impacts of the PYP on school climate through a combination of qualitative and quantitative methodologies. The mixed-methods approach was intended to highlight and illustrate practices and outcomes experienced at a subset of school sites, as well as to identify changes in climate across the population of PYP schools in California. WestEd collaborated with the IB Research Department to finalize the study design and analytic approach for both the qualitative and the quantitative methodologies.[2] The following sections provide an overview of (1) the qualitative case study methodology and (2) the quantitative approach used to examine whether school climate outcomes as assessed by the CHKS improved at PYP schools post-authorization.

Qualitative Approach

To understand and illustrate the potential impact of PYP on school climate, WestEd employed a qualitative case study methodology. The case studies aimed to collect information on how school climate shifted since the implementation of the PYP, which aspects of school climate are perceived as different at PYP schools compared with non-PYP schools, which shifts and differences can be attributed to the PYP, and how aspects of the PYP model engage the school community, including students, teachers, parents, and administrators.

Case Study Sample

WestEd selected eight case study schools through a purposeful sampling technique (Patton, 2002) to identify schools that demonstrated strong implementation of the PYP. First, the research team conducted interviews with seven key informants from the IB organization and the California Association of World Schools to gather background about the PYP and information about the PYP in the California state context and to flag schools recognized as exemplars in the state. The informational interview process produced a list of 28 public PYP schools identified as strong program adopters. The research team successfully obtained evaluation or verification reports for 27 of the 28 schools from the IB. These reports documented practices during regular reviews to ensure fidelity with the PYP model and include three rating types: (1) commendations; (2) recommendations; and (3) matters to be addressed. Commendations are used to note practices that are beyond the requirements for authorization and will benefit PYP implementation; recommendations note guidance on further developing the PYP at the school campus; and matters to be addressed flag threats to the PYP model that must be remedied to maintain authorization as a PYP school.

[2] This study was reviewed and approved by WestEd's Institutional Review Board prior to data collection and analysis.

From these reports, the research team extracted the total number and percentage of commendations, recommendations, and matters to be addressed across all implementation measures for each school. In addition, based on recommendations during key informant interviews, WestEd also extracted the number and percentage of commendations, recommendations, and matters to be addressed for items related to teaching and learning, which correspond to Standard C3 of the *Programme Standards and Practices* (IB, 2014b). Key informants flagged these items as particularly important because they reflect actual practices observed during verification and evaluation visits, as opposed to other indicators, which focus on having documented protocols and policies in place. Although key informants indicated documentation is important, they stressed that actual use of teaching and learning strategies would be informative for understanding if staff have internalized the PYP into day-to-day functioning at a given school.

WestEd reviewed the percentage of commendations, recommendations, and matters to be addressed overall and related to teaching and learning for each of the nominated schools. As matters to be addressed signal a significant implementation issue, any school with more than one matter to be addressed was removed from the potential sample. Next, WestEd ranked schools based on their percentage of commendations overall and related to teaching and learning. From there, the ranked list of schools was examined, along with school-level demographic characteristics such as location, percent free or reduced-price meals, and time functioning as a PYP school. Data regarding the nominated schools was used to develop an initial case study sample of eight schools that represented strong program adopters with diverse background characteristics, as well as a pool of seven backup schools should any schools decline participation.

Of the original eight schools, two did not respond to WestEd's invitation to participate or declined participation. WestEd selected two schools from the backup pool to take their place based on having similar ratings, locations, and demographic characteristics. The final sample includes schools from both northern and southern California that vary in terms of student demographics, academic performance on the California Assessment of Student Performance and Progress (CAASPP) tests, and length of time designated as a PYP school (Table 1). Three schools were in northern California, and the remaining five schools were in southern California. These schools represented a variety of geographic locales based on 2017–18 Common Core of Data (CCD), with five schools situated in cities, two schools in suburban locales, and one school in a rural area.

Table 1. 2018–19 Case Study Sample Characteristics

		Mean	Standard Deviation	Minimum	Maximum
Free or Reduced-Price Meals Eligible		47%	27	<10%	82%
English Learner		20%	12	<10%	39%
Racial / Ethnic Designation	African American	5%	10	<10%	29%
	Asian	12%	21	<10%	64%
	Hispanic or Latino	44%	30	<10%	>90%
	White	29%	27	<10%	78%
	Other	10%	7	<10%	23%
CAASPP Proficient or Above	English Language Arts (ELA)	55%	18	31%	78%
	Math	52%	20	17%	74%
Years Since PYP Authorization		8	4	2	13

Note: To prevent the identification of the participating schools, WestEd rounded the means, standard deviations, minimums, and maximums to the nearest hundredth. In addition, WestEd recoded minimum values below 10% as <10% and maximum values above 90% as >90%. WestEd extracted the race/ethnicity, free or reduced-price lunch, and English learner data from publicly available California Department of Education data files. Other includes American Indian, Alaska Native, Pacific Islander, Filipino, and Two or More Races. WestEd obtained the CAASPP proficiency data from the assessment's website: https://caaspp-elpac.cde.ca.gov/caaspp/. The IB provided the data for Years Since PYP Authorization.

Principals, PYP coordinators, teachers, and parents from each case study site participated in interviews or focus groups. In addition, former PYP coordinators who were at the school and available during the visit were interviewed, as well. Principals and coordinators selected teachers and parents with the intention of inviting teachers and parents who experienced the schools' transition to the PYP or who have been involved with other schools (e.g., their child used to go to a different school, their other children go to other schools, they taught at other schools). In total, eight principals, seven current coordinators,[3] three former coordinators, 39 teachers, and 35 parents participated in the case study data collection. Although the participants' basic background information was discussed in each interview and focus group, the depth of the information shared varied across interviews. However, a general overview of the sample is provided below to help inform the contextualization of results and understand participants' frame of reference as they considered the changes or differences in school climate that they attributed to the PYP.

[3] One school did not have a current coordinator, as its former coordinator had been recently promoted, and hiring for the new coordinator was underway. The former coordinator was interviewed in lieu of the current coordinator at this school.

Of the eight principals, only one had been in their position when the decision to initiate PYP candidacy occurred, though one principal started working at their school just before the authorization visit. Of the remaining principals, two led schools that began as PYP schools and joined the school several years after the schools opened. The remaining four principals took positions at their schools after the PYP was established. Thus, most of the principals used the other schools they have led or taught at as reference points when describing differences that they attribute to the PYP.

PYP coordinators tended to have longer tenures at their schools compared to the sample of principals. Specifically, coordinators at four of the case study schools experienced the transition to the PYP and the coordinator at one school that began as a PYP school was with the school since it opened. An important caveat is that these individuals did not necessarily hold the position of coordinator at the time of the transition and instead most commonly were teachers who progressed to the coordinator position over time. At the remaining three schools, the coordinators were not at the school when the PYP was introduced or when the school opened as a PYP school but brought relevant experience having served as coordinators or teachers at other MYP and PYP schools. This mixture of backgrounds allowed some coordinators to compare their experiences at the school before and after the PYP began, while others relied on their experiences with other schools to make comparisons. Some coordinators also drew on experiences from their school's transition and experiences with other schools depending on the discussion topic at hand.

Although most teachers included in the case study sample had been in the teaching profession for at least five years, whether they were at their PYP school when it opened or transitioned to become a PYP campus varied. Because two schools opened as PYP schools, teachers at these campuses could not compare current perceptions about their school to perceptions of the school prior to the PYP. Of the remaining six schools, the majority of teachers at four schools experienced the transition to the PYP and the majority of teachers at two schools did not experience the transition. However, every school but one was mixed in this regard, having a combination of teachers who were and were not at the school when the PYP was introduced.[4] Given this, teacher perceptions presented in this report represent a mixture of reference points with some drawing comparisons before and after the PYP and some relying on comparisons to other schools they have taught at or sent their children to; in many cases, the same teacher may have used multiple reference points over the course of their focus group.

Finally, parents were largely unable to draw comparisons between their children's schools before and after the PYP. In some cases, this was due to the parents not having children at the school prior to the introduction of the PYP. In other cases, despite being at the school during the transition to the PYP, parents may not have realized that a shift occurred. For example, at one school several of the parents that participated in the focus group had students at the school prior to authorization but perhaps because they all came to the school during the candidacy phase, they did not realize the PYP was a new model. Thus, parents tended to draw comparisons between their school and other schools their children have attended or schools they are familiar with through friends and family.

[4] All case study sample teachers at one school were at the school when the PYP was introduced.

Case Study Data Collection

Case study site visits occurred in two waves to accommodate school schedules. The first wave was in late spring 2019 and the second was in early fall 2019. Each site visit occurred over the course of one day and consisted of interviews with the PYP coordinator and the principal, focus groups with teachers (approximately four per school) and parents (approximately four per school), and observations of the school and classrooms. The current study used interview and focus group protocols developed based on items included in widely used school staff and parent/caregiver school climate and culture surveys (Anderson-Butcher et al., 2016; California Department of Education, 2018; Georgia Department of Education, 2014; NSCC, 2019; University of Delaware, 2018). The Baltimore City Public Schools (2012) School Climate Walk tool was adapted for use during classroom and school observations. Protocols for interviews, focus groups, and school climate walks are available in Appendix A. The length of time allotted to each interview and focus group varied slightly by school depending on the school's schedule and staff availability, but most interviews and focus groups lasted between 45 and 60 minutes each. WestEd recorded and transcribed all interviews and focus groups for subsequent analysis.

Qualitative Data Analysis

As is the case with most qualitative research, one individual intimately involved with the case study data carried out qualitative coding and analyses (Galman, 2007; Saldaña, 2011). The qualitative analyst was also responsible for case study data collection, allowing the analyst to experience the climate of each case study school firsthand. To analyze case study data, the WestEd qualitative analyst underwent the process of familiarization (Ritchie et al., 2003) in which each transcript was read to absorb the range of content discussed. Familiarization occurred across participants from each school individually to gather a clear sense of each school's individual context and experience with the PYP. As familiarization was underway, the lead analyst tracked emergent themes. After compiling the complete list of emergent themes, the lead analyst reviewed the themes to develop a clear, concise, and objective codebook (Smith, 2000). The codebook (Appendix B) aligns with recognized dimensions of school climate (NSCC, 2019) and captures indicators of school climate as well as whether the indicators changed after PYP introduction or represent a difference from non-PYP schools. The names of the codes reflect language used in the school climate literature when available and appropriate. In circumstances where language from the school climate literature did not align with the content of interview discussions, participant descriptions informed the code names. The lead qualitative researcher applied codes to the interview transcripts using Atlas.ti Version 7.5.18. Next, the lead qualitative researcher reviewed data from each school to develop a case study profile. WestEd developed case study profiles based on an examination of the school contexts, leader visions, climate, and the changes/differences attributed to the PYP. Next, the lead qualitative researcher considered case study data across school sites as a whole to identify aspects of school climate that changed due to the PYP or were different as a result of the PYP, according to participants' perspectives. The lead qualitative researcher captured the frequency and quality of these changes, along with exemplar quotes to illustrate findings. As recommended in qualitative methodology literature (Saldaña, 2011), the lead qualitative researcher engaged in conversation with other members of the evaluation team as well as with the team's IB liaison throughout every stage of the coding and analysis process. These conversations provided opportunities to articulate and clarify

thinking, gather outsider insights, and ask questions about the PYP to contextualize findings (Saldaña, 2011).

Quantitative Approach

For this study, WestEd used data from the elementary student version of the CHKS that were collected from 2003–04 through 2018–19. To conduct the quantitative analyses, WestEd used Singer and Willett's (2003) growth curve modeling approach to examine whether nine school climate outcomes assessed by the CHKS improved post-authorization. Growth curve modeling is a flexible approach that allowed for the examination of the PYP schools' trajectories over time (e.g., increases or decreases over time) on nine school climate outcomes and allowed for an assessment of whether trajectories changed post-authorization.

California Healthy Kids Survey Data

In 1997, the California Department of Education (CDE) and WestEd created the CHKS, which is part of the California School Climate, Health, and Learning Survey (CalSCHLS) system, to measure a range of indicators that are associated with success in school, career, and life. The CalSCHLS system includes the California School Staff Survey (CSSS) and California School Parent Survey (CSPS). The CHKS was selected for the current study because it captures students' perceptions of school climate, is more widely used than the CSSS and the CSPS, 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 caring relationships, school safety, and victimization/bullying.

The CHKS is administered to elementary school students during school hours in a group format. Districts and schools have the freedom to select the survey administration dates, and the 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 since then, districts and schools have increasingly used the online option. Most districts administer the CHKS every other year. However, more than one-third of districts administer it annually. The administration schedule for specific schools within districts can vary substantially.

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 have been consistent going back as far as 2003–04. In the planning stages of the study, WestEd and the IB Research Department reviewed items on the CHKS that were consistent across time and identified 16 items that the IB believed the PYP 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 created single scores for each student for the outcomes that included multiple items (i.e., School Connectedness, Caring Relationships, Bullying, and Victimization) by averaging the items in the scales.

Appendix C contains information on the reliability of these scales and the correlations among the school climate outcomes (see Table C–1). The items are outlined in Table 2 and are mapped onto the school climate outcome they assess and the corresponding NSCC (2019) domain. Respondents rated all of the items on scale of 1 (e.g., *No, never*) to 4 (e.g., *Yes, all of the time*), but the response options varied across the items. With the exception of School Connectedness and Fairness, which were consistent going back to 2005–06, all of the items and scales were consistently measured using the same wording and response options from 2003–04 through 2018–19. The means and standard deviations for the nine school climate outcomes aggregated across all years are presented in Table C–2 in Appendix C.

The elementary student CHKS is recommended for students in grade five. However, some districts and schools administer it to students in grades three and four as well as grade six. Across years, fifth grade students represented more than 93% of the survey respondents, and WestEd included only these students in the analyses. WestEd included students' responses to an item on the CHKS that asked for the students' gender (i.e., Are you female or male?) as a control variable in the growth curve models.

Table 2. School Climate Survey Items Included in Quantitative Analyses

School Climate Outcome	National School Climate Center (NSCC) Domain	Item(s)	Response Options
School Connectedness†	Interpersonal Relationships and Institutional Environment	1) Do you feel close to people at school? 2) Are you happy to be at this school? 3) Do you feel like you are part of this school?	1 = *No, never* 2 = *Yes, some of the time* 3 = *Yes, most of the time* 4 = *Yes, all of the time*
Caring Relationships	Interpersonal Relationships	1) Do the teachers and other grown-ups at school care about you? 2) Do the teachers and other grown-ups at school tell you when you do a good job? 3) Do the teachers and other grown-ups at school listen when you have something to say? 4) Do the teachers and other grown-ups at school believe that you can do a good job?	
Parent Involvement	Institutional Environment	Does a parent or some other grown-up at home care about your schoolwork?	
Meaningful Participation	Institutional Environment	Do you do things to be helpful at school?	
Fairness†	Safety and Interpersonal Relationships	Do teachers treat students fairly at school?	
Perceived Safety	Safety	Do you feel safe at school?	
Victimization	Safety	1) Do other kids hit or push you at school when they are not just playing around? 2) Do other kids at school spread mean rumors or lies about you?	
Bullying	Safety	1) During the past year, how many times have you hit or pushed other kids at school when you were not playing around? 2) During the past year, how many times have you spread mean rumors or lies about other kids at school?	*1 = 0 times* 2 = *1 time* 3 = *2 times* 4 = *3 or more times*
Schoolwork	Teaching and Learning	How well do you do in your schoolwork?	*1 = I don't do as well as most others* 2 = *I do about the same as others* 3 = *I do better than most students* 4 = *I'm one of the best students*

Note: The CHKS assessed all of the outcomes consistently from 2003–04 through 2018–19 with the exception of the outcomes marked with "†," which the CHKS assessed consistently from 2005–06 through 2018–19.

Quantitative Analysis Sample

The sample of schools for this study included 44 public schools in California that were authorized between March 2005 and July 2018, were active PYP schools during 2018–19, and had at least one year of CHKS data between 2003–04 and 2018–19. An additional 15 PYP public schools in California met the PYP participation eligibility criteria, but did not complete the CHKS during the period of study. The 44 PYP schools were in 32 school districts; the analyses also included all 642 non-PYP schools in these school districts that had at least one year of CHKS data between 2003–04 and 2018–19. A breakdown across the 32 districts of the number of PYP and non-PYP students and schools included in the analyses is shown in Table D–1 in Appendix D. Analyses included all students in PYP and non-PYP schools in these districts who completed the survey and also answered the gender question, which WestEd used as a control variable in the growth curve models.

The characteristics of the PYP and non-PYP schools and students included in the quantitative analyses are shown in Tables 3 and 4. The data used to compare the PYP and non-PYP schools were publicly available and came from the CDE[5] and the U.S. Department of Education's CCD.[6] Additional details on the data sources are included in Appendix D.

Table 3. Characteristics of PYP and Non-PYP Schools Included in Quantitative Analyses

		PYP Schools (n = 44)	Non-PYP Schools (n = 595–642)	Total (n = 639–686)
Enrollment in 2018–19		584.39	534.95	538.35
Charter School		6.82%	4.83%	4.96%
Magnet School		13.64%	8.10%	8.45%
Geographic Locale in 2017–18	City	34.09%	46.51%	45.67%
	Suburban	63.64%	51.33%	52.17%
	Town	0.00%	0.66%	0.62%
	Rural	2.27%	1.50%	1.55%

Note: WestEd extracted enrollment data and charter and magnet status from publicly available CDE data files. There were 595 non-PYP schools included in the enrollment calculation because closed schools did not have 2018–19 enrollment data. There were 642 non-PYP schools included in the charter and magnet status calculation. WestEd extracted the geographic locale data from the CCD. There were 602 non-PYP schools included in the geographic locale calculation because the majority of closed schools did not have locale data. CCD documentation describes a city as a "territory inside an urbanized area and inside a principal city." Suburban territories are "outside a principal city and inside an urbanized area." Towns are territories "inside an urban cluster," and rural areas are "census-defined rural territories."

[5] https://www.cde.ca.gov/ds/sd/sd/

[6] https://nces.ed.gov/ccd/pubschuniv.asp

Overall, the PYP and non-PYP schools were fairly similar with regard to the characteristics shown in Table 3. The PYP schools had slightly higher numbers of enrolled students, but the difference was less than 50 students. In addition, the PYP schools were slightly more likely to be charter or magnet schools, but the differences were fewer than six percentage points. Compared with the non-PYP schools, the PYP schools were less likely to be in cities and more likely to be in suburban settings. Finally, a small percentage of the PYP and non-PYP schools were in rural locations.

As shown in Table 4, the demographic characteristics of students in the PYP and non-PYP schools were very similar. Slightly more than half of the students in the PYP and non-PYP schools were eligible for free or reduced-price meals. Approximately one-quarter of students in the PYP and non-PYP schools were English learners. In addition, the majority of students in the PYP and non-PYP schools were Hispanic or Latino and White. Across the different racial/ethnic groups shown in Table 4, there was a difference of fewer than three percentage points between the PYP and the non-PYP schools.

Table 4. Demographic Characteristics of Students in PYP and Non-PYP Schools in 2018–19 Included in Quantitative Analyses

		PYP Schools (n = 44)		Non-PYP Schools (n = 595)		Total (n = 639)	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Free or Reduced-Price Meals Eligible		52.42%	24.50	57.50%	29.36	57.15%	29.06
English Learners		21.52%	14.48	26.09%	17.84	25.77%	17.66
Racial / Ethnic Designation	African American	3.35%	5.05	6.13%	8.57	5.94%	8.40
	Asian	7.33%	12.81	8.45%	12.47	8.37%	12.49
	Hispanic or Latino	52.84%	26.59	50.16%	27.19	50.34%	27.14
	White	27.40%	24.78	24.93%	23.28	25.10%	23.38
	Other	9.08%	6.11	10.33%	7.56	10.24%	7.47

Note: WestEd extracted the free or reduced-price meals, English learner, and race/ethnicity data from publicly available CDE data files. Other includes American Indian, Alaska Native, Pacific Islander, Filipino, and Two or More Races. In the calculations, WestEd included only schools that were open in 2018–19.

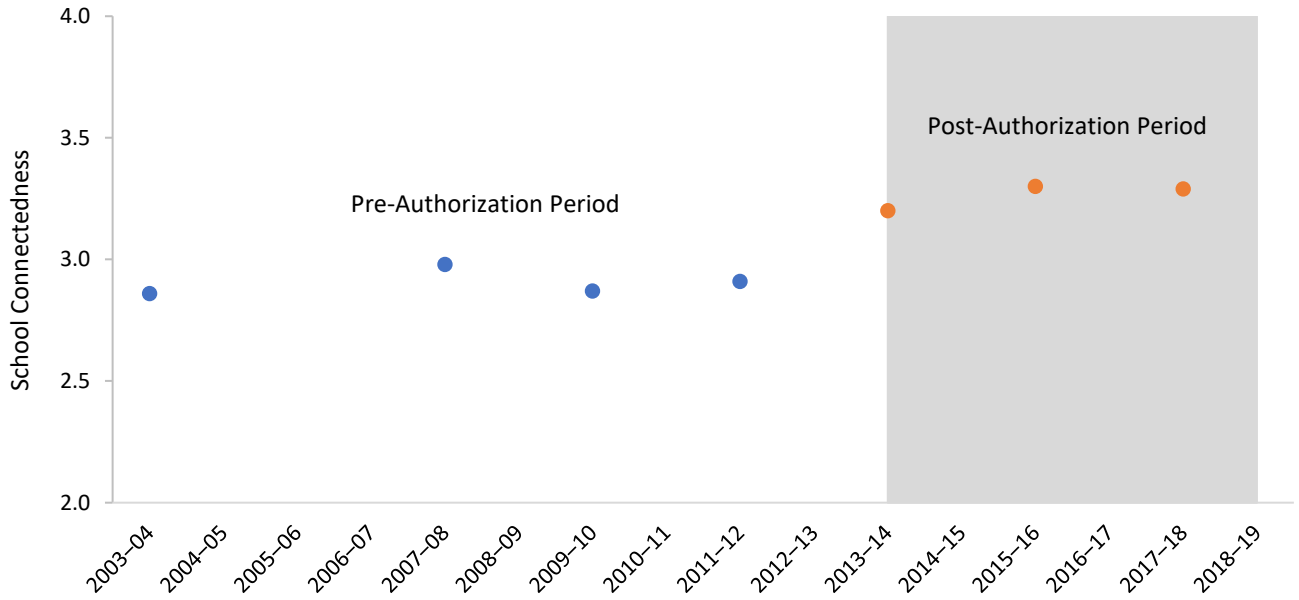
Quantitative Data Analysis

To conduct the quantitative analyses, WestEd used Stata 15.1 and followed Singer and Willett's (2003) approach to growth curve modeling. During the planning stages of the study, WestEd and the IB Research Department explored whether another analytic approach called a comparative interrupted time series (CITS) design (Hallberg et al., 2018) would be more appropriate to answer the quantitative research question. However, WestEd and the IB determined that the growth curve modeling approach

was a better fit because of the schools' varying authorization dates. The rationale for this decision is outlined in Appendix E.

The general idea underlying the growth curve modeling approach is depicted in Figure 1 with hypothetical data. Each data point in Figure 1 represents the average School Connectedness score for all of the fifth graders who completed the CHKS at an individual PYP school. The school has a relatively stable trend during the pre-authorization period and then shows a clear improvement (i.e., students respond more positively to the School Connectedness items) after the school was authorized in the summer of 2013. The growth curve modeling approach allowed for the calculation of the overall amount of change post-authorization for all PYP schools included in the sample.

Figure 1. School Connectedness Scores for a Hypothetical School Showing Improvements Post-Authorization



WestEd included a comparison group in the analysis that comprised all non-PYP schools from the PYP schools' districts. The strategy of using comparison schools from the same districts is consistent with research on CITS designs that found that using all schools in the district that were not participating in the intervention under study produced the most reliable estimate of the impact of the intervention (Betts et al., 2010). The non-PYP schools and the PYP schools that were not yet authorized provided a point of comparison for the trajectories of the PYP schools had they not been authorized.

Following the recommendations of Singer and Willett (2003), WestEd determined the shape of the trajectories for the nine outcomes prior to examining the magnitude of the change post-authorization. The three models that WestEd tested hypothesized either no growth (i.e., a flat trajectory), linear growth (i.e., a steady increase or decrease), or non-linear growth (i.e., a quadratic model) over the

course of the study. The models also included the students' gender and the school-level free or reduced-price meals percentage as control variables. Additional details on the growth curve models, including the equations describing the models, are included in Appendix E.

Finally, WestEd conducted several exploratory quantitative analyses to determine whether the pattern of findings was consistent across different analytic approaches or strategies. These types of analyses, which are typically called sensitivity analyses (Rosenbaum, 2005; Stuart & Bo, 2015), assess whether the conclusions drawn from the analyses are sensitive to changes in the analytic approach. When the findings from these additional exploratory analyses are consistent with the findings from the primary growth curve modeling approach, one has much more confidence that the findings from the primary analytic approach are reliable. WestEd conducted exploratory analyses that excluded the non-PYP comparison schools, that used aggregate school-level climate data (rather than student-level data), and that examined whether school climate changed post-candidacy (rather than post-authorization). Additional information on these analyses is included in Appendix E.

Findings

Overview

The PYP approach and suggested practices include many strategies that are consistent with the dimensions of a positive school climate (NSCC, 2019), making the theoretical link between school climate and the PYP valuable to explore. For example, the IB learner profile calls on schools to develop students who are principled, reflective, open-minded, and caring. In turn, cultivating these attributes may foster other dimensions of school climate, such as a strong sense of safety, supportive interpersonal relationships, and a positive school environment. Related, the PYP's encouragement to develop essential agreements may foster a shared understanding of the rules and expectations within classrooms and schools, contributing to the *rules and norms*, *physical security*, and *social-emotional security* dimensions of school climate. Further, the use of inquiry-based, transdisciplinary, and individualized instruction are strategies that may foster the *support for learning* dimension of school climate, which requires supportive teaching practices that engage and challenge students.

Given the alignment between components of the PYP and strategies that may facilitate positive school climate, this study sought to explore whether implementation of the PYP has any influence on school climate using multiple data collection and analysis approaches. Specifically, this study examined qualitative case study data to understand the extent to which the introduction of the PYP can be perceived to influence school climate, as well as the ways in which shifts in school climate attributed to the PYP manifest. WestEd used data from site visits at eight case study schools in California with strong PYP implementation to address the first evaluation question, which explored the changes and outcomes key stakeholders attribute to the PYP among schools with strong PYP implementation. WestEd used quantitative student survey data from the CHKS to address the second evaluation question, which explored whether school climate outcomes assessed by the CHKS improve at PYP schools post-authorization.

A summary of the findings from the qualitative and quantitative data are shown in Table 5. The qualitative and quantitative findings are mapped onto the NSCC domains and presented as a joint display that allows for better integration of qualitative and quantitative data (Guetterman et al., 2015). Although the qualitative and quantitative findings for specific domains did not always agree, there was an overall trend showing positive findings based on both the qualitative and quantitative data. In addition, the case study sample was based on high-implementing PYP schools, whereas the quantitative analyses were based on a broader sample of PYP schools, which could have accounted for the differences across the two data sources. The following sections of the report describe findings related to the two evaluation questions in greater detail.

Table 5. Summary of Qualitative and Quantitative Findings

National School Climate Center (NSCC) Domain	Qualitative Findings	Quantitative Findings
Safety	• Although participants at all schools noted an increased use of consistent language to develop shared norms and expectations that they attributed to the PYP, aspects of the **Safety** domain did not appear to be substantially impacted by the PYP.	• Small, but statistically significant improvements post-authorization on four CHKS school climate outcomes: Perceived Safety, Fairness, Bullying, and Victimization.
Teaching and Learning	• The PYP appears to have a substantial impact on aspects of the **Teaching and Learning** domain. • Improvements in this domain most commonly included use of transdisciplinary instruction, inquiry and student voice, global perspectives, SEL and the whole child, student learning for life, student action and community service, student agency and ownership over learning, and teacher creativity and sense of safety to take risks.	• No change post-authorization on Schoolwork (i.e., the one CHKS school climate outcome that was partially aligned with the NSCC domain).
Interpersonal Relationships	• Participants at all schools reported positive student-student and student-teacher relationships before and after PYP adoption. • However, the PYP appeared to impact some aspects of the **Interpersonal Relationships** domain at some schools (e.g., greater focus on celebrating diverse student accomplishments).	• Small, but statistically significant improvements post-authorization on two CHKS school climate outcomes: Caring Relationships and Fairness. • A non–statistically significant trend showing small improvements on School Connectedness.
Staff	• The PYP appears to have had a substantial impact on perceptions related to the **Staff** domain. • Participants at all case study schools noted an improvement in staff collaboration, and participants at most case study schools described improvements in staff relationships, creativity and sense of safety to take risks, engagement, reflection, and job satisfaction that they attributed to the PYP.	• There were no quantitative findings because no CHKS items addressed this domain.
Institutional Environment	• Participants at some schools described improvements related to the **Institutional Environment** domain, though the content of these improvements varied. • Most commonly, participants attributed an increased use of consistent language, sense of community, parent involvement, and various positive parent perceptions of their school to the PYP.	• Small, but statistically significant improvements post-authorization on the CHKS Parent Involvement item. • Non–statistically significant trends showing small improvements on Meaningful Participation and School Connectedness.

Note: The School Connectedness and Fairness school climate outcomes from the CHKS mapped onto two NSCC domains.

School Climate Improvements Associated With the PYP Among Schools With Strong Implementation: A Qualitative Examination

The qualitative case study component of the study sought to understand which changes and outcomes key stakeholders attribute to the PYP among schools with strong PYP implementation. Case study data collection and analysis aimed to unpack stakeholder beliefs on topics such as overall climate, teacher experiences, instruction, and engagement in the community, as well as the contributors to any observed shifts or differences attributed to the PYP. To address this question, participants at case study schools provided information about varied dimensions of school climate and the ways that they perceived the PYP to influence school climate at their schools. This section begins by describing components of the PYP that case study participants perceived as influencing school climate. Next, it explores different domains of school climate and the extent to which the PYP played a role in developing and maintaining positive school climate at the case study campuses. When at least half of the sample reported a specific shift that they attributed to the PYP or a difference compared with other schools because of the PYP, detail is provided to emphasize and unpack the trend. Findings pertinent to less than half of the sample are briefly reported to highlight aspects of school climate that the PYP may influence within more limited settings and contexts. Finally, this section examines the role of the PYP exhibition in cultivating a positive school climate, including its ability to engage parents and the larger school community. Throughout these sections, tables are included to summarize findings across schools. A checkmark (✓) in the table indicates that at least one participant at the school reported that element of school climate shifted after the introduction of the PYP or is different compared with other, non-PYP schools. The Total column in each table indicates the total number of case study schools in which at least one participant identified a change or difference in school climate that they attributed to the PYP. In addition to the findings examining trends across all case study sites, this section provides deeper examinations of the context of each case study site through case study vignettes in call out boxes woven throughout.

Contributors to Positive School Climate

As participants discussed the climate at their schools and the ways that they perceive the PYP to influence school climate, numerous factors that supported the development and maintenance of a positive school climate surfaced. Some of the contributors raised by participants directly align with the PYP and are part of the school because of their PYP designation. Other factors are distinct from the PYP model. Understanding the ways that the PYP and other factors contributed to a positive school climate at these campuses is helpful for understanding the mechanisms behind any changes or differences in school climate described by participants.

PYP Contributors

In describing what it is like to be a part of the school community and whether experiences have shifted in a way that participants attributed to the PYP, participants highlighted how designation as a PYP school and specific aspects of the PYP have contributed to a positive climate at their campus**. Aspects of the**

PYP that helped promote positive school climate at case study campuses included the IB learner profile, PYP professional development and planning supports, the PYP coordinator, use of essential agreements, the framework and identity provided by the PYP, and the PYP's focus on public speaking and individualization (Table 6).

Table 6. PYP-Related Contributors to School Climate

Contributors to School Climate	School								Total
	A	B	C	D	E	F	G	H	
IB Learner Profile	✓	✓	✓	✓	✓	✓	✓	✓	8
PYP Professional Development and Supports	✓	✓	✓	✓	✓	✓	✓	✓	8
PYP Coordinator	✓	✓	✓	✓	✓	✓	✓	✓	8
Essential Agreements	✓	✓	✓	✓	✓	✓	✓	✓	8
Focus on Public Speaking	✓	✓	✓	✓	✓		✓	✓	7
PYP Framework	✓	✓	✓		✓	✓	✓	✓	7
PYP Identity		✓	✓		✓	✓	✓		5
PYP Focus on Individualization	✓	✓					✓	✓	4

IB learner profile

Across all eight schools, the IB learner profile was universally described as an important contributor to school climate at each case study school. Schools often began PYP implementation with a strong focus on the IB learner profile, stressing the importance of each attribute for students and staff. Because the IB learner profile emphasizes attributes such as being caring, being good communicators, and being open-minded, participants believed these traits became ingrained in their school communities, creating a more positive school climate. The IB learner profile was also perceived as helping schools build consistent language and a shared way to communicate expectations. Participants also attributed to the use of the IB learner profile an influence on how students behave, as well as how staff interact with one another and with their students. Given that the IB learner profile was used extensively and helped set the tone for the schools, it is not surprising that it was described as a facilitator to a variety of

> *For me, the big difference is the learner profile. ... The students have really embraced them, and as teachers we've pretty much made it a focus. … I think that's definitely shaped the way that the students interact with each other.*
>
> —School C Teacher

school climate improvements, such as an increased use of consistent language, more supportive disciplinary practices, improved instructional practices, and enhanced student and staff experiences.

> *[When we disagree,] it all comes back to … "What do we want for kids? What does IB tell us? What is the IB profile and what are we modeling the students when we behave this way?" And it all comes back to that. So I think that we can always ground ourselves in that, and that helps us. We feel this extra responsibility to be really, really modeling and living that IB profile because that's really our expectation for them.*
>
> —School H Teacher

PYP professional development and planning supports

Principals, coordinators, and teachers emphasized that quality PYP implementation would not be feasible without access to PYP professional development and the increased planning time teachers receive due to their school's PYP status. Participants at all eight schools reiterated that the positive impacts they tied to the PYP would not be possible without these supports. Conversations related to planning supports highlighted the value of these activities to allow collaboration, reflection, and the construction of inquiry-based, transdisciplinary units, as well as to build relationships among staff. Participants acknowledged that they receive a larger amount of planning time compared with other schools, primarily because of careful coordination of supplemental instruction for students (e.g., world language, physical education, art, music), which provides opportunities for grade-level teams to have common planning time, as well as opportunities for school-wide planning (e.g., planning time for vertical articulation). Many teachers, coordinators, and principals also participated in professional development opportunities hosted by the IB, including workshops and conferences. Participants viewed these professional development opportunities as critical for networking with other like-minded professionals; learning about new and innovative strategies for working with students; bonding with staff; and creating a sense of professionalism among staff. Although teachers from private schools and in other countries may regularly have opportunities to network with geographically and culturally diverse colleagues around the world, participants within the case study sample viewed these opportunities to network with colleagues across the globe as special and different from their normal professional development experiences. Like what was observed with the IB learner profile, discussion of changes that related to professional development and planning supports varied, as these experiences seemed to influence all aspects of the school community. However, participants often tied discussion surrounding changes to instruction with discussions of professional development and planning supports.

> *Going back to the trainings, I mean, how many other teachers [in California] have that opportunity to go to a workshop and meet another teacher from India, Australia, Germany? So that's really a plus, you get that different perspective. And it's kind of neat to know that it doesn't matter where you're at, we're all kind of teaching similar planners with similar mindsets.*
>
> —School E Teacher

PYP coordinator

Related to the planning supports offered as a result of PYP participation, participants at every school highlighted the importance of having a dedicated coordinator to facilitate collaboration and provide a broader perspective. The coordinator role took several forms. The PYP coordinators at four schools

served as coordinator at the case study school part-time and as coordinator at another PYP or MYP school the remainder of the time. The PYP coordinators at three schools served as coordinator part-time and then spent the remainder of their time at the same school teaching, providing coaching supports, or overseeing grant activities. Only one school had a full-time PYP coordinator on staff. Regardless of these different configurations, coordinators worked closely with grade-level teams to support planning activities, orchestrated planning days to bring cross-grade teams together, ensured thorough documentation of curricular activities, and conducted classroom observations to provide ongoing feedback to teachers in a supportive rather than evaluative role. Coordinators also played a crucial role in collaborating with the principal to provide education about the PYP and cultivate ongoing buy-in for the program. Teachers and principals viewed the coordinator as an important contributor to diverse aspects of the school climate, but most frequently highlighted the coordinator's role in improving instruction.

Something that makes our program really successful that I wouldn't want to overlook is our leadership. When you talk about school culture, you can be an IB school and not have a good school culture. And so, just so much of that comes from [the principal] and [the coordinator].
—School B Teacher

Essential agreements

Participants at all eight case study schools described widespread use of essential agreements in which students and teachers collaborate to create classroom and school norms and rules and reported that the use of essential agreements contributes to positive school climate. Participants felt that essential agreements allow opportunities to solicit and utilize student voice, foster collaboration and shared decision making, and ensure that all members of the classroom and / or school community have a clear sense of what is expected of them. The use of essential agreements was especially helpful to facilitate shifts in disciplinary practices. Participants also described the use of essential agreements among staff to develop norms regarding how they work with one another. Although participants described essential agreements as a contributor to positive school climate, some caveats surfaced as participants discussed the role of essential agreements. In particular, many individuals noted that processes like the development of essential agreements often happen at non-PYP schools as well, and they do not view them as a unique element of the PYP. Further, several participants stressed that the utility of essential agreements is hugely dependent on the teacher. When done well, essential agreements can be extremely useful to promote positive behaviors and accountability, but in many cases, there might be only a surface-level discussion about and investment in these agreements, making them a less relevant tool.

In classrooms, it's collaborative. The kids are coming up with the rules, the essential agreements of "What do we want our room to look like? How do we want our room to flow?" … I think this speaks volumes about our philosophy here and the contribution that the IB has made.
—School F Principal

Focus on public speaking

As participants described shifts in their school climate after the introduction of the PYP or differences in the climate of their school compared with other campuses, individuals at seven schools noted

differences that they attributed to the PYP's emphasis on public speaking. Participants shared numerous examples of what public speaking entails at their PYP schools. In early grades, public speaking often focuses on students sharing information in a classroom setting. For example, students as young as kindergarten might share in front of the class about the weather or a personal experience. As students get older, they are expected to engage in more significant public speaking activities, such as giving formal presentations to their classes and speaking at assemblies. This focus on public speaking culminates during the fifth grade exhibition, at which students engage in public speaking in front of their peers, teachers, families, and / or community members. Numerous stakeholders highlighted that because public speaking occurs so often students become very comfortable presenting in front of others. During the site visits, WestEd researchers clearly observed the PYP's focus on public speaking, including observing students presenting to their peers in both classroom and school-wide settings. Case study participants tied, at least in part, shifts and differences in student confidence, student learning for life, and student preparation for next steps (e.g., middle school) to the PYP's explicit focus on public speaking.

> *They're very confident speakers because they have opportunities to get up in front of the rest of the school and each other from the time they're in kindergarten all the way up. And what we hear from our graduates who've gone on to high school is [that] they're fearless when it comes to presenting.*
>
> – School D Teacher

PYP framework

Participants at all but one school reported that the overall framework offered by the PYP served as an important contributor to their school climate. They also reported shifts in school climate that they attributed to the PYP. The way in which the PYP offers a framework rather than an explicit curriculum or instructions on how schools should function was viewed as simultaneously valuable and challenging. As schools first started adopting the PYP, they often wished for more explicit direction on how to become a PYP school, but as they became more comfortable with the PYP, many appreciated the flexibility and autonomy to implement the PYP in ways that best fit their school context. Changes and differences discussed in association with the PYP framework were varied – participants noted that the framework helped improve the overall school atmosphere and environment, instruction, and student and teacher experiences.

> *[PYP's] not telling you exactly how to do it, but this is the framework you work around. And it allows the school to work around it the best they can. ... And it's never an end goal, [you are never] 100% IB ... you're working toward this, this is ongoing. It helps the schools reflect on what they're doing well, what they need to focus on; and at the same time, it's constant improvement moving forward.*
>
> —School E Principal

PYP identity

In addition to the framework provided through the PYP, participants at more than half of the schools reported that their identity as a PYP school helped promote a positive school climate at their campus. Participants highlighted that the introduction of the PYP gave students and staff a common focus, boosted the status of their school, and made the school stand out from others. According to participants, having this identity helps improve school climate because members of the school community have a shared understanding of what the school is striving for in terms of atmosphere and environment. In addition, participants reported that having the PYP is something that both teachers and students are proud of.

> *[When we found the PYP,] we were really looking for a vehicle where we could create a school that reflected [the same] mission and values of the IB, so it seemed to be a really nice fit for us. Pretty quickly we saw changes in the school.*
>
> —School B Principal

PYP focus on individualization

Participants at half of the case study schools explicitly raised that the permission and encouragement to individualize instruction and assessment provided by the PYP bolsters their school climate. The extent to which individualization occurs through the PYP was linked to improvements in instruction and the student experience. Through individualization, participants believed their schools became more inclusive and enabled students with different skill sets to excel in different ways. They viewed the PYP's emphasis on appreciation for diversity, the whole child, and different strengths as an important contributor to the climate overall.

> *I think [the PYP is] also a way to be able to include more students. Because students who do struggle with just the traditional pen and paper type activities, this is allowing them to have opportunities to find their interests or find things that they can really participate in. They might be able to express themselves in other ways that we don't know. But [the PYP] allows them to have different opportunities to be able to.*
>
> —School G Teacher

Non-PYP Contributors

In addition to the contributors to school climate that are directly tied to the PYP, participants raised other contributors as factors that they perceived to influence school climate within the case study schools. Although this study focused on the ways the PYP might influence school climate and did not systematically collect information on other factors that might influence school climate among case study schools, it is helpful to briefly state the non-PYP contributors that participants raised during interviews and focus groups. These other contributors occurred alongside the PYP contributors to foster a positive school climate and often represent factors linked to strong implementation. Non-PYP contributors included having district support for PYP implementation, a strong leader that has bought into the PYP, strong teachers, low turnover rates in leadership and teaching staff, and access to non-PYP professional development and supports.

The PYP's Impact on Dimensions of School Climate

Principals, coordinators, teachers, and parents described what it is like to be part of the school community, providing their perspective on various aspects of school climate, including the school environment, student experiences, academics and pedagogy, parent engagement, and staff relationships and supports.[7] As participants discussed their thoughts in each of these areas, they described the extent to which what they observed on their school campus represented a shift from their school climate prior to PYP implementation or was viewed as a difference between their school and others with which they are familiar. These conversations unearthed numerous ways participants believed the PYP positively influenced their school climate in the areas of school environment and atmosphere, discipline and safety, and instruction, as well as student, teacher, and parent experiences. It is important to note that the absence of a change or difference does not necessarily indicate that the component of school climate is problematic. Instead, it may indicate that the component of school climate was already positive prior to PYP adoption or is similar at the PYP school to the component at non-PYP schools.

School Environment and Atmosphere

A school's overall environment and atmosphere can influence many dimensions of school climate. Aspects of school climate related to **Safety**, **Teaching and Learning**, **Interpersonal Relationships**, the **Institutional Environment**, and **Staff** can all be influenced by how the school functions as a whole (NSCC, 2019). Participants responded to questions about what it is like to be a member of their school community and described numerous indicators of positive school climate pertinent to the school environment and atmosphere. Although not always the case, participants indicated that after PYP implementation, many of these aspects of positive school climate improved or were different from their experiences at other schools. Table 7 provides an overview of the number of schools for which at least one participant flagged a change or difference in the general school environment and atmosphere because of the PYP. **Most commonly, after PYP introduction, participants viewed their school's focus on SEL and the whole child, use of consistent language, and sense of community as shifting or being different from non-PYP schools.** Other changes and differences in the school environment or atmosphere occurred, but were only observed at a minority of school sites.

[7] Although the site visits included a school tour, classroom walk throughs, and an assessment of school climate using the Baltimore City Public Schools (2012) School Climate Walk tool, it is difficult to draw conclusions about PYP's impact on what was observed beyond capturing general information about current school climate. There was little variation in the indicators of school climate, with schools appearing to have happy and safe climates, which may be the result of the sampling strategy which focused on schools with strong PYP implementation. Further, it is difficult to disentangle whether the differences or gaps in school climate indicators on the climate walk tool are reflective of the school climate or reflective of the timing of the visit. Half of the visits occurred at the very end of the school year and the other half occurred at the very beginning of the school year. Some schools had already taken down or had not yet hung up materials and many schools were not on a regular schedule (e.g., preparing for open house or back to school night, finishing final preparation for exhibition, or establishing norms for the school year). Given these factors, WestEd found data from the school climate walk to be of limited use and only describe these data sporadically within the qualitative findings section.

Table 7. Changes to and Differences in the School Environment Attributed to the PYP

Introduction of the PYP Contributed to Increased/Improved…	School								Total
	A	B	C	D	E	F	G	H	
Focus on SEL and the Whole Child	✓	✓	✓	✓	✓	✓	✓	✓	8
Use of Consistent Language	✓	✓	✓		✓	✓			5
Sense of Community			✓	✓	✓		✓		4
Inclusivity		✓			✓			✓	3
Cultivation of an Atmosphere of Trust	✓							✓	2
Student-Staff Relationships	✓			✓					2
Desirability of the School to Teachers					✓			✓	2
Teacher Desire to Send Children to the School		✓					✓		2
Perceptions of School as a Positive Environment		✓			✓				2

Focus on SEL and the whole child

Social and civic learning is an important dimension of the **Teaching and Learning** domain of a positive climate and culture (NSCC, 2019). *Social and civic learning* includes helping students develop skills such as emotional regulation, personal responsibility, and reflection (Weissberg et al., 2015; Zins & Elias, 2007). Although the PYP does not recommend a specific approach for the infusion of SEL and focus on the whole child, the attributes described in the IB learner profile stress the PYP's focus on developing non-academic characteristics, such as being principled, caring, and balanced (IB, 2013). Participants at every case study school reported change or differences in the way the schools embrace and foster the whole child. Increased focus on SEL and the whole child was primarily accomplished through thoughtful infusion of SEL and consistent focus on the IB learner profile. Participants viewed the PYP as distinct from traditional character education delivered through standalone programming and believed the PYP is much more than a character education program. Teachers, principals, and coordinators had a difficult

> *I feel like there's a lot more emphasis on the skills that the kids learn, versus just content … we're able to talk about the IB attributes and attitudes. So, we're commenting on how caring they are, how open-minded they are. You might have some brilliant child that's just absorbing all the curricular content, but yet they need to work on their communication skills and their kindness or things like that.*
>
> —School D Teacher

time disentangling exactly when and how SEL occurs because SEL has become so integrated into their daily practices. As one teacher described, "I don't teach [SEL] explicitly. I just build it into everything that's done all day." Focus on the whole child is emphasized through units of inquiry, use of essential agreements, celebration of diverse accomplishments, and the use of reflective disciplinary practices. However, according to participants, the most important facilitator in the whole-child focus is the constant attention to and prioritization of the IB learner profile.

The fact that the PYP encourages schools to consistently focus on the whole child with ongoing emphasis on traits such as being caring, being open-minded, and being good communicators, rather than delivering SEL content in isolation, was viewed as an important benefit of the PYP. Many teachers felt this approach aligned with their personal teaching philosophies, and they felt a great deal of satisfaction when teaching in this manner. For example, one teacher, beginning to understand the PYP model, reacted in this way: "Oh, this. Developing the whole child. This is why I came into education."

We're not only teaching them standards, we're also teaching them to just be good, amazing people. That's another really important part of our job, and it makes them good kids … it's my favorite part of the whole program.
—School E Teacher

Parents also voiced an immense satisfaction with the whole-child focus at their schools. They believed that focusing on skills beyond academics helps prepare their children to be successful in the real world. Further, parents of children with learning differences or fewer academic interests noted that because the schools focus on the whole child, their children thrived to the same degree as other children. Although most parents could not determine if the focus on the whole child represented a change due to the PYP, many noted that it was different from other schools with which they are familiar, and they attributed this difference, in part, to the PYP.

I think the whole-child approach has definitely been visible here. I've seen other schools which [are] strictly academics. … I don't think that's wrong, but it doesn't suit the needs of all our children.

– School C Parent

Use of consistent language

Using consistent language across a school community is a valuable strategy to improve the *rules and norms* and *school connectedness and engagement* dimensions of school climate and culture (NSCC, 2019). All members of the school community having a common language for discussing expectations and describing what it means to be part of the school should contribute to a clearer understanding of acceptable behavior (Orpinas & Horne, 2009). Further, because everyone has the same frame of reference in understanding the school values and norms, the consistency in language may also facilitate a greater sense of camaraderie among members of the school community.

[Having] that common language has helped because it s everywhere, and all of our staff knows it … it has helped tremendously.
—School B Teacher

Participants at five of the eight case study schools indicated that the PYP provided the staff, parents, and students with a common language that helped cultivate and maintain a positive school climate. The development of a common language was usually discussed in connection with the IB learner profile, which participants found to be an immensely valuable contributor to the climate of their schools. As one former coordinator explained, "To build a sense of community, we needed a shared vocabulary so that everyone could be on the same page." Having a common language enabled members of the school community to understand and maintain consistency in expectations. Related, participants indicated the common language cultivated through the IB learner profile helps address and even alleviate behavioral issues for students and helps remind staff of the expectations they are modeling for students. The use of the IB learner profile to address behavioral issues even extended to students reinforcing norms with one another – participants found students using the IB learner profile attributes to give their peers feedback on whether they were acting in accordance with the values spelled out by the IB learner profile.

The kids are hearing that vocabulary intentionally [used], that common language. I think that's powerful, too. A lot of schools don't have a common language. The PYP gives us that common language, so by the time they leave us, they understand what it means to make connections, or to be reflective, or to be a communicator.
—School A Principal

Sense of community

School connectedness and engagement is an important dimension of school climate and culture, as it is associated with engendering positive perceptions toward the school and the desire to be an active participant at the school (Loukas, 2007; NSCC, 2019). A strong sense of community within the school is one way to operationalize these feelings of connectedness and engagement (Wilson, 2004). Half of the case study schools reported having a stronger sense of community at their school compared with others as a result of the PYP, among other factors. A strong sense of community manifested through comments related to feeling the schools are small and tight-knit, even at large campuses; having a shared sense of responsibility for the school and students across stakeholders (i.e., parents, principals, teachers, staff, and the community); perceiving the school community as a family; and building personal relationships between parents, teachers, and administrators. Although participants at these four schools believed the PYP plays a prominent role in the strong sense of community, many noted that other factors, such as having a strong leader and living in a close community, more generally also supported the strong sense of community described.

[A big difference is] our community feel, not just amongst the staff, but amongst the kids and the parents and the whole community. We really expect everyone to be on board and helping out and supporting and working together.
—School D Teacher

I think our school culture completely transformed [because of the PYP].
—School B Coordinator

Case Study Vignette 1: School A

A large school in a large suburb, School A is a high-achieving school surrounded by other high-achieving schools in the same district. School A serves a primarily Asian and Hispanic/Latino student body, and less than a quarter of students are eligible for the free or reduced-price meals program or designated as English learners. Participants described the families served by the school as very affluent and highly educated, noting that significant problems the school faces are centered around parents getting overly involved in their child's schoolwork, students not recognizing their privilege, and teachers needing to address a competitive culture among students. PYP authorization occurred more than 10 years ago, and since authorization, the school has rotated through seven principals. The high level of leader turnover at this school has presented challenges in maintaining strong PYP implementation due to lack of consistency and changing visions, making the PYP more or less of a priority depending on the principal in place. The stability of the PYP coordinator and the low teacher turnover rate have been important for maintaining as much consistency as possible and generating leader buy-in as leaders change.

I think that the PYP just really closely models my personal philosophy.
—Principal

The school's current principal came into the position with knowledge about and an alignment of vision with the priorities of the PYP. Teachers and the coordinator noted that since the principal joined the school, they have felt more supported in implementing the PYP compared with their experiences with previous leaders. The principal's vision for school climate at this school includes fostering thinkers, communicators, and action-oriented students so that they can be contributing members of the community. The principal views student voice and action as paramount to developing good community members. Because the school is high achieving, it has a good amount of autonomy, and the staff can focus on issues beyond test scores. This autonomy was described as helpful in implementing the PYP. Prior to PYP implementation, the school already had a strong reputation in the community and high levels of parent involvement. Parents emphasized that the school sets their children up for future success and raved about the quality of the principal and teachers.

We don't worry about the test scores because if you have the robust instruction, the test scores will come. I think some schools have that backwards. They're so focused on the test scores – that will happen if you're doing this. We're afforded that luxury because our superintendent has never talked to us about test scores.
—Principal

The bulk of the changes and differences attributed to the PYP centered on instruction, with numerous participants indicating that inquiry-based instruction and incorporation of student voice increased after the introduction of the PYP or were greater than what they see at other schools. The PYP was also viewed as a helpful approach to address some of the challenges related to the school's more privileged population. In particular, participants viewed the PYP's emaphsis on SEL, relational skills, personal responsibility, and giving back to the community as very valuable contributors to changes in the student experience. Teachers highlighted shifts in their experience, most notably related to increased collaboration. School-wide, participants noted changes or differences in the school's focus on the whole child and the use of consistent language to discuss expectations. Participants noted that the aspects of the PYP that helped facilitate these changes and differences include the introduction of the PYP framework and the IB learner profile and the emphasis on individualization, public speaking, and the essential agreements. Participants also valued having increased professional development and planning supports. **School A provides insight into how the PYP might be valuable for schools with affluent populations to facilitate a greater focus on the whole child, foster relational skills, and motivate students to make change in their communities.**

Other shifts in school environment and atmosphere

Participants also described several less-common changes and differences in the school environment and atmosphere that may influence some dimensions within the **Safety**, **Teaching and Learning**, **Interpersonal Relationships**, **Institutional Environment**, and **Staff** domains of school climate (NSCC, 2019). These differences centered around increased and improved inclusivity, trust, student-staff relationships, teacher desire to teach at the schools, teacher desire to send their children to the schools, and general perceptions of the schools. Because participants at fewer than half of the schools described these shifts, they are discussed briefly below.

Participants at three schools reported that their school is a much more inclusive environment than other places. Participants provided varied descriptions of inclusivity, such as highlighting an inclusive environment related to physical ability, learning differences, prior experiences, culture, and language. Case study school participants described the PYP's focus on open-mindedness, global perspectives, and individualization as contributors to the inclusive atmosphere at these schools. Participants at two schools described a more trusting atmosphere than before implementation of the PYP or compared with non-PYP schools. Participants at these schools also described increased trust between students and teachers, among teachers, and between teachers and principals. Discussions of a more trusting environment focused on participants feeling that they can be open with their colleagues about their challenges, that there are people to go to for support, and that teachers lay a solid foundation to develop trusting relationships with students. Related, two schools indicated that relationships between students and staff are stronger at their schools because of the PYP.

> *This is really a different school, and everyone that comes here … they can feel it and you'll see it. I don't know what it is, it's just a different … it's a happy place to work. I'll just say it like that.*
> —School E Coordinator

> *I think PYP accelerates [the student-staff] relationship. I think that we get to... that place sooner because we really encourage the kids, and the kids are used to it being okay to share their opinions and build those relationships with their teachers.*
> – School A Principal

When considering the general school environment and atmosphere, the extent to which teachers want to work at the school and want to send their children to the school are helpful indicators. Two schools noted that compared with non-PYP schools, other teachers and substitutes want to find positions at their campus, which they believed was at least in part due to the PYP. Similarly, participants at two schools reported that after their schools adopted the PYP, teachers from the school and from other schools began sending their children to the school because of the improved reputation. Finally, participants at two schools emphasized that transitioning to become a PYP school had profound impacts on the reputation of the schools and the overall perception of the schools in the community. Prior to implementation of the PYP, neither of these schools had a particularly positive reputation, but after the PYP became ingrained, both schools found that the staff, families, and community began seeing the schools as important community resources that they wanted to support.

Discipline and Safety

Research suggests that preventive disciplinary strategies, such as providing clear information about behavioral expectations and consequences, are more effective than traditional, punitive approaches (Beaty-O'Ferrall et al., 2010; Feuerborn & Chinn, 2012). When needed, disciplinary practices should be fair and objective with a focus on continued support for the child's well-being (Adelman & Taylor,2005; Conderman et al., 2013). A strong sense of safety, both physical and emotional, is also vital to a positive school climate. The CSCI includes the dimension of *rules and norms* within its school climate framework, given the importance of clear rules and of enforcement of the rules for cultivating a strong school climate (NSCC, 2019). Other dimensions of the CSCI framework include *physical security* and *social-emotional security*, both of which are fostered by students feeling safe at their schools, which should occur when norms, guidelines, and expectations about appropriate behavior are provided and enforced (NSCC, 2019). Although the PYP does not specify a particular approach for addressing disciplinary issues, it does encourage the development of essential agreements outlining the school and classroom expectations, as well as the development of students that are caring and reflective (IB, 2013). Given the importance of reducing behavioral problems with appropriate disciplinary approaches, participants provided information about the extent to which student behavior is an issue at their schools, as well as whether disciplinary practices have shifted or are different because of the PYP (Table 8).

Table 8. Changes to and Differences in Student Discipline and Safety Attributed to the PYP

Introduction of the PYP Contributed to Changed/Improved…	School								Total
	A	B	C	D	E	F	G	H	
Disciplinary Practices	✓	✓	✓	✓			✓		5
Disciplinary Issues		✓					✓	✓	3
Sense of Safety				✓		✓			2
Students Keeping Each Other Accountable			✓						1

Participants at most schools noted a change or difference in disciplinary practices that they attributed to the PYP, and a minority of schools indicated changes or differences in the severity and / or frequency of disciplinary issues, in the sense of safety at the school, and whether students hold each other accountable to uphold acceptable behavior. According to participants, shifts in these facets of student discipline were closely tied to the use of essential agreements and the IB learner profile. The essential agreements and IB learner profile provide clear expectations about student behavior, promote respectful interactions between staff and students, and encourage reflection and action, all useful in developing a supportive disciplinary environment.

Regarding disciplinary practices, participants described the use of practices that are focused on reflection and taking action to remedy the situation. Reflection and action may take the form of written reflections shared with staff, reflection conversations with staff, written and oral apologies, and plans to carry out actions at the school or in the community to make a positive difference. Participants noted that in the past or compared with other schools they have worked at, the PYP encourages less-punitive disciplinary approaches.

> *The difference between my previous school and this school is, the previous school the teacher would say, "These are my rules." Here you don't do that. Here they have their essential agreements, and they as a class decide what they are. We have essential agreements at our teacher meetings as well.*
>
> —School G Principal

> *I feel that there's a lot less-punitive types of consequences. I think we're starting to really focus on reflection.*
>
> —School C Coordinator

Participants at three schools explained a reduction in disciplinary issues and less-severe disciplinary issues compared with other schools as being due at least in part to the PYP. Generally, these participants viewed their schools as happy places where bullying and misbehavior are relatively infrequent or have declined, with the IB learner profile and essential agreements being important contributors to those shifts. One school also mentioned that because of the PYP, students hold each other accountable for their role in upholding the essential agreements. Finally, although participants at most schools described their campus as one where students feel safe, only two noted that this had improved or was different from other schools because of the PYP.

> *[Before the PYP, we had] suspensions and just children doing unkind and hurtful things. With the IB coming in and us embracing that philosophy and working toward that, we really don't have that anymore. Do kids do some naughty things? Absolutely. But not the kind of serious behaviors that we saw before.*
>
> —School B Coordinator

It is valuable to point out that although some case study schools did not report changes or differences in their various disciplinary practices or student safety, this does not suggest that they currently experience a high level of disciplinary issues, use less-supportive disciplinary practices, or have unsafe campuses. Rather, some schools have a history of strong disciplinary practices and a low incidence of behavioral issues. Other schools have made improvements related to discipline and student safety, but they attributed those shifts to having a new leader with a strong vision around discipline and safety rather than being a result of the PYP.

Case Study Vignette 2: School B

Located in a small city, School B serves a primarily Hispanic/Latino and White student body. A large proportion of students are eligible for the free and reduced-price meals program, and nearly half are designated as English learners. The school in its current form came about after two schools with differing approaches to education, levels of parent engagement, and student demographics were combined into one school. According to participants, prior to the blending of these schools, one campus had a more intentional focus on the whole child and active learning, opportunities for extracurriculars, and expectations for parent participation. Conversely, the other campus used traditional, teacher-driven teaching strategies, and students did not have many supplemental experiences outside the classroom. The differences in approaches at these two schools contributed to a situation that one participant described as "a sort of a haves and have nots." Specifically, families with flexible schedules to allow volunteer time and families with proficiency in the English language ended up at the first school, and the remaining families ended up at the second school. As these schools merged, a new principal came on board to unify the students, teachers, staff, and families. The School B principal brought experience with the PYP, having led a different school during the candidacy phase through authorization. After seeing the program's success at that prior school, the principal raised the idea to the staff of transforming the school into a PYP school. Eager for change and highly motivated to make the new, unified school a success, the staff agreed to move forward with a federal magnet school grant to support the transition to a PYP school.

Since this school's authorization more than five years ago, participants reported that the school's climate shifted significantly, especially for those who were part of the more traditional original school. Participants stressed the importance of the school principal in facilitating these changes. The principal's vision is highly aligned to that of the PYP, and this vision was supported early in the principal's development through PYP workshops and professional development. The principal and staff are committed to strong implementation of the PYP because they believe it is best for children.

School B's atmosphere is positive, and participants eagerly described how happy they are to be part of the school community. All participants raved about the principal's ability to make every child, family, and staff member feel known and genuinely cared for. Participants across roles described the environment as a trusting and caring place where inclusivity is valued. Teachers spoke highly of their experience at the school since the transition, with an emphasis on improvements to collaboration, engagement, job satisfaction, and staff relationships. Teachers also reported that the school is now a place where other teachers want to send their kids, which wasn't the case in the past. Participants highlighted differences in student experiences, including improvements in how students talk with one another, the depth of their thinking, engagement, and ownership over their learning. Participants noted improvements on standardized tests occurred following the transition to the PYP, which was corroborated based on WestEd's examination of historical testing data. Participants found the PYP to help support these shifts by providing a coherent school identity greatly influenced by the IB learner profile, a focus on individualization, and the use of essential agreements and by allowing for increased professional development and planning time. These supports, coupled with a strong leader and coordinator, have helped this school make great strides. **School B is a useful example of how the PYP, combined with an influential leader, can support school transformation and the development of a positive school climate.**

> *Our school's a happy place. In general, people feel good. I think the kids feel like they're cared about. I feel like they have a sense of belonging. They're very included in the learning and what's going on in the classrooms. … We do a lot of things as a whole school, and I think that kids feel like the school belongs to them … that's the general feeling, that it's a positive place to be, that kids are engaged.*
>
> *—Principal*

Instruction

Instruction within a positive school climate should support students to think for themselves and challenge themselves, to take risks, and to develop a greater awareness of the world (NSCC, 2019). Individualized instruction and opportunities for listening, reflection, and dialogue are useful strategies to provide supportive instructional environments (NSCC, 2019). The PYP provides ample guidance and professional development focused on improving instruction. Instruction is expected to be organized into six transdisciplinary themes and to focus on encouraging inquiry, incorporating student voice, introducing students to new places and perspectives, and ensuring instruction is adapted as needed to be both relevant and appropriate for different types of learners (IB, 2013). **According to case study data, the PYP was perceived to have a great deal of influence on changing instructional strategies or promoting the use of different instructional strategies compared with non-PYP schools, including increased use of transdisciplinary instruction, inquiry and student voice, focus on global perspectives, cultivation of open-mindedness, and individualization and relevance of instruction** (Table 9).

Table 9. Changes to and Differences in Instruction Attributed to the PYP

Introduction of the PYP Contributed to Increased/Improved…	School								Total
	A	B	C	D	E	F	G	H	
Transdisciplinary Instruction	✓	✓	✓	✓	✓	✓	✓	✓	8
Inquiry and Student Voice	✓	✓	✓	✓	✓	✓	✓		7
Focus on Global Perspectives	✓	✓		✓	✓	✓	✓	✓	7
Open-Mindedness	✓		✓	✓	✓		✓	✓	6
Individualization	✓	✓	✓		✓		✓	✓	6
Relevance	✓		✓		✓	✓	✓		5

Transdisciplinary instruction

Transdisciplinary instruction is one strategy advocated by the PYP to encourage student inquiry and support students to make connections across content areas. Use of transdisciplinary instruction aligns with the dimension of school climate focused on creating supportive teaching practices that provide opportunities for questioning, challenge, and varied ways to demonstrate learning (NSCC, 2019; Nicolescu, 1999). All eight case study schools reported an increased use of transdisciplinary instruction or a greater use

> *It's a lot harder to work here because your units are actually being written from the IB framework and the standards. But then it can truly be transdisciplinary. … I think that that matters very much.*
> —School D Principal

of transdisciplinary instruction compared with other schools. The PYP framework, which includes the units of inquiry, contributed substantially to these differences. In addition, because transdisciplinary instruction is a key component of the PYP, principals, coordinators, and teachers appeared to be highly motivated to effectively utilize this approach. It is useful to note that developing transdisciplinary units of inquiry was viewed as both difficult and time consuming, but for most participants, the investment of time and effort was worthwhile.

Coordinators and teachers emphasized how uncommon transdisciplinary instruction is at non-PYP schools and the vast difference between teaching this way as opposed to more traditional approaches using set curriculum. The potential impact of this style of instruction for teachers is described in the upcoming Teacher Experiences section, but in short, this approach provides freedom and promotes creativity. Even parents noticed and appreciated the use of transdisciplinary instruction.

When I'm making my schedule, I actually struggle sometimes because I'm like, what do I call this? Is this literacy? Is this science time? It's all the same, it should just all day be IB time.
—School E Teacher

The one thing that I noticed in the IB program is the projects encompass all aspects of education, the writing, the reading, math, science, art, all that.
—School A Parent

Inquiry and student voice

Encouraging students to ask questions and have dialogue is a useful strategy to bolster school climate, specifically impacting the *support for learning* dimension of the school climate framework (NSCC, 2019). Focusing on inquiry-based instruction, a major component of the PYP model, is one way to facilitate these experiences. Although inquiry in and of itself is valuable, it is also important that when questions and interests are raised, those expressions of student voice are valued and utilized. All but one of the case study schools reported increased use of inquiry and student voice to drive instruction compared with before the PYP or greater use of inquiry compared with other schools. Coordinators and teachers reported being mindful of incorporating opportunities for inquiry into the unit plans to ensure it occurs, as well as being open to shifting directions if other opportunities for inquiry arise. Students are encouraged to bring their questions to class, conduct independent research to gather information about their questions, push themselves to direct their own learning, and share back their learning with their peers. Facilitating this process is not something that comes naturally to every educator. Teachers must be open to being questioned and comfortable telling students when they do not know the answer. Several teachers and coordinators reported that developing truly inquiry-based units was challenging and required a great deal of trial and error, but that over time, they have become better at it and feel more comfortable.

It's challenging. You can take the learning in whatever direction the kids are interested in going within your broader scope. That means you have to be ready to react to that too. You have to have resources available; you have to have learning experiences and activities available. ... So, I think it challenges you. Challenges me in good ways, it keeps you from getting still, you don't teach exactly the same stuff exactly the same way from year to year … It makes it challenging … but it's fun.
—School D Teacher

> *Everything has become more engaging. Engagement and hands-on for our students. A lot more inquiry, a lot more students leading and doing things on their own, more just learning through discovery and problem solving.*
> —School A Coordinator

Meaningfully incorporating student voice into instruction can also be challenging, as educators have to remain flexible and agile. Using student voice means that instruction across teachers in the same grade level may look very different, and year to year, different units may take very different forms. Despite these challenges, participants believed the encouragement from the PYP to focus on inquiry and student voice resulted in instruction that is more relevant and engaging both for students and for teachers. The use of inquiry and student voice was a huge shift for many teachers as these things were either not prioritized or were looked down upon before the PYP or at other schools. For example, one teacher whose personal philosophy emphasizes authentic inquiry was seen as a rule breaker for engaging in this type of instruction at a previous school and was thrilled to join the PYP school and learn that inquiry-based instruction was not only allowed, but also encouraged.

Focus on global perspectives

In cultivating a positive school climate, having instructional opportunities for civic learning and showing respect for diversity are critical (NSCC, 2019). Because learning opportunities should allow students to become more aware and connected with the world around them (Benitez, 2001; Blankenship, 1990; Torney et al., 1975), the focus on global perspectives advocated by the PYP is a useful culture and climate improvement strategy. The PYP encourages schools to help students understand their orientation in place and time and how individuals and civilizations are connected to one another (IB, 2014a). All but one of the case study schools reported that because of the PYP, instruction is different at their school regarding the incorporation of global perspectives. All these schools reported having language programs that introduce students to different languages and cultures, which is an expectation for all PYP schools.

> *My kid was learning about the lost boys of Sudan in fourth grade, and to be able to [show them that] these are things that happen elsewhere in the world, it's already creating less self-centered, selfish people. And I think that's a huge part of why the kids that come out of this program are looking at the world in such a larger view.*
> —School B Parent

Participants noted that they believe the IB values diversity and because of that, they felt encouraged to infuse exploration of different cultures and places into instruction. Principals, coordinators, and teachers emphasized that they try to ensure that instruction goes beyond the students and local community to also examine global issues. Although one school did not report any changes or differences in this area, this school already had a dual language program when the PYP was introduced.

Case Study Vignette 3: School C

School C is a medium-sized school located in a large city serving a primarily Hispanic/Latino student population. Nearly all students are eligible for free or reduced-price meals and close to one-third are designated as English learners. Parent involvement is a challenge at this school, as many parents work at least one job. The school has a long history as a Spanish dual language school, making it unique compared with other schools in the case study sample. School C became PYP-authorized more than five years ago and is part of a feeder set of IB schools that collaborate to promote community awareness and parent involvement. The principal that led PYP adoption had been with the school for many years and was able to use the strong relationships with staff to gather buy-in for the PYP. School C's principal that led PYP adoption left a few years ago and the new principal that joined the school did not have any background in the IB or the PYP. School C has a full-time PYP coordinator, which is unique compared with the other sampled schools, all of which have a half-time coordinator. However, each year there is uncertainty about whether the position will be funded by the district, creating a sense of unease about the stability of the position. Despite this uncertainty, the coordinator has been in place for several years and is supported by a stable teaching staff, many of whom have been with the school for nearly two decades.

> *Overall the vision is creating and fostering students that are able to globally compete, but also be able to respect other's cultures and differences. That's kind of what our vision is here, and mine as well.*
>
> *—Principal*

Proficiency rates for standardized tests at this school are relatively low, especially in mathematics. These low academic indicators contribute to the district's substantial involvement with and oversight of the school, including various mandates and initiatives aimed at improving instruction. The principal views this as a significant challenge and believes that given the low academic performance on standardized testing, the school's focus should center around high-quality instruction. Teachers and coordinators shared that the principal has not completely bought into the PYP model and that there has been a learning curve getting the principal up to speed on what the PYP entails and why it is beneficial to students. The principal interview validated these perceptions when the principal shared reservations about portions of the IB approach, such as the use of teacher-developed curriculum. However, other aspects of the principal's vision align well with the PYP, including wanting to ensure everyone feels safe, to create a trusting environment where all staff and students can express their ideas, and to cultivate a respect for different cultures. The principal's ultimate goal is to prepare students who can compete globally.

Changes at this school following the introduction of the PYP included shifts in disciplinary practices to become more reflective and changes to instruction, especially as it relates to inquiry and transdisciplinary approaches. Participants noted that there is now a greater focus on the whole child with emphasis on SEL and the IB learner profile. Student experiences have shifted, with an increased focus on student agency and ownership over learning, as well as internalization of the learner profile. Teachers noted that their level of collaboration, ability to be creative, and quality of staff relationships have all improved since the PYP or are different compared with other schools. Participants believed the focus on the learner profile, opportunities for public speaking, the school taking on a PYP identity, the framework provided by the PYP, the use of essential agreements, a strong coordinator, and the professional development and planning time associated with being a PYP school all contributed to these changes and differences. In addition, although the district can cause challenges for this school, participants noted that their willingness to fund a full-time coordinator contributed to these changes. **School C highlights how the PYP can be used to bolster school climate within a more challenging and regulated public-school setting.**

Open-mindedness

Related to the benefits of fostering a global perspective, promoting and demonstrating a respect for diversity between all members of a school community helps create a tolerant environment, which contributes to a positive school climate (NSCC, 2019; Schneider & Duran, 2010; Varjas et al., 2006). Through the IB learner profile, the PYP advocates for the development of open-mindedness related to culture, perspective, values, and personal histories (IB, 2013). Six of the eight case study schools reported improvements in their school's focus on open-mindedness or differences compared with other schools because of the PYP. The infusion of a language program not only enables schools to expose their students to the language, but also presents opportunities to explore the cultures in which that language is used, including exploring food, music, governments, and traditions. In addition, because the IB learner profile explicitly focuses on developing students who are open-minded, participants described ways that quality is fostered more broadly. For example, schools created opportunities for students to learn more about their own cultural histories, share their culture with peers, and exercise open-mindedness in other ways, such as having a positive attitude about trying new things that may be outside their comfort zone.

I think that because we have a melting pot of cultures here, and lots of different languages represented, and because IB values a diverse community, then again, we're given the permission to intentionally teach that.
– School A Principal

With the culture of society right now, [the PYP is] a great way to kind of immerse the kids at such a young age to know that there are people that are different [and have] different thoughts and ideas. I feel like they're learning this.
—School H Parent

Individualization

Individualization is one way to reinforce the *support for learning* and *respect for diversity* dimensions of the CSCI (NSCC, 2019) and is raised by other school climate measures as a standalone area of importance (Fraser et al., 1986). The extent to which the PYP allows for and encourages individualization was praised across all schools, and participants at six schools reported that the extent to which individualization occurs has increased since the PYP was introduced or is more prevalent compared with other schools. Improvements and increased individualization included allowing varied ways for students to demonstrate learning, using different strategies to meet the needs of different learners, providing students with choices so that they can maximize their learning experience, and meeting students where they are in terms of their level of understanding.

What we have that not every school has is, we have so much authentic work. We have so many ways to assess kids that's more authentic, because we can see that they can do things, and say things, and write things, and present things in a way that a test is never going to capture.
—School A Principal

Participants reported that through the structure of the PYP units of inquiry they can create diverse learning experiences. The units allow flexibility in strategies and modalities to reach students, with an eye toward equity rather than equality. Teachers found the IB planners (i.e., the IB approach to organizing curriculum) to be very accessible for all levels, so no matter what the learning objectives, all students are able to participate. They also emphasized that this focus on individualization enables all students to thrive, even those who may struggle with comprehension or test taking. Individualized strategies emphasized creativity, with students encouraged to brainstorm different ways to learn and show their learning. Parents at several schools highlighted that the individualized nature of instruction at their schools differed from what they experienced elsewhere. Several parent participants also reported having children with specific learning needs and felt that through the PYP, the school and teachers did a good job ensuring their children receive a high-quality educational experience.

It's not like they do a one-size-fits-all [approach]. They really take into consideration every kid and how each one learns differently, and they really focus on that to help them strive.
—School B Parent

Relevance

Positive school climate requires that instructional practices are supportive and material is delivered in ways that are accessible and engaging to students (NSCC, 2019). Taking student interests and contexts into account is one way to accomplish this. Five case study schools reported changes or differences in their school's use of relevant instruction. Of these, one school described both changes after the PYP and a difference compared with other schools because of the PYP. The remaining four schools were split in terms of whether they categorized the use of relevant instruction as a change or difference.

The easiest way [to carry out] student-centered learning is to know what the students care about. We have the general idea, the central idea, or the topic, and then by asking students questions, the teachers can guide their instruction around those ideas. The more interesting the content, the more apt they are to read and write about it. … If it's boring content that they don't have any relevance to, they don't want to read and write, so the teachers understand that, and so they try to make things as relevant as possible.
—School F Teacher

Creating and delivering relevant instruction requires teachers to know their students. Teachers must understand their students' cultural and contextual backgrounds, as well as the topics they find most interesting and want to learn about. At schools where relevant content is different or changed because of the PYP, teachers often described extending learning beyond the confines of a traditional classroom and taking learning into the world. The infusion of relevant instruction was often accomplished through supplemental and extracurricular activities, such as gardening, language, art, music, and field trips. Participants also indicated that the PYP's focus on inquiry and incorporation of student voice contributed to the development and implementation of relevant content.

Authentic learning: we try to do that. We try to really see what the kids already know and where they're at. Then also really get some of that hands-on learning or just having [material] that they're interested in … we plan these units to go with their interests.
—School E Coordinator

Case Study Vignette 4: School D

School D is a relatively small charter school located in a rural fringe area that serves a primarily White student body. A very small proportion of students are eligible for free or reduced-price meals, and the English learner population is even smaller. The school opened more than a decade ago with the vision of becoming an IB school. It was authorized to offer the PYP a few years later, and since then, it has continued to grow as a PYP school, and it added grades to introduce the MYP. The school is in high demand, with lengthy waitlists for enrollment, and is currently expanding to accommodate more students. Because it is a charter school, there is a great deal of autonomy and freedom about how to design and implement curriculum. School D is high achieving based on standardized test proficiency, though case study particpants explained that proficiency rates have declined slightly over time as the charter school has become more popular and drawn in families from farther distances. Parents have been and continue to be very involved in the school, which was described as a norm for parents in the area and not unique to this particular school or the PYP. The principal and the coordinator also shared that because the school was developed as a PYP school and has been functioning with the program for quite some time, they are attempting to revamp some of the curriculum and processes moving forward into this year to ensure programming doesn't become stagnant.

Although there have been several leadership changes since the school opened, principals and coordinators have all been promoted from within the school, which reduces issues related to new leadership and which also has resulted in the school always having leaders with experience in teaching in an IB setting. The current principal views the school as a community and calls for everyone to be an active part of the community. The principal aims to support the whole child, ensure teachers continue to grow professionally, and promote shared decision making and voice across all members of the school community. Conversations with teachers and the coordinator suggest the principal is doing a good job realizing this mission, as all felt they have a voice and can meaningfully contribute to decision making. During the site visit, WestEd observed the school's strong sense of community during the morning assembly, at which students share and are celebrated all while reinforcing the values of the PYP. To an outside observer, the school felt like a small, tight-knit community.

> *We're a community. Everybody here is a learner, and we want to enact positive change. And so, I want, as new families come on, that we make sure that we're staying focused on that and that families understand that we are developing the whole child. That it is about skills as much as it about content or about concepts.*
>
> *—Principal*

Because the school opened as a PYP school, participants could only point to differences between this school and other schools that they attribute to the PYP. Participants viewed instruction as quite different at this school, with a greater focus on global perspectives, inquiry, open-mindedness, and student voice. They saw the school atmosphere as one that focuses on the whole child, including the use of reflective disciplinary practices, which participants thought was unique. Participants believed student experiences are positively impacted by the PYP, including a greater focus on action, agency, collaboration, and engagement. Further, participants described differences in how students think and have discourse with one another and highlighted that the school helps students celebrate their own individual accomplishments. Teacher experiences were different regarding increased collaboration, creativity, sense of safety to take risks, and job satisfaction, as well as more positive relationships with one another. Participants from this school viewed the focus on the IB learner profile, opportunities for students to practice public speaking, the use of essential agreements, and both IB and non-IB professional development and planning time, along with a strong coordinator, as contributors to these differences. **Information from this school showcases how intentionally building a school using the PYP framework supports the initial and ongoing development of a positive school climate.**

Student Experiences

Students are an important part of the school community, and positive and supportive student experiences are vital to promoting a positive climate across the campus (Wilson, 2004). Nearly all indicators of the NSCC school climate framework take student experiences into account, from receiving encouraging and differentiated learning supports to having supportive relationships with adults and peers to believing they are a meaningful part of the school community (NSCC, 2019). Through the IB learner profile, the PYP encourages taking on attributes that allow for productive learning and positive relationships. In addition, the PYP's emphasis on focusing on the whole child, valuing student voice, promoting agency, and supporting action may help facilitate improved student experiences and a more positive climate. **As participants reflected on the changes that occurred at their schools after the PYP introduction or the ways their school is different because of the PYP, they highlighted many aspects of the student experience, with participants at the majority of schools reporting that the PYP supports increased celebration of diverse accomplishments, learning for life, action and community service, agency and ownership over learning, engagement, and discourse/thinking** (Table 10).

Table 10. Changes to and Differences in the Student Experience Attributed to the PYP

Introduction of the PYP Contributed to Increased/Improved Student…	School								Total
	A	B	C	D	E	F	G	H	
Celebration of Diverse Accomplishments	✓	✓	✓	✓	✓		✓	✓	7
Learning for Life	✓	✓	✓	✓	✓		✓	✓	7
Action and Community Service	✓	✓	✓	✓	✓		✓	✓	7
Sense of Agency and Ownership Over Learning	✓	✓	✓	✓	✓	✓		✓	7
Engagement	✓	✓	✓	✓		✓		✓	6
Discourse / Thinking	✓	✓		✓		✓			4
Ability to Look Outside Themselves		✓					✓	✓	3
Academic Performance		✓			✓	✓			3
Collaboration		✓		✓		✓			3
Confidence	✓			✓				✓	3
Internalization of IB Learner Profile		✓	✓				✓		3
Relationships		✓	✓					✓	3

Celebration of diverse accomplishments

Having social support from adults, which includes staff getting to know students as individuals, and providing supportive learning experiences, which includes allowing diverse ways to demonstrate learning and providing individual attention, are two important contributors to a positive school climate (NSCC, 2019). The PYP model encourages individualization of instruction to meet student needs and differentiated assessment, which theoretically support the development of these two dimensions. Participants at all but one school highlighted the allowance for diverse ways of learning and the celebration of many types of accomplishments as something that has changed because of the PYP or is different at their school compared with other schools because of the PYP.

> *My [kids] are kind of on opposite ends of the spectrum. One does really well with academic stuff, and one is in special [education] for reading and speech and stuff. At a school where reading and math is all that's important, it's really hard for that kid to feel like they can do anything well. But here, they have the opportunity to do other things that they excel at, and they're celebrated just as much as my other kid who can read and do math really well.*
>
> —School H Parent

> *To see kids who maybe others would dismiss, or think don't have a lot to add [at a non-PYP school], being just as successful and just as able to be really creative and critical in their thinking. And because they come from, sometimes a place, or a culture, or a situation that's had some challenges, it brings experience with that. So the conversations and the level of discourse that can happen in classrooms because people have experienced different things is really rich and meaningful.*
>
> —School B Principal

Discussion that described how these schools celebrate varied accomplishments highlighted how the PYP provides the freedom to assess students in different ways, which enables students who are less successful with traditional means of assessment to flourish. Further, the PYP's emphasis on SEL and other non-academic skills creates an environment in which having qualities like being creative, caring, and a risk taker is just as important as doing well in reading or math. One teacher noted that because of the PYP, "students are allowed to shine in ways that they may not have shone in a more traditional setting."

Learning for life

The dimensions of school climate measured by the CSCI highlight the need for *social and civic learning* (NSCC, 2019). The infusion of instruction on social-emotional skills is discussed elsewhere, but the notion that students are learning for life more broadly is useful when examining how students might experience *social and civic learning* (Bennett et al., 2009; Cohen et al., 2009; Hepburn, 1997). Changes to or differences in the student experience as a result of the PYP included discussion of the fact that participants at seven schools believe that students are learning skills for life through their PYP school. Conversations categorized as increased focus on learning for life included discussions of students learning the skills they need to be successful in the real world. For instance, participants raised improvements in students' self-sufficiency, independence, confidence, ability to articulate their

thoughts, and flexibility. Several teachers and parents noted that because of their PYP education, students are prepared to thrive as they move on to middle school, high school, and then into the world.

> *[Students are] learning to be communicators, learning to be open-minded, and learning to be caring … that is what we're practicing now and is what [they will take] out to the whole world. [They use those skills] in our community, in our school setting, in our family. And then, as they become adults and go into the work field.*
>
> —School C Teacher

Action and community service

The PYP encourages a focus on students moving from inquiry to action. Action can take many forms and can be as small as students sharing what they learned with their family and peers or as large as students putting together fundraising efforts, awareness campaigns, and volunteer experiences relevant to causes they view as important. As participants discussed the action component of the PYP, many shared stories about how action translates to providing information within the school community, conducting beautification projects to make the campus a more welcoming place, and reaching out to the larger community to make a difference. Given the ways action and community service manifest at PYP schools, the school climate dimensions of *support for learning*, *social and civic learning*, *school connectedness and engagement*, and *physical surroundings* may be improved at PYP schools as a result of the action focus (NSCC, 2019).

> *We're constantly giving [students] opportunities and encouraging them to take action. Like, what can you do with that? Even if it's a small piece of action, … I think that that's gonna carry over into the world, where they see a problem [and think], "What are we gonna do about it?"*
>
> —School D Teacher

All but one school emphasized that because of the PYP, their school has increased focus on action or has a greater focus on action than other schools. Participants described a range of student-driven action initiatives, such as creating clubs to address an issue (e.g., recycling), conducting awareness campaigns about the importance of bees or the impacts of too much screen time, building "buddy benches" where kids can sit if they need a friend, volunteering in the community (e.g., at retirement homes or animal shelters), and conducting drives to collect money, clothing, food, and other resources needed in the community. Teachers noted that action is incorporated in every unit, and students are encouraged to think about how they can apply what they learned to make a difference. Participants also flagged that the large emphasis on action can be challenging at times because students come up with so many ideas about things they would like to do. At times, school staff must manage expectations and help students prioritize plans for action to ensure they are appropriate, meaningful, and not all happening at once. Despite the challenges of managing student action, participants emphasized that encouraging action allows students to see that they have a voice and can make a difference, which helps promote agency, another important and intertwined aspect of the student experience.

Case Study Vignette 5: School E

A small, urban school located in a large city, School E serves a primarily Hispanic/Latino and White student body. Nearly three-quarters of students are eligible for free or reduced-price meals, and one-third are classified as English learners. Standardized test proficiency rates for this school are slightly above the state average and comparable with those for the district. The school began considering the PYP after the high school and middle school in their feeder set voiced interest in IB programming. The school has been authorized for nearly 10 years and is part of one of two IB feeder sets in the district. There is a relatively high concentration of IB schools in this district, and although support ebbs and flows as different priorities emerge, for the most part participants described the district as supportive. Shortly after PYP authorization, the school added a science, technology, engineering, the arts, and math (STEAM) component through a federal magnet grant. After some trial and error integrating the PYP and STEAM, there has been a fruitful blending of the two approaches, with the teachers, coordinator, and principal all emphasizing how well the two approaches work together.

> *I want our students to be able to be prepared for both school and for life. And part of that philosophy is taking the IB learner profile and the IB attributes and having our students not only learn them but live by them.*
>
> *- Principal*

The current principal came into the position right as the school was going through authorization. The principal did not have a background in the IB, and upon joining the school, the principal agreed to move forward with authorization with the understanding that the PYP is a collective responsibility and not something that is owned by the school leader. The staff describe the principal as reflective and supportive, regularly using practices that reflect the values of the PYP. There is also alignment between the principal's vision and the IB learner profile. The School E principal believes the future of careers is unknown and that, therefore, children need to learn broad skills like problem solving and international mindedness to be prepared for all jobs. The primary goal for this principal is to make sure students are prepared for life.

This school has an interesting history, as it has not always had a positive reputation in the community. Over the last decade, the school has gone through significant changes, including the change in principals and introduction of the PYP and STEAM, as well as physical beautification work. In addition, the neighborhood has changed substantially in ways that participants attributed to gentrification. The combination of these changes makes it difficult to disentangle which shifts in the school's climate are due to the PYP versus other factors. For example, parent involvement has changed dramatically over the past decade, going from a school that had very little parent involvement to one that has consistent and active parents supporting the school through volunteering and fundraising. However, participants emphasized that they believed this was mostly the result of gentrification, as the demographic shifted from parents having to work multiple jobs to parents with flexible schedules. The assumption that shifts in parent involvement are related to changing school demographics seems feasible based on the shifts observed in state data. From the time of PYP authorization to the 2018–19 school year, the percentage of students designated as eligible for free or reduced-price meals declined by nearly 20 percentage points.

With the varied contributors to school climate in mind, there have been substantial shifts in school climate since PYP authorization. In fact, this school had the largest number of changes/differences attributed to the PYP out of all schools in the sample. The site visitor to this school immediately observed that this is a very happy campus. The visitor was welcomed by staff, parents, and teachers and clearly observed student engagement and the use of PYP practices in classrooms. Teachers reported that this school went from one where they did not necessarily want to be to one where other teachers and substitutes want to work, a shift that they partially attribute to the climate cultivated by the PYP. Participants described large shifts in instruction, including increased individualization, a focus on cultivating open-mindedness,

Case Study Vignette 5: School E

the use of inquiry, relevance to students, the use of student voice, and transdisciplinary instruction. The overall school atmosphere has become more positive, with a greater sense of community, increased use of consistent language, and more purposeful consideration of the whole child. Student experiences have also shifted, potentially in part due to the PYP, with improved academic performance, greater focus on action, the celebration of diverse accomplishments, and a focus on helping students learn for life rather than just learn academics. Although participants described all of these changes/differences related to the PYP, the most commonly voiced shifts were related to teacher experiences. Teachers highlighted increased confidence because they now teach what they create; greater collaboration; increased engagement and job satisfaction; and improved staff relationships. They also reported finding themselves taking on aspects of the IB learner profile in their interactions with their peers and with students. Contributors to these changes include the focus on the learner profile, taking on the identity of a PYP school, the framework provided by the PYP, the use of essential agreements, and opportunities for students to practice public speaking. Participants also noted that the professional development and planning time provided through the PYP and through other funding streams (e.g., STEAM magnet grant) enabled them to develop quality curricular materials, bond with one another, and feel respected as professionals. Participants also noted that district backing and leader buy-in were crucial to support PYP implementation and these shifts in school climate. **School E serves as a useful example of how the PYP can interact with other programs and contextual factors to promote positive changes to school climate.**

Sense of agency and ownership over learning

Agency is the sense that one can act intentionally and the belief that those actions matter (Bandura, 1989). In late 2018, the IB released the Enhanced PYP model, which introduced several modifications, including a more intentional focus on student agency under the notion that increased attention to agency will support a more positive school environment (IB, 2017). Although this intentional focus is new, participants at seven case study schools reported increases in student agency and ownership over learning after the PYP was introduced or a heightening of these student experiences compared with other schools. Participants explained that students have an underlying belief that they can make a difference, they have a say in their learning, and they are responsible for their learning, which was attributed to their PYP education.

I think the students have a bigger sense of ownership on their own learning [because of the PYP].
—School F Coordinator

Because of the curriculum, they know that they can change things. That's a big [difference from non-PYP schools]. They believe it. And that's a hard sell in life. I remember growing up, I didn't ever think anything like that. They really take [challenges] on like, "I can do it."
—School H Teacher

Engagement

For instruction to be effective, students must be engaged in their learning, and this engagement is an important part of the *support for learning* dimension of school climate (Fredricks et al., 2004; NSCC, 2019; Reyes et al., 2012). Engagement is a multifaceted construct that includes behavioral, emotional, and cognitive elements and is influenced by context and environment (Fredricks et al., 2004). Various strategies from the PYP model may be useful for fostering engagement, including the use of student voice, inquiry, transdisciplinary instruction, and individualization. When case study participants

described the student experience at their schools, increases in student engagement or greater student engagement compared with other schools was noted at six sites.

What I can see is the big difference from before, is that we had a large segment of our kids who had kind of grown up in that environment where they were just not engaged in what was going on. So they disengaged and feel disconnected from school … the kids that were coming up in the PYP [now], it's just a very different attitude that they have about school, about learning, about what that means for them, and their responsibility in it.

—School B Principal

Participants across roles described students as being excited to come to school, enthusiastic about school, and interested in and passionate about what they are learning. Many aspects of the PYP were attributed to fostering this engagement, which highlights the interdependencies between student agency and ownership over their learning, action, student voice, relevance, and engagement.

Discourse and thinking

Strong, engaging instruction should support the development of critical thinking skills that enable students to engage in high-quality discourse about the topics they are learning. The cultivation of these skills is an indicator that supportive learning practices are in place, which contributes to school climate and culture (Ivie, 2001; Kassem, 2000). Participants at half of the case study school sites noticed changes in student thinking and discourse after the PYP was introduced or improved student thinking and discourse compared with non-PYP schools. Participants frequently discussed shifts in student thinking and discourse in relation to students having diverse ways to demonstrate their learning. Principals, teachers, and parents reported being impressed by the ways students think through complex topics and share their thinking with their peers, teachers, and families. School staff reported being intentional about providing opportunities for students to discuss their thoughts with one another and become comfortable taking and receiving feedback on their opinions. Participants noted that these opportunities for discourse have helped foster more positive environments overall, as students have become used to articulating their thoughts, providing evidence to support their opinions, and listening to what others have to say.

[When I first came to this PYP school,] the conversations that kids would have in class without adults guiding them was unbelievable to me. They could disagree with each other, they could build on each other's ideas, and they could collaborate on projects like nothing I'd ever seen. It's amazing. And those things are explicitly taught from kindergarten on. It's not just something that our kids are naturally good at it or they pick it up over time. Like, they're explicitly taught it, and I think that's great.

—School D Principal

Other shifts in the student experience

Beyond the changes and differences in the student experience as a result of the PYP noted by at least half of the case study schools, participants also raised several other less-common shifts. These include students being increasingly able to look outside themselves as well as improved academic performance, increased collaboration, increased confidence, improved student relationships, and student internalization of the IB learner profile. Participants at three schools noted a change or difference in their students' or children's ability to take others into account and think about the world beyond themselves, which was typically described in relation to the PYP's focus on global perspectives and action, as these foci pushed students to consider what the world is like for others. After the introduction of the PYP, three schools noticed an improvement in academic performance, which was corroborated by WestEd's examination of standardized testing proficiency data before and after PYP authorization. Improved instruction was highlighted as the mechanism behind these changes with schools emphasizing that teaching through the lens of the PYP allowed for greater comprehension and individualization, which they believe helped drive not only improvements in learning broadly, but also improvements in proficiency rates on standardized tests. These schools also mentioned that the PYP approach lends itself nicely to the shifts in teaching required by the Common Core, making that transition easier.

> *Math is certainly considerably stronger, I think, because of the critical thinking and the inquiry that comes from their experience in the IB. I think in that area, we've really grown.*
> —School B Principal

Principals, coordinators, and / or teachers at three schools reported improvements or differences in student collaboration and relationships. Participants described students having close relationships in which they can give and receive feedback and support one another. Participants at these schools believed the student body is very kind to one another, more so than what they have seen at other campuses. Students regularly work on projects together and become comfortable collaborating. Student confidence was viewed as improved or different at three case study schools such that students are more willing to step outside their comfort zone and try new things, as well as having the self-confidence to go after things they want (e.g., running for student government). The IB learner profile is an important tool in fostering collaboration, relationships, and confidence, and participants in three schools highlighted that since the introduction of the PYP, they have seen their students take on the attributes of the IB learner profile and internalize them.

> *I would say the biggest difference between here and my other site was collaboration, both with the students collaborating and working together, and the staff really collaborating and working together. That would be the number one difference.*
> —School F Teacher

> *[Students] really have internalized [the IB learner profile] by third grade. They recognize that it's something that we're working toward as humans and that it's not always perfect. And we make mistakes and we might not be the ideal, but that they have such a strong sense of that's who we are trying to be as people. That's who we're trying to be as learners, and they have internalized it to the extent that they really feel a sense of responsibility to each other to try to be that. They take it really seriously.*
> —School B Teacher

Case Study Vignette 6: School F

School F is a large school in a large city serving a diverse student body primarily composed of Hispanic/Latino, African American, White, and Asian students. More than half of students are eligible for free or reduced-price meals, and less than one-quarter are classified as English learners. Proficiency rates on standardized tests are relatively low, though they have experienced growth in the most recent testing cycle. School F has not had a particularly positive reputation in the community in the past, though that is improving, and has experienced a great deal of leader turnover, with four principals over the past six years. The current principal has held the position a little over a year. Compared with most of the other schools in the case study sample, this school has a younger and less-tenured teaching staff.

The PYP was introduced as part of an initiative to provide IB schools in the district and is part of a feeder pattern of IB schools. The district is highly invested in the success of its IB schools and is supportive of the PYP model. School F represents the most recent PYP authorization within the case study sample, having been authorized fewer than five years ago. Implementation of the PYP appears to be in the earlier stages compared with other case study schools such that not all aspects of the PYP are fully ingrained. For example, participants noted gaps in the international mindedness and action components of the PYP and described those as areas for growth moving forward. When the new principal came on board, the coordinator provided support to ensure the principal understood and was on board with the PYP. The principal did not come with any IB experience, but teachers, the coordinator, and the principal all reported that the principal's vision and approach are well aligned with the PYP. Soon after becoming the school's leader, the principal noticed significant needs related to student safety and time on task in the classroom. The principal focused on these areas within the first year, and now that those are under control, the emphasis is shifting to concentrate on high-quality instruction and fuller implementation of the PYP. The principal places a great deal of trust in the staff, allows for autonomy in the classroom, and has strong expectations for collaboration, all of which appear to be conducive to the PYP model.

> *Our [mission] now is about increasing the level of rigor in the classroom and really embracing the ideals of the IB, so that we're not just saying that we're IB, but that kids are being worldly. That the units that they're learning incorporate this global perspective and they're thinking larger than just what's on the paper in front of them.*
>
> *—Principal*

The climate of this school has improved since the PYP was introduced, though these improvements have been more pronounced under the current principal's leadership. After the current principal joined the school, the teachers began to feel supported and noted improvements in climate, discipline, and the use of reflective practices. The shift in leadership has contributed to a sense of trust and community at the school. Beyond the contributions of the current principal, participants attributed other changes or differences to the PYP. Participants noticed differences in instruction that they ascribed to the PYP, particularly related to the increased use of inquiry, focus on relevance to students, incorporation of student voice, and use of transdisciplinary instruction. Participants described improvements in student engagement, collaboration, and ownership over learning, as well as the ways students think and have discourse with one another. Teachers described their experience regarding collaboration to be vastly improved compared with their previous schools. They also noted that they can be more creative and feel more engaged with their jobs because of the PYP. Many factors contributed to these shifts and differences, including the focus on the IB learner profile, development of an identity as a PYP school, the framework that the PYP provides, professional development and planning time associated with the PYP, and the use of essential agreements. Having a strong coordinator, strong teachers, and leader and district buy-in were also crucial to the positive shifts in school climate observed. **School F provides insight into the shifts in school climate that can be facilitated by the PYP and a strong leader in just the first few years following authorization, even in a challenging setting.**

Teacher Experiences

Cultivating and maintaining a strong climate requires that school staff, particularly teachers, feel valued and ingrained in the school community (Collie et al., 2012; Grayson & Alvarez, 2008). Dimensions of school climate described within NSCC's **Staff** domain include *leadership* and *professional relationships*. The *leadership* dimension focuses on the ability of school or district administrators to create and share a clear vision that supports school staff. The *professional relationships* dimension focuses on generally positive relationships across school staff so that they can productively work together (NSCC, 2019). During site visits, the evaluation team gathered information on what the teacher experience is like at each case study school, as well as the ways that PYP is believed to impact that experience. Exploration into the teacher experience included how the teacher experience changed after the PYP was introduced and how the teacher experience differed from other schools because of the PYP. **Participants described numerous ways the teacher experience improved because of their schools' implementation of the PYP, with participants at the majority of schools reporting improved collaboration, relationships, creativity and sense of safety to take risks, engagement, reflection, and job satisfaction** (Table 11).

Table 11. Changes to and Differences in the Teacher Experience Attributed to the PYP

Introduction of the PYP Contributed to Increased/Improved Teacher…	School								Total
	A	B	C	D	E	F	G	H	
Collaboration	✓	✓	✓	✓	✓	✓	✓	✓	8
Staff Relationships		✓	✓	✓	✓	✓	✓	✓	7
Creativity and Sense of Safety to Take Risks	✓		✓	✓	✓	✓	✓	✓	7
Engagement		✓	✓		✓	✓	✓	✓	6
Reflection	✓	✓		✓	✓		✓	✓	6
Job Satisfaction	✓	✓		✓	✓		✓		5
Internalization of the IB Learner Profile			✓		✓			✓	3
Confidence			✓		✓	✓			3
Retention					✓				1

Collaboration

As outlined by the *professional relationships* dimension of school climate, a positive climate requires that staff can effectively work together. Related, the *leadership* dimension suggests that the vision of school and district administrators should emphasize the value of these positive relationships (Grayson & Alvarez, 2008; NSCC, 2019). Site visits at case study schools revealed that one of the PYP's most substantial potential impacts related to school climate centers around teacher collaboration. Participants at every case study school highlighted the quantity and quality of teacher collaboration as a major change or difference that they accorded to the PYP and described having leaders and school environments that value collaboration and sharing, which they viewed as a requisite for strong implementation of the PYP. Collaboration included allowing time for planning and reflection, sharing resources, providing and receiving feedback, brainstorming, and developing common materials. Collaborative activities often took place within grade-level teams, but they also brought together teachers across grade levels to allow for vertical alignment of curriculum.

> *The main difference that I see is the number of hours that the teachers spend collaborating on creating these units of inquiry. The time, the dedication, the patience, the energy, I see it's one of the biggest differences. Here, we're creating curriculum. At the other schools, the curriculum has already been created. The [amount] of planning time that is required is a huge difference from other schools.*
> —School C Principal

> *I think we really depend on each other because a lot of our curriculum we're creating ourselves, and so you can't do that as an island. You really have to collaborate, you really have to work together, and we share a lot of resources, and so we are always communicating.*
> —School A Teacher

> *This is a hard job. And to do it by yourself with no support and no … family feeling would be really awful. That was how my first job was actually. But it's different when you have support. It's a team.*
> —School E Teacher

Teachers reported feeling safe to ask questions of one another or solicit feedback when something they tried in the classroom was not successful. The frequent and deep collaboration contributed to improved staff relationships, as teachers had greater opportunities to get to know one another, and improved instruction for students. Teachers relied on one another to compile resources that all teachers had access to and emphasized that the collaborative culture at their schools created environments in which they wanted to share their ideas and materials rather than keep innovative ideas and strategies to themselves. Teachers stressed that despite collaborative planning and resource sharing, every teacher uses the materials and ideas differently. Because of the focus on inquiry and student voice, it is important for teachers to have access to a portfolio of materials and activities, which would

> *Everybody has their ideas, you're all bringing them together, and we always feel like, "Oh, yeah, I want to do that!" We're all stealing each other's ideas and sharing and coming up with [how to make the lesson] a really great experience. It's almost like having three teachers to teach your class.*
> —School H Teacher

be difficult to do in isolation. Participants noted that because of the work required to make inquiry-based, transdisciplinary units, without the extra PYP professional development and planning time, creating these types of lessons would not be feasible. The professional development and planning time provided to facilitate collaboration at the school sites was highlighted as a major benefit of being a PYP school.

Staff relationships

A positive school culture and climate requires that teachers feel positive about the school and supported in their relationships with school staff (NSCC, 2019). Thus, having positive relationships among staff is vital (Collie et al., 2012; Grayson & Alvarez, 2008; Halawah, 2005). Participants at the only school where this was not described reported that their staff has always been very tight-knit and they believed other schools in their area had similarly positive staff relationships. It is important to note that at all but one of the schools, many of the staff had been with the school for more than a decade. Thus, they have long histories with one another and have built solid relationships over time. It is worth noting, most staff who were not in agreement with the PYP model left during or shortly after their schools transitioned to become a PYP school. As those who were not aligned with the PYP model left, the remaining staff members often reported feeling closer, as they had similar philosophies about what teaching should look like, and they were excited about the program. When new staff are hired, participants at these schools reported looking for specific characteristics, to the extent possible, to find new staff that will embrace the PYP philosophy.

> *[When I came here as a parent,] I was blown away by how close everyone was, and I really wanted to [teach] at this school. … I think that there's a lot of close personal relationships. They've been here for so long and so many of the staff members' kids have grown up together, they've gone through the schools, they know each other. It's really a good community.*
>
> —School G Teacher

As participants discussed their relationships with other staff at the school, many used descriptors like "we love each other" and "we are a family." Although participants indicated that there may at times be disagreements among staff, these experiences have been few and far between. Participants noted that the positive relationships among staff at their schools seemed to be influenced by the PYP, as they have had to work closely and rely on each other to make the PYP successful. Collaborative activities include spending time with one another, attending professional development together, problem solving and brainstorming together, and developing curriculum together. Participants reported that for the most part, everyone gets along well, likes one another, and are supportive of one another. Participants at several schools highlighted the fact that staff eat lunch together in the staff lounge every day, something that they had not experienced at other schools. Even parents saw the strong relationships across staff. They described staff at

> *When I started, [the strong relationships were] already here. The IB just made it that much stronger. Especially becoming IB learners ourselves, as teachers. And having the IB profiles in our face all the time … you need to be caring, you need to be principled … that makes us really a community.*
>
> —School C Teacher

their school as being "a good team," noticing that teachers have lunch together and seem to genuinely enjoy one another.

Creativity and sense of safety to take risks

Teachers feeling as though they can be creative when developing and delivering instruction is one dimension of school climate that should be considered because it is helpful to ensure the teaching and learning that occurs is supportive of all learners (Dobbins, 2009; NSCC, 2019). As teachers exercise their creativity, it is important that they feel supported by administrators and peers to try new things and take risks. Within a positive school climate, this support should be conveyed in the leader vision and through supportive staff relationships (Collie et al., 2012; Grayson & Alvarez, 2008; Halawah, 2005; NSCC, 2019). Participants at all but one school noted that because of the PYP, their ability to be creative and take risks has increased or is heightened compared with other schools. In describing this increased ability to be creative, participants stressed that the PYP allows them to be more flexible, to create their own content, and to adapt instruction as needed. Many teachers noted that having the ability to design their own curriculum and introduce their own ideas resonated with what they believe teaching should look and feel like. Teachers were able to infuse their own style into their teaching and approach content in ways they think are most engaging and effective.

You have the flexibility to be creative with what you're doing, and that feels very good. It feels natural. That's what teachers really want to do, I think.
—School E Teacher

I think that [teachers are] allowed to teach. They're allowed to try something and mess up and then refine it and try again.
—School D Principal

Having PYP professional development offered through the IB, as well as ample planning time with colleagues, was described as being vital to allow space for creativity to emerge. In addition, teachers at these schools stressed that because of the PYP, they are less afraid to try new things because they know their principal, coordinator, and fellow teachers will support their efforts and help troubleshoot if a creative idea fails. For many teachers, this was a stark contrast from before the PYP or from other schools they taught at where they were expected to follow very specific curricula and were viewed as rule-breakers if they deviated from the curricula with any of their own creative ideas.

I think IB schools in general are very collaborative and open by nature and people aren't afraid to talk about things they've tried that failed. And just the way people talk about what they're trying is very safe. [This school] feels safe, too.
—School E Teacher

Reflection

Reflection on teaching and learning is a useful strategy to improve and refine instructional content and delivery, making reflection an important aspect of cultivating the *support for learning* dimension of a positive school climate (Fisher & Fraser 1991; NSCC, 2019; Noormohammadi, 2014). To engage in ongoing reflection, it is helpful to have administrative support that emphasizes the value of reflection and ensures time is allotted to engage in reflection. Similarly, supportive staff relationships are important when engaging in reflection as those who are reflecting must feel safe to share what has and has not worked well. Given this, reflection may also be related to the *leadership* and *professional relationships* dimensions of school climate (NSCC, 2019). Six of the eight case study schools reported an increased focus on reflection after the PYP was introduced or a greater emphasis on reflection at their current school compared with other schools. Principals, coordinators, and teachers described greater attention given to reflection because of the PYP, as the units are constantly evolving.

Reflection is a huge piece of everything, by the students and by the teachers. I'm always reflecting.
—School A Teacher

[Teachers are] asking the kids to reflect on the learner profile, but they also are supposed to reflect on their units. The teachers are supposed to be reflecting on how they're teaching, and then we reflect as a school on the IB in general. So, all aspects of education are being reflected on, which I don't think a school normally would have to do.
—School G Coordinator

At most schools, reflection occurred at a minimum after each unit, with an eye toward capturing key learnings about the success and challenges within the unit so that improvements could be made for future years. As each teacher may implement units slightly differently, sharing of what did and did not go well was viewed as extremely helpful to build off one another's successes. Reflection also occurs at the larger school level to think through the PYP implementation and how implementation can be improved to better serve students. As is the case with many aspects of the teacher experience, having dedicated planning time as a PYP school was an important contributor to ensure meaningful reflection occurred. In addition, the PYP coordinator often played a critical role in facilitating reflection and helping school staff make changes based on the content of the reflections.

Engagement

Teacher engagement is crucial in the development and delivery of strong instruction, as well as in ensuring teachers are satisfied with their jobs. Positive school climate manifests in the dimension of *support for learning* when teachers use varied supportive teaching practices, something that may be more likely when teachers are engaged with their work (NSCC, 2019; Skaalvik & Skaalvik, 2014). Participants at three-fourths of the case study schools indicated teacher engagement has increased because of the PYP or teacher engagement is greater at their school compared with others because of the PYP. Participants described increased teacher buy-in, interest in what they are teaching, enjoyment and excitement about teaching, and passion for teaching. Greater engagement among PYP

When you walk into a school, you can tell whether or not the teachers are excited about teaching. It's very obvious that the teachers [here] are passionate about what they're doing.
—School B Parent

teachers not only was described by the teachers themselves, but also was noted by principals, coordinators, and parents.

> *[The PYP] does make teaching exciting. I know it's exciting for [students,] but it's exciting for us, too, because you have this whole other way of thinking. You're really getting them ready for the world, and I didn't feel like that [at other schools].*
>
> —School H Teacher

Job satisfaction

Closely related to engagement, job satisfaction more generally was also described as a change or difference due to the PYP, which may contribute to school climate through the *school connectedness and engagement* dimension (Collie et al., 2012; NSCC, 2019). Participants at five case study schools reported improved or greater job satisfaction at their school. Conversations related to job satisfaction included sentiments of staff loving their jobs, feeling as though their jobs are meaningful and rewarding, being dedicated to the PYP philosophy, wanting to be at the school and planning to stay at the school, and feeling a general happiness about their experiences at the school. Although not connected to a singular aspect of the PYP, participants noted that they believe their satisfaction with their jobs is directly tied to their schools' being part of the PYP. They believe that the philosophy of the PYP is infused into their schools and has had an impact on many components, including having the freedom to be creative, support for planning, and positive staff relationships, which has created overall satisfaction with their jobs. Although much of the discussion related to job satisfaction centered on teachers, coordinators also voiced immense satisfaction with their jobs.

> *I think I have the best job in [the district] working at these two awesome [PYP] schools. My favorite part of the job is working with teachers because every time I meet with them, I learn something from them. Because we all have something to learn. I feel so blessed in that way. I'm so happy [to be part of] this staff and this community.*
>
> —School E and H Coordinator

Other shifts in the teacher experience

Participants at a minority of schools reported three additional changes to or differences in the teacher experience as a result of the PYP. These include teacher internalization of the IB learner profile, increased teacher confidence, and increased retention. As was observed with students, teachers at three schools reported that they began taking on attributes from the IB learner profile. These teachers emphasized that they constantly reinforce the IB learner profile attributes in their classrooms and they found themselves consistently reflecting on how they can model and enact these attributes in their interactions with students and colleagues. Those who reported taking on the attributes of the IB learner profile thought it was beneficial not only for themselves, but also for the school community. Teachers at two schools mentioned that because of the PYP, they have more confidence in their teaching. The increased confidence described by these teachers was mostly tied to the fact that they are creating their own curricula, allowing them to feel more ownership over the material. These teachers reported that when they deliver content they create, they feel self-assured and have a strong foundation in the material. Finally, teachers at one school reported that retention increased due to the PYP, highlighting that because of what they experienced at the school through the PYP, they wanted to stay at the school as long as possible, ideally until retirement. Although this was not raised at the other schools, many of

them have teaching staffs with long tenures at the school, which they believed would have been the case with or without the PYP.

> *I think we're a bit more confident. Again, it goes back to, we wrote these planners and we know what we're doing. We match these plans up with our standards. We've done this. We've lived this. So then when somebody comes in your room and you're teaching these things, the confidence level is there. The feeling of, I don't need to be nervous about this because it's not somebody handing me something that I have to read and teach.*
>
> —School E Teacher

Parent Experiences

Parents are another important stakeholder in the school community. The *school connectedness and engagement* dimension of school climate suggests that within a positive school climate parents should feel welcome on the school campus, interested in participating at the school, and trusting of school leaders and teachers (NSCC, 2019). To better understand the parent experience at the case study schools, as well as the ways in which the PYP might influence their experiences, WestEd conducted focus groups or interviews with parents at each site, in addition to the interviews with school staff. Conversation with parents revealed very positive perceptions of their children's schools, as well as positive perceptions of the PYP. Parents described their schools as having strong leaders and teachers, being welcoming of parents and families, encouraging parent involvement, being supportive of their children's development now and for the future, and having environments where students generally get along. Only some of these perceptions were described as a result of the PYP, and when they were described as such, it was only for a subset of schools. Table 12 provides an overview of differences in the parent experience between their schools and other schools that participants attributed, at least in part, to the PYP. **The differences highlighted by participants at the majority of schools include increased parent involvement, belief that their children are being set up for success, positive perceptions of the school, and belief that their children are thriving after moving to the PYP school.**

Table 12. Changes to and Differences in the Parent Experience Attributed to the PYP

Introduction of the PYP Contributed to Increased/Improved…	School								Total
	A	B	C	D	E	F	G	H	
Parent Involvement	✓		✓	✓	✓	✓	✓	✓	7
Parent Belief that Children are Set up for Success	✓	✓	✓	✓	✓			✓	6
Positive Parent Perceptions of Their School		✓		✓	✓			✓	4
Parent belief that children are thriving after moving to a PYP school	✓	✓		✓			✓		4

Case Study Vignette 7: School G

School G is a large school in a large suburb that serves a primarily Hispanic/Latino and White student body. Fewer than half of students are eligible for free or reduced-price meals, and a small portion are designated as English learners. The school was authorized as a PYP school more than 10 years ago under a federal magnet grant that supported the development of an IB continuum in the district. Both before and after the PYP was introduced, the school had a strong reputation in the community. Parent involvement is relatively high, and proficiency rates on standardized tests are similar to those of other schools in the area. Because of the school's strong reputation, its district allows a good amount of autonomy. The principal that led the authorization process is no longer with the school; however, the school has had only two principals in the last 10 years, and the current principal had previous experience with the IB. Although the PYP was in full swing when the current principal and coordinator came on board several years ago, both felt the programming had become "stale," and recent work has focused on reinvigorating the teaching staff and ensuring the PYP is implemented with fidelity. According to participants, these recent efforts have been successful, with teachers becoming more knowledgeable about the IB and what being a PYP school entails.

> *Since I've been here, one of the requests was that I bring the IB back … it felt like it was not a living document, [the staff] weren't leading, living, and breathing it.*
> *—Principal*

> *I think the goal would be that everything we do needs to have that lens of the IB. Whether it's learner profile, whether its through the transdisciplinary themes, whether it's through the key concepts. Whatever it is, that we never miss that opportunity.*
> *—Principal*

Enthusiasm about the PYP model and its potential influence on school climate was evident during the site visit, though this school was somewhat reserved in terms of access to teachers and time in classrooms. From an outsider's perspective, there was some uneasiness about the visit, and some participants seemed guarded in what they felt comfortable sharing. Despite this, all participants described a very positive climate at the school, and the school walk-through suggested a positive environment with well-kept and welcoming spaces. When asked to describe the vision for school climate at their school, the principal emphasized that school climate should be based on and infused with all elements of the PYP. It was clear this principal had a thorough understanding of the model and what it should look like in practice. The principal also emphasized the importance of ongoing assessment to drive instruction and decision making. In addition, participants in varied roles highlighted an important feature of the school – the ample use of field trips and extracurriculars to supplement instruction. These are funded through parent fundraising, and participants described the activities as going hand in hand with the PYP approach, providing students with opportunities to see the world and experience new things.

Across all case study schools, participants from School G reported the lowest number of changes/differences attributed to the PYP, with many indicators of positive climate in place before the PYP. Participants emphasized that many positive aspects of school climate were in place both before and after the PYP was introduced. However, participants did note differences between this and other schools that they attributed, at least in part, to the PYP. The most commonly described differences between this school and other schools included the use of inquiry to drive instruction, the use of transdisciplinary instruction, a focus on making instruction relevant to students, parent involvement, the infusion of social-emotional learning and the IB learner profile, a sense of community, a focus on student action, and collaboration amongst teachers. Contributors to these differences described by participants include the PYP's focus on individualization, the learner profile, the creation of essential agreements, and the professional development and planning supports associated with the PYP. **School G provides a helpful example of how the PYP can enhance an already thriving school.**

Parent involvement

In a school with a positive climate, parents should feel engaged and invested in becoming an active member of the school community (Baker et al., 2003; Bosworth et al., 2011; Loukas et al., 2006; NSCC, 2019; Noddings, 2012; Welsh, 2000). Although parents at every case study school reported that parent involvement could be better, at all but one school they indicated parent involvement is better than what they have seen at other schools or has changed since the introduction of the PYP. In discussing parent involvement at these schools, parents emphasized that they feel welcome, enjoy volunteering, have volunteered or plan to continue volunteering after their children move on, and see a high level of parent involvement generally. Parent involvement was rarely described as something that changed after the PYP introduction and more typically was framed as being more prevalent compared with non-PYP schools. However, participants noted numerous reasons they believed parent involvement was more common at their schools compared with others, which included norms in their community and histories of strong parent involvement, including through the development of parent organizations and foundations. When participants described increases in parent involvement occurring due to the PYP, they noted that the PYP was one of several factors that might have influenced these improvements. Factors such as changes in leadership and shifts in neighborhood demographics that they linked to gentrification also played a role.

> *A lot of people come to the events. We do have a good turnout at [Parent Teacher Organization] meetings compared to other schools, so that's a good sign of parent involvement. And even this school versus some other schools, they just drop their kids off, and there's no parents to be seen, where here, you have a lot of parents coming in.*
>
> —School G Parent

Principals, teachers, and coordinators described different strategies they use to help foster high levels of parent engagement, including having ample ways to volunteer and contribute, hosting information nights specific to the IB and the PYP, and using ideas learned through IB professional development to collaborate more effectively with parents. For example, teachers from one grade level of one school learned through PYP professional development about doing brief one-on-one parent-teacher conferences at the beginning of the year instead of a traditional back-to-school night. They tried this strategy for the first time in fall 2019 with great success, as it allowed them to personally get to know each parent and learn more about what would help that parent's child succeed. The only school that did not describe a change in parent involvement or higher parent involvement than other schools has a long history of limited parent participation, attributed in part to the working-class demographics of their population, and indicated that other schools in the area with more affluent demographics have higher parent involvement.

> *The reality is, because of the socioeconomics of our area, there are a lot of people that not only work, but work two jobs. There are certainly families who are loving and supportive, but just can't put the hours in at school. We just try to find something for everybody if we can.*
>
> —School B Coordinator

Parent belief that children are set up for success

A high-quality education should prepare students for future endeavors, educational and otherwise. Parents at six of the case study schools believed that through the PYP education, their children will be prepared to thrive as they move to middle school, high school, and the real world. In addition, teachers at several of these schools reported receiving feedback from their feeder middle schools noting that students that come from their PYP schools appear to be different from students coming from other schools in regard to their ability to engage in public speaking, ways of interacting with peers and collaborating, attitude toward school, and academic readiness. Parents and teachers believed that the PYP's focus on public speaking, collaboration, respect for others, communication, creativity, leadership, ownership, problem solving, community action, and inquiry all help foster the skills students need in order to be successful throughout life. Thus, the IB learner profile was viewed as a major contributor to setting students up for future success.

> *A teacher from middle school told me that the children from [this school] behave differently [compared with] children from other schools. I'm really sure that it's because of the IB program.*
> —School C Parent

> *[The PYP] is not just teaching the academics, it's teaching the practical life skills and teaching people how to be citizens of the world. [The school is] not just focused on your reading, writing, and arithmetic. It's really how you're going to grow up to be successful people because, let's be honest, the world and the economy is changing so fast that we can't predict what our kids need to know, but they need to be good human beings.*
> —School E Parent

Positive parent perceptions of their school

Parents having a positive sense of the school and believing the school is a good place to send children is vital in creating a strong school climate. These positive perceptions contribute to the *school connectedness and engagement* dimension of school climate, as this dimension requires stakeholders to positively identify with their schools (NSCC, 2019). Parents at every case study site praised their school, reporting that both their and their children's experiences have been positive and that they enjoy what the PYP brings to their schools. Participants voiced comments like "I would never pull [my children] out of this program," "I can't understand why anyone wouldn't choose an IB school," and "I wish more public schools had [the PYP] – I think it would benefit the world in general … it's good all around."

Although parents at all schools voiced positive perceptions of the school, at four schools, participants described these positive perceptions as a change due to the PYP or different from other schools because of the PYP. Discussion from parents at these schools focused on the shift in their schools' reputation after the PYP was introduced and viewing their current school more positively than those their children attended in the past. It is important to note that although parents attributed the

> *For whatever reason, the school has had varied reputations over the years. I think having the IB has been a big thing that's helped draw parents in, and we are seeing people who maybe previously would've chosen private school, or charters, or other schools are now putting [this school] at the top of their list. And I think the IB has a lot to do with it.*
> —School E Parent

improved or more positive reputation of these schools to the PYP, participants noted that other factors, such as a strong leader, strong teachers, and parent involvement, contributed to the development of these positive reputations.

> *[This school] captivates a kid instead of rote learning, which is the style that [our old school] used … here they teach you to think, and that is a stark difference to most any school. [My child] just sucked it up and loved it. From the beginning, it was a huge difference.*
>
> —School D Parent

Parent belief that children are thriving

Parent perceptions that their children are supported and able to thrive, both academically and socially, at their school is an important indicator of a positive school climate (Baker et al., 2003; Bosworth et al., 2011; Loukas et al., 2006; Noddings, 2012; Welsh, 2000). Parents at four schools recounted that since coming to their current school they have seen substantial growth in their children, which they believe was facilitated through the school's use of the PYP. At their previous schools, parents described a host of challenges, including academic and learning delays, the school's inability to accommodate learning differences, lack of engagement in school, and behavioral issues. These parents noticed a stark contrast in their children's experiences after enrolling in their current (PYP) school. They believed the school culture was more supportive and inclusive of all students, including those with learning or behavioral differences, created positive norms around behavioral expectations, carried out appropriate and reflective disciplinary strategies, and allowed students to thrive in different ways. In addition, these parents believed that their children's teachers provided high-quality and differentiated instruction to meet the needs of different types of learners. Multiple factors contributed to these perceptions of student success after moving to a PYP school (e.g., principal, teachers), but the PYP was characterized as a model that helps promote the successes they have seen with their children.

> *My [child] started [at the PYP school] in 4th grade. In 6th grade she wrote me a thank you letter saying, "Thank you for moving me over here. This is much better [than my previous school]". I feel like the teachers care, and the teachers really are trying to create people that are going to go out in the world and do something amazing, versus just getting through the standardized testing and let's move on.*
>
> – School D Parent

> *And when we switched [to the PYP school], it was like a light switch. It was amazing. He was so excited to go to school, and that's followed all the way through every grade with both kids.*
>
> – School B Parent

Case Study Vignette 8: School H

School H is a medium-sized school in a large city that serves a primarily White and Hispanic/Latino student body. Approximately one-quarter of students are eligible for free or reduced-price meals, and less than 10% are classified as English learners. Although the school is not particularly diverse in terms of race/ethnicity, it is unique in that it serves a large number of military families, so it has a transient student population with distinct needs. The school is part of a large district and is one of the highest-achieving schools in the district, with roughly three-quarters of students demonstrating proficiency in math and English Lanuage Arts (ELA) on standardized tests. The school has long had a positive reputation in the community, both before and after the PYP was introduced. Parent involvement has historically been high, particularly in extensive fundraising efforts to support programming. Becoming a PYP school came about after the middle and high school in the feeder pattern voiced interest in becoming IB schools and invited several feeder elementary schools to join to complete the continuum. Since its authorization 10 years ago, the school has moved through several principals, but has not experienced significant challenges as a result of these transitions.

It's called collective responsiveness to kids' needs. So every student is ours, and we do whatever it takes every single day to make sure those kids succeed. That is really my vision for the school.
—Principal

The current principal has been at the school for several years and brought expertise in the IB, making the transition a relatively easy one. The principal has strong beliefs about setting high expectations for all students and views education as a collective responsibility, in which every student is "our" student. From the principal's perspective, the school is tasked with making sure students feel safe, feel loved, and learn. Personalized learning, formative assessment, international mindedness, and restorative practices are all strategies highlighted by the principal as being vital to a positive educational experience. The PYP coordinator is new to the school, but brings experience as a PYP coordinator at other schools. As a new person on campus, the coordinator described the school climate as "mellow, relaxed, calm, and open arms." Site visitors observed that the school climate closely aligned with the principal's and coordinator's descriptions. The school was well kept and inviting, staff were engaged and happy, and students couldn't stop themselves from running to hug and high-five the principal during the school tour. Individualized instruction was observed in nearly every classroom, as were examples of inquiry and transdisciplinary instruction.

Because this school had a positive climate prior to the PYP, fewer differences and changes were attributed to the PYP compared with other sites. Most discussion focused on differences between this and other schools because of the PYP rather than changes after the PYP was introduced. Participants noted that disciplinary issues are both less common and less severe at this school compared with others, and they believed the PYP contributed to that through the use of essential agreements and the IB learner profile attributes. Participants also highlighted differences in instruction, including the school using more individualization and transdisciplinary instruction compared with other schools, as well as a having a greater focus on global perspectives. Parent involvement was described as more robust at this school compared with others, but this was attributed to a host of factors, the PYP being just one of them. The PYP was identified as a factor that could influence the school's trusting atmosphere, inclusivity, and focus on the whole child, all positive school climate attributes that participants believe are more present in this school than in others. Participants also indicated that student experiences are different from other schools because students at this school are more engaged in action, celebrate their diverse accomplishments, and have a greater sense of agency. In addition, teacher experiences such as collaboration, creativity, engagement, and sense of safety to take risk are improved, perhaps partially due to the PYP. Contributors to these differences flagged by participants include the PYP's focus on individualization and the IB learner profile, the framework the PYP provides, and professional development – both PYP and non-PYP – and planning time. **This school showcases how the PYP can supplement an already-flourishing school to help bolster school climate.**

The PYP Exhibition

The PYP exhibition offers fifth grade students a culminating experience as their elementary school tenure comes to an end. Although the structure of the exhibition differs from school to school and from year to year, these are generally collaborative projects focusing on real-world issues of interest to the students carried out over the course of the year (IB, 2014a). Students utilize skills acquired over the course of their elementary education to research, share about, and act on an issue of their choosing. According to participants, the topics that students select vary extensively, from homelessness to recycling to gun control to mental health. Case study participants stressed that the exhibition is a unique feature of the PYP that allows students to demonstrate all that they have learned during their time as a student.

When asked about different aspects of the student, teacher, and parent experience, as well as school atmosphere, the exhibition was often raised as an example to illustrate how school climate is shaped by the PYP. The consistent use of the exhibition as an example of various dimensions of school climate suggests that the exhibition reinforces practices and values highlighted by the PYP more broadly. As participants discussed the value of the exhibition, much of the discussion reflected a close overlap with various dimensions of school climate described previously. Although the content of the discussions was not particularly different from discussions related to the PYP as a whole, it is clear that the exhibition is an important mechanism for targeting multiple dimensions of school climate through one comprehensive activity (Table 13).

> *The role of [the exhibition] is really a culmination for each student to celebrate who they've become and their learning throughout their years in the PYP.*
> —School B Coordinator

Table 13. Perceptions of the PYP Exhibition's Role in Cultivating Dimensions of School Climate

The PYP Exhibition Provided Opportunities to…	School								Total
	A	B	C	D	E	F	G	H	
Encourage Action and / or Community Service	✓	✓	✓	✓	✓	✓	✓	✓	8
Engage Parents	✓	✓	✓	✓	✓	✓	✓	✓	8
Engage the Larger Community	✓	✓	✓	✓	✓		✓	✓	7
Encourage Student Voice and Choice	✓		✓	✓	✓		✓	✓	6
Encourage Reflection	✓	✓	✓	✓		✓			5
Engage K–4 Students		✓	✓	✓			✓		4
Encourage Students to Expand Their Horizons	✓		✓	✓			✓		4
Encourage Students to Engage in Teamwork	✓		✓		✓				3
Foster Increased Student Confidence		✓					✓		2

Principals, PYP coordinators, teachers, and parents were universally aware of the exhibition and described it as a unique activity that occurred at their schools because of the PYP. Although all stakeholders were aware of the exhibition, teachers and parents reported varied familiarity with the nuances of the exhibition project. Parents with younger children were typically aware of the broad premise of the exhibition and knew that it occurs in the fifth grade, but were often unable to speak to specific details of the exhibition or its possible impact on members of the school community. Parents of older children, particularly those whose children were currently completing the exhibition or had completed the exhibition in the past, were very knowledgeable about the exhibition, including how their children engaged with and benefited from the exhibition and how parents and other members of the school community were included in the exhibition process. Similarly, fourth grade and fifth grade teachers tended to be the most knowledgeable about exhibition, though teachers across all grade levels appeared to have a solid grasp of what the exhibition entails and how it is framed at their school. The sections below highlight the benefits of the exhibition described by participants. As noted above, in many conversations the exhibition was provided as an example to highlight one way the PYP can influence school climate. Thus, some of these descriptions are closely aligned with previous discussion of student, teacher, and parent experiences.

Encourage action and / or community service

Participants at every school stressed that the exhibition was an important way to encourage student action and get them involved in their community. Through exhibition projects, students educate themselves about important problems, such as homelessness, mental health, foster care, pollution, and recycling, and then take action to help address the problem. Action can take different forms, but participants described projects that included developing awareness campaigns, raising money, hosting donation drives, engaging in advocacy, and / or volunteering. A focus on action is cultivated throughout the PYP experience, and during this culminating project, students have the opportunity to make meaningful change in their schools and communities.

> *When they're in fifth grade, they do exhibition. That's where a small group of kids research a topic that is of interest to them and also is something that will help the community or the world in some way. And then they, as part of that project, they take action in some way, whether it's direct action or advocacy.*
>
> —School B Principal

Engage parents, the larger community, and other students

Discussion emphasized that the exhibition involves multiple stakeholders in the school community beyond just teachers and participating students. It is viewed as a platform that engages parents, community members, and students in lower grades. Engagement of parents and community members through the exhibition was described at all but one school. Engagement of these stakeholders was primarily accomplished through inviting them to presentations and other culminating activities at the end of the exhibition experience. Occasionally, parents reported serving as mentors to the student groups, though in most cases the mentor role was fulfilled by teachers. At four schools, participants described the exhibition as a tool to engage students in grades K–4. Students in lower grades were typically involved by serving as practice audiences before the parent and community presentations and through being invited to the larger community events.

> *For their exhibition project, they present to our parents, our district comes, community members come. We have our mayor and some city council people coming, board members. It's a huge production, and they know that.*
>
> —School A Coordinator

Encourage student voice and choice

Participants at six schools highlighted that the exhibition is one of many opportunities where students can exercise voice and choice through the selection of their exhibition topic. The way in which this occurs varied across schools, with some allowing students total control over topics and others asking students to rank topics or pick from a set of options. At some schools, students were able to choose their groups for the project, though this was less common. According to participants, having students select their own topics resulted in high levels of engagement over the course

> *Exhibition is their big, culminating event. … It really incorporates everything they've learned during the five or six years that they've been here. They work in groups on their projects, they get to choose their own group, they get to choose the issue or problem they want to learn about and present. So it's really motivating because they get to choose what they want to learn about and present on.*
>
> —School A Coordinator

of the exhibition. Teachers highlighted the high level of buy-in and passion exhibited during the project, which they believed occurred because students were able to pick personally meaningful topics. One teacher highlighted this sentiment: "[Students] are invested. There's really no issue with buy-in because it's what they are passionate about."

Encourage reflection

At five schools, participants shared that the exhibition is an important opportunity for students to reflect on what they have learned through the PYP, something that does not systematically occur at other schools. Examining what comes out of the exhibition projects also enables school staff to reflect and determine whether their students have acquired the skills they need to be successful moving forward.

> *The role of [the exhibition] is really a culmination for each student to celebrate who they've become and their learning throughout their years in the PYP.*
> —School B Coordinator

Encourage students to expand their horizons

According to participants at half of the case study schools, students are encouraged to broaden their horizons and consider new perspectives through the exhibition process. Because the exhibition focuses on identifying, understanding, and taking action to address a problem they view as important, students are pushed to see issues through different perspectives in order to identify innovative solutions. In addition, participants at one school shared that the exhibition purposefully includes investigations into other cultures in order to encourage students to foster a global perspective.

> *[The exhibition] gives [students] an opportunity to step a little bit away from math and their regular academics and actually see what really is happening globally, socially. I really do think it helps them to be a lot more appreciative and aware and caring of what is happening globally or just within their communities.*
> —School C Principal

Other effects of the exhibition

Participants at a minority of schools shared that the exhibition was an important opportunity to encourage teamwork and to demonstrate student confidence. Because students typically worked in teams, they had to practice working together toward a shared goal. Although parents and teachers noted that this sometimes created challenges and tested friendships, it was largely viewed as an important learning experience by these stakeholders.

Participants at two schools also reported that the exhibition reinforced student confidence. Both mentions of student confidence highlighted that by the fifth grade, students have practiced the skills needed for the exhibition and feel comfortable completing the necessary tasks (e.g., public speaking).

> *[Students are] grouped according to interest, they don't choose their group. So, they get to practice working with people they may not know.*
> —School E Coordinator

Changes in School Climate Within California Schools Following PYP Authorization: A Statewide Quantitative Examination

The quantitative component of the study addressed the research question that dealt with whether the school climate outcomes as assessed by the CHKS improved at PYP schools post-authorization using growth curve modeling. This section begins with an overview of the quantitative findings and a summary of the statistical significance of the findings. Next, it describes the magnitude of the post-authorization changes using effect sizes and a plot of the trajectory of one of the school climate outcomes pre- and post-authorization. And finally, this section includes a summary of the findings from exploratory analyses that WestEd used to determine whether the pattern of findings was consistent across different analytic approaches.

Overall, the findings from the quantitative analyses revealed improvements on a range of school climate outcomes at the PYP schools that could be linked to the schools' participation in PYP. These positive findings highlight school climate as one area that could be impacted by a school's involvement with the PYP. As shown in Table 14, eight of the nine school climate outcomes improved post-authorization (see Table F–1 in Appendix F for the detailed findings). For example, the results indicated that students in the PYP schools reported higher levels of Caring Relationships and lower levels of Bullying (both of which are findings that offer evidence of improvement) after their schools were authorized. Although eight school climate outcomes showed post-authorization trends indicating improvements linked to participation in the PYP, not all of the improvements were statistically significant (see the box to the right for an explanation of statistical significance). The findings were statistically significant for Perceived Safety, Caring Relationships, Fairness, Parent Involvement, Bullying, and Victimization and were not statistically significant for School Connectedness and Meaningful Participation in school. The Schoolwork outcome showed no measurable change post-authorization and was also not statistically significant.

In the context of this study, a finding that is **statistically significant** means that the observed improvement in the school climate outcome is not likely to have occurred by chance alone. WestEd used a critical probability value of $p < .05$, meaning all the statistically significant findings had less than a 5% chance of occurring by chance alone.

Table 14. Summary of Results From Analyses that Examined Changes in PYP Schools' Climate Outcomes Post-Authorization

School Climate Outcome	Improved Post-Authorization	Statistically Significant Improvement
Perceived Safety	✓	✓
Caring Relationships	✓	✓
Fairness	✓	✓
Parent Involvement	✓	✓
Bullying	✓	✓
Victimization	✓	✓
School Connectedness	✓	
Meaningful Participation	✓	
Schoolwork		

Note: All school climate outcomes marked with a "✓" in the third column were statistically significant at $p < .05$.

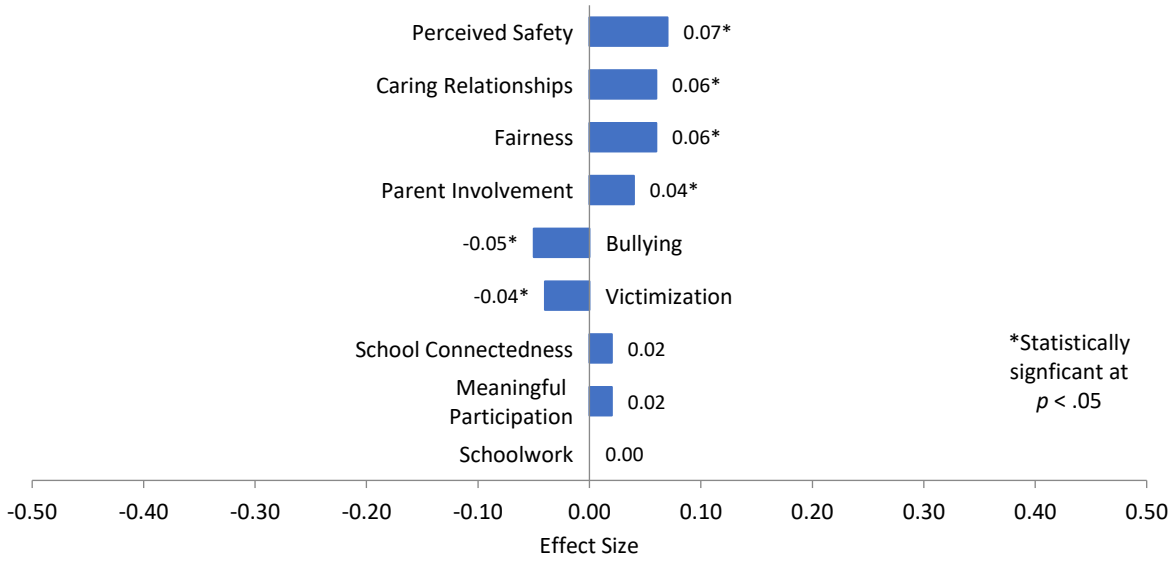
Although six of the school climate outcomes showed statistically significant improvements post-authorization, it is important to consider the size of the changes post-authorization to help determine whether the improvements are substantively or practically important (Hill et al., 2008). To examine the magnitude of the changes, WestEd graphed the effect sizes indexing the size of the improvements for the nine school climate outcomes in Figure 2. An explanation of how to interpret effect sizes and how WestEd calculated the effect sizes in the current study is provided at right.

Effect sizes are used frequently in education research as a standardized way to measure the impact of programs. The effect sizes calculated for the current study based on the post-authorization changes in the school climate outcomes allowed the current findings to be compared with prior research. Although no specific rules exist for judging effect sizes, researchers frequently consider effect sizes between -0.20 and 0.20 as "small." WestEd calculated the 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*.

The effect sizes shown in Figure 2 indicate that the improvements for all outcomes, even the outcomes that showed statistically significant changes, were small. All of the effect sizes ranged from -0.05 and 0.07. The first four school climate outcomes listed in Figure 2 had positive effect sizes,

indicating the students reported more positive responses during the post-authorization period. In contrast, the Bullying and Victimization effect sizes were negative, which indicates lower rates of these two behaviors in the post-authorization period, thus suggesting improvement. Although the changes for six of the outcomes were reliable (i.e., statistically significant), the data does not support the claim that the PYP program had a dramatic impact on the school climate at the participating schools. However, it is too early to conclude that the potential impacts on the school climate outcomes lack substantive or practical importance (Hill et al., 2008). First, the quantitative results were consistent with a host of positive findings from the qualitative data. Second, the quantitative analyses were not particularly sensitive to identifying changes post-authorization because the CHKS data were not consistently collected in the years immediately before and after the authorization dates. As a result, a different research design could identify larger effect sizes indexing the impact of PYP on school climate.

Figure 2. Summary of the Magnitude of Improvements on the School Climate Outcomes Post-Authorization

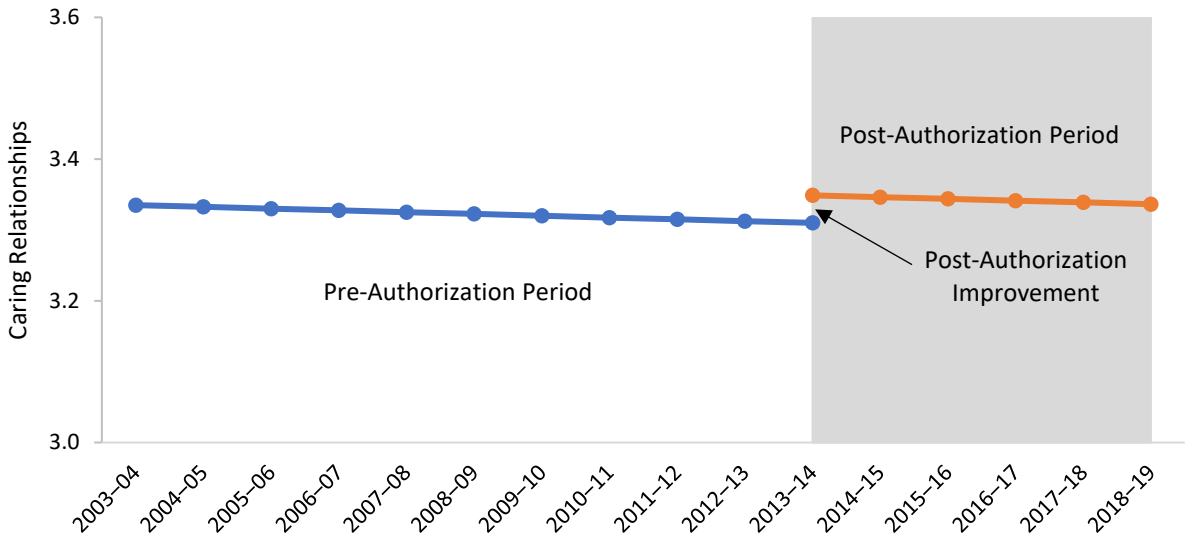


Note: The negative effect sizes for Bullying and Victimization represent evidence for improvements in these two outcomes (i.e., declines in Bullying and Victimization).

Another way to visualize the relatively small magnitude of the changes post-authorization is to plot the trajectory of one of the school climate outcomes based on the results of the growth curve model. The trajectory for Caring Relationships, which had one of the three largest effect sizes, is shown in Figure 3. The original 4-point scale of the items (i.e., 1 = *No, never*; 2 = *Yes, some of the time*; 3 = *Yes, most of the time*; 4 = *Yes, all of the time*) is used for the scaling of the vertical axis, and the school year is used for the horizontal axis. The growth curve model showed that, across the PYP and non-PYP schools, the average Caring Relationship score declined steadily across time (i.e., a linear model). The downward trend is consistent with the historical trends in the statewide data. The blue line shows the estimated trend on Caring Relationships in the pre-authorization period for schools authorized in 2013 (i.e., their

first school year post-authorization was 2013–14).[8] The orange line shows the estimated trend on Caring Relationships in the post-authorization period. The growth curve model produced an estimated change post-authorization of 0.039, indicating students reported more positively on the relationships they had with teachers and other grown-ups at their school. The vertical gap between the end of the blue line and the beginning of the orange line depicts the small post-authorization improvement. Graphs based on the other school climate outcomes, which had smaller effect sizes, would show even smaller post-authorization improvements.

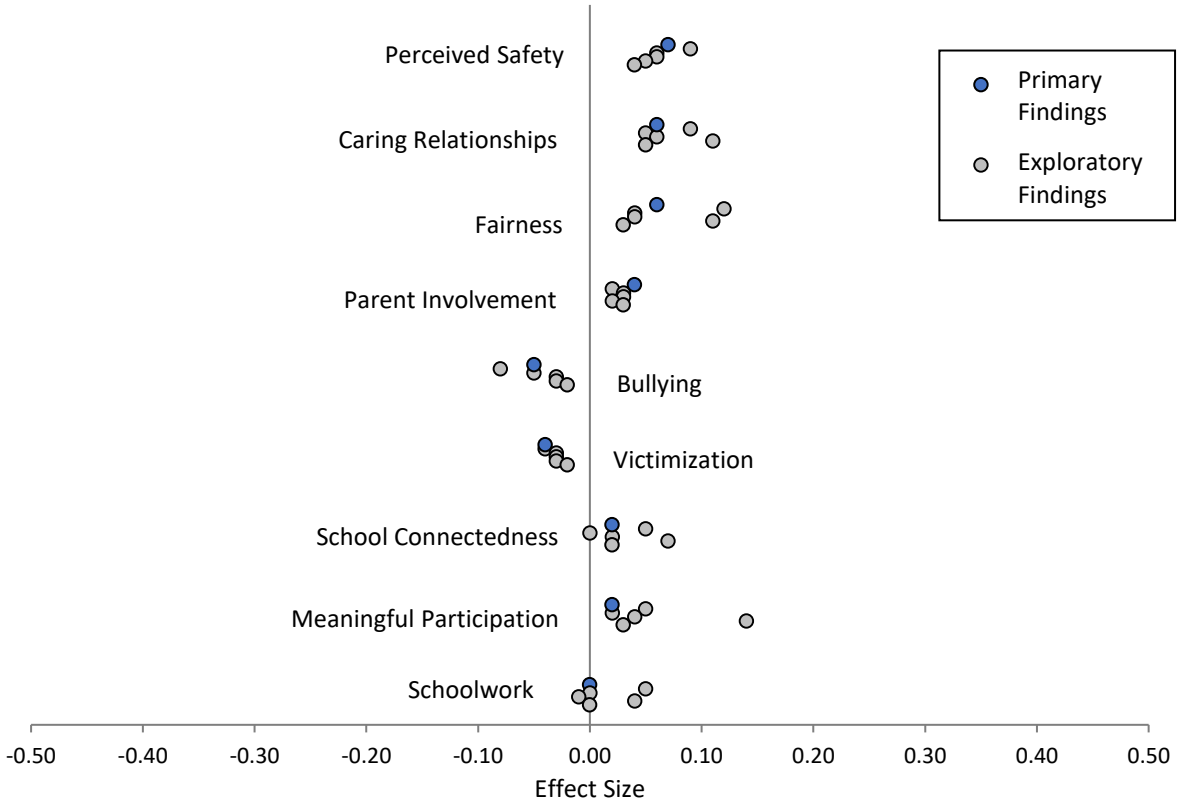
Figure 3. Trends Pre- and Post-Authorization on Caring Relationships Based on the Growth Curve Model for Schools Authorized in 2013



Overall, the findings from the exploratory analyses (i.e., sensitivity analyses) increased WestEd's confidence in the findings presented in Figure 2 because the exploratory findings showed that the post-PYP changes in the school climate outcomes were consistent across different analytic approaches. Figure 4 presents the effect sizes from the primary analyses, the two exploratory analyses that examined post-authorization changes, and the three exploratory analyses that examined post-candidacy changes. The blue dot for each school climate outcome represents the finding from the primary analysis, and the grey dots represent the findings from the exploratory analyses. For six of the nine outcomes, the effect sizes from the primary analyses were neither the largest nor the smallest effect sizes. The effect size for Meaningful Participation from the primary analysis was the smallest of the effect sizes for this outcome, suggesting it may have been a conservative estimate of the change for this outcome.

[8] To create a clear graph, WestEd needed to select a specific authorization year. The plotted trajectory for a school authorized after 2013 would include a longer line for the pre-authorization period and a shorter line for the post-authorization period, but the size of the post-authorization improvement would be the same.

Figure 4. Summary of Effect Sizes From the Primary and Exploratory Analyses for the School Climate Outcomes



Note: The negative effect sizes for Bullying and Victimization represent improvements in these two outcomes (i.e., declines in Bullying and Victimization). A small amount of variability was added to the placement of the exploratory findings on the vertical axis to allow all of the data points to be visible.

As shown in Table F–2, in Appendix F, the findings from the two exploratory analyses that examined changes post-authorization showed improvements for all nine school climate outcomes. Compared with the findings presented in Figure 2, the effect sizes from the analyses with only the PYP schools tended to be slightly larger, and the effect sizes from the analyses using aggregate school-level data tended to be slightly smaller. Five of the post-authorization changes on the school climate outcomes were statistically significant for the analyses with only the PYP schools. In addition, the post-authorization change for one of the school climate outcomes was statistically significant for the analyses using aggregate school-level data, and the changes for three other outcomes were approaching statistical significance.[9]

Overall, the pattern of findings from the analyses that examined post-candidacy changes (see Table F–2, in Appendix F) were consistent with the analyses that examined post-authorization changes. With the exception of the Schoolwork outcome, the findings across the three analytic approaches showed

[9] Although highly controversial, *p* values between .05 and .10 are frequently referred to as approaching statistical significance or marginally significant and can be seen as a promising trend in the data (Pritschet et al., 2016).

improvements post-candidacy. The analyses that used the student-level data with the PYP and non-PYP comparison schools resulted in five statistically significant changes, and the analyses without the non-PYP comparison schools resulted in four statistically significant changes. Although none of the post-candidacy changes were statistically significant for the analyses based on aggregate school-level data, it should be noted that there were limitations associated with the coding of the post-candidacy year (see Appendix E), which could have weakened the observed post-candidacy changes.

Discussion

To explore the extent to which the PYP might influence school climate, as well as the mechanisms in place through the PYP that could support improvements in school climate, WestEd carried out a study focused on public elementary schools in California. The current study collected original qualitative data from a subset of schools identified as being strong implementers of the PYP and capitalized on existing quantitative school climate student survey data for PYP and non-PYP schools. Among schools with strong PYP implementation where case study data collection occurred, the PYP appears to be associated with numerous improvements in school climate or superior school climate compared with non-PYP schools. Qualitative case study data suggest that aspects of the PYP, such as the IB learner profile, professional development, the use of essential agreements, and the exhibition all contribute to the improvements in school climate described at these schools. Survey findings from this study suggest that PYP authorization was linked to significant improvements on several aspects of school climate.

Major Qualitative Findings

Interviewees and focus group participants linked PYP to numerous improvements in school climate or differences in school climate compared with non-PYP schools by case study participants. Participants at every case study school reported an increased focus on SEL and the whole child and the use of transdisciplinary instruction and teacher collaboration that they attributed to the PYP. Participants from the majority of schools reported improved instruction through an increased use of inquiry, student voice, global perspectives, open-mindedness, or individualization. The most common improvements related to the student experience attributed to the PYP include an increased celebration of diverse student accomplishments, student learning for life, action and community service, agency and ownership over learning, and student engagement, all of which were described by participants from at least three-fourths of case study schools. Several common themes related to teacher experiences emerged, including improved teacher relationships and increased teacher creativity and sense of safety to take risks, teacher engagement, and teacher reflection, all of which were attributed to the PYP by participants from the majority of schools. Finally, participants from at least three-fourths of schools reported improved parent experiences due to the PYP regarding parent involvement or parent belief that their children are set up for success. The proportion of case study schools that reportedly experienced these improvements suggest they may be common impacts associated with strong PYP implementation and benefits of the PYP.

In addition to the impacts that participants at a vast majority of schools attributed to the PYP, many other ways in which aspects of school climate were improved due to the PYP were raised by a subset of participants at some schools. Although less common, their presence suggests there are numerous ways the PYP may benefit schools depending on their specific contexts and needs. In explaining the ways the

PYP has apparently influenced their school climate, participants described several mechanisms that seemed to support the improvements, including the use of the IB learner profile and essential agreements, access to PYP professional development, supports, and the PYP coordinator, the framework and identity offered by the PYP, and the PYP's focus on public speaking and individualization. Moreover, the exhibition appears to be an opportunity to cultivate and reinforce many aspects of the student experience related to school climate such as collaboration and student voice.

It is important to note that there were no instances in which the PYP was described as having a negative influence on school climate, although participants at some schools noted their perceptions that the PYP did not influence various aspects of school climate and instead stressed that those areas had always been strong, had improved because of other factors, such as new leadership, or were similar to what goes on at non-PYP schools. The only negative comments that were raised about the PYP centered on its being a great deal of work, especially at first, and one principal expressed concern about whether teachers are equipped to develop curriculum.

Major Quantitative Findings

The findings from the quantitative analyses showed statistically significant changes post-authorization at the PYP schools on six of the nine school climate outcomes assessed by the CHKS. In addition, the three non–statistically significant school climate outcomes did not show trends indicating the PYP has a negative impact on school climate. The statistical significance of the findings indicate that the changes are reliable and unlikely to be a result of chance alone. The school climate outcomes that were statistically significant corresponded to the NSCC's (2019) **Safety**, **Interpersonal Relationships**, and **Institutional Environment** domains. These positive findings highlight multiple dimensions of school climate that are linked to a school's participation in the PYP.

Based on the standards for education research (Hill et al., 2008), the magnitude of the improvements on the school climate outcomes post-authorization was small, even for the outcomes that were statistically significant. However, there are several factors noted in the Conclusion section that may have limited the size of the improvements post-authorization. Given these limitations, the actual changes in the school climate outcomes resulting in participation in the PYP could reach a size that would be considered substantively or practically important.

Findings for Specific School Climate Domains

When unpacking the findings of this study, it is helpful to examine them in relation to the NSCC (2019) school climate framework, as the importance of the framework's domains and corresponding dimensions are supported by extensive research literature.[10] Findings relevant to each domain of the framework are described below. In addition, Appendix G documents the alignment of each school

[10] Please refer to the Literature Review section of this report for a discussion of the literature that pertains to each domain and dimension of this framework.

climate code with the NSCC's dimensions of school climate to further demonstrate how the findings of the current study correspond to the NSCC framework and, by extension, the corresponding literature base.

Safety

The **Safety** domain of school climate captures the extent to which norms, guidelines, and expectations are clearly communicated and enforced (the *rules and norms* dimension), students and staff feel physically safe (the *physical security* dimension), and students feel safe from teasing or other verbal abuse (the *social-emotional security* dimension; NSCC, 2019). Findings from the case studies showed perceptions of decreased disciplinary issues, improved sense of safety, inclusivity, and / or improved student relationships occurred at only a subset of schools, with participants at most schools reporting these aspects of school climate were similarly positive before and after the PYP was introduced. However, all schools drew a connection between the use of consistent language that clearly communicated shared norms and expectations and improvements following introduction of the PYP or attributed the increased use of consistent language compared with other schools to PYP. In contrast to the somewhat mixed findings from the qualitative data, the quantitative analyses showed statistically significant improvements on all four CHKS school climate outcomes that aligned with the NSCC's domains (2019) **Safety** domain. Perceived Safety, which exhibited one of the largest changes, improved to a statistically significant extent post-authorization for the PYP schools. Similarly, Fairness showed a statistically significant improvement post-authorization. In contrast, Bullying and Victimization both showed statistically significant declines post-authorization, which indicate improvements.

Teaching and Learning

The **Teaching and Learning** domain of school climate includes the use of supportive teaching practices and the development of social and civic knowledge and skills (NSCC, 2019). Qualitative case study data suggest that this domain was substantially impacted by the PYP, according to participants' perspectives. When asked to describe changes following the introduction of the PYP or differences between their school and non-PYP schools, participants talked about numerous areas that they believed were influenced by the PYP. These discussions touched on aspects of instruction, the teacher experience, the student experience, and the overall school environment. In addition to the breadth of improvements and differences related to **Teaching and Learning** that participants described, the number of schools where participants reported these is noteworthy. For example, participants at every school noted an increased use of transdisciplinary instruction, and participants at nearly every school reported increased use of inquiry and student voice, a focus on global perspectives, the infusion of SEL and a focus on the whole child, student learning for life, student action and community service, student agency and ownership over learning, and teacher creativity and sense of safety to take risks. PYP professional development and planning time were particularly important in facilitating these improvements related to the **Teaching and Learning** domain, as teachers had opportunities to learn new skills, collaborate with peers, and gain exposure to and network with colleagues around the world. The quantitative analyses examined changes on only one CHKS school climate outcome (Schoolwork, which focused on student perceptions of how well they do in their schoolwork) that was partially aligned with the NSCC's (2019)

Teaching and Learning domain. In contrast to the qualitative data, the quantitative data did not reveal a significant difference following PYP authorization on the Schoolwork outcome, and, unlike the other school climate outcomes, there was no positive trend in the data. The CHKS, which is a student survey, did not consistently include items that addressed topics, such as supportive teaching practices and support for risk-taking, that align directly with the **Teaching and Learning** domain.

Interpersonal Relationships

The **Interpersonal Relationships** domain of school climate includes respect for individual differences across all members of the school community, the presence of supportive adults, and the presence of supportive relationships among students (NSCC, 2019). Discussion from case study participants did not focus heavily on student experiences, with participants at all schools noting that students generally got along with adults and peers before and after the PYP was introduced. However, most schools did report a greater focus on celebrating diverse student accomplishments due to the PYP, and a minority of schools indicated other aspects of student relationships shifted because of the PYP. These differences reported by a subset of schools included improved student relationships, collaboration, ability to look outside themselves, sense of safety, and student-staff relationships. The quantitative analyses investigated changes on three CHKS school climate outcomes that aligned with the **Interpersonal Relationships** domain (NSCC, 2019). The Caring Relationships outcome, which showed one of the largest improvements post-authorization, changed to a statistically significant extent post-authorization. In addition, the Fairness outcome, which aligned with the **Interpersonal Relationships** and **Safety** domains, showed a statistically significant improvement post-authorization. In contrast to the two other outcomes that aligned with this dimension, the School Connectedness outcome showed a slight improvement, but the change did not reach statistical significance.

Institutional Environment

The **Institutional Environment** domain of school climate includes stakeholders feeling connected to and engaged with the school and having a clean campus with access to necessary materials (NSCC, 2019). The qualitative data from case study campuses suggest that aspects of the environment regarding connectedness and engagement improved for some schools due to the PYP, according to participants' perspectives. For example, participants from at least half of the case study schools described an increased use of consistent language, a sense of community, parent involvement, and various positive parent perceptions of their school. In addition, participants at a subset of schools reported an improved atmosphere of trust, perceptions of the school as a positive environment, teachers' desire to send their children to the school, and other teachers wanting to teach at the school. Regarding the physical environment, observations during site visits indicated that all campuses appeared to be clean and orderly, and discussion in the interviews and focus groups did not reveal any differences in the physical appearance or physical resources of the school beyond improvements independent of the PYP. The findings from the quantitative analyses, which examined changes post-authorization for three CHKS climate outcomes that aligned with the **Institutional Environment** domain (NSCC, 2019), were somewhat mixed, similar to the findings from the qualitative data. The quantitative analyses showed the improvement for Parent Involvement post-authorization was small, but reached statistical significance.

The changes for Meaningful Participation and School Connectedness, which also can be considered part of **Interpersonal Relationships**, showed encouraging trends post-authorization, but the changes did not reach statistical significance.

Staff

The **Staff** domain of school climate includes the presence of a supportive leader with a clear vision and positive, supportive relationships among staff (NSCC, 2019). The staff experience was a large focus of conversation among case study participants. Participants reported a variety of changes and differences in the staff experience that they attributed to the PYP. Increased collaboration because of the PYP was highlighted by participants at every case study campus. Further, participants at most case study schools described improvements in staff relationships, creativity and sense of safety to take risks, engagement, reflection, and job satisfaction that they attributed to the PYP. The quantitative analyses could not examine changes with regard to the NSCC's (2019) **Staff** domain because there were no items consistently included on the CHKS that addressed this domain. It would be difficult to assess this domain and the corresponding dimensions with a student survey.

Conclusion

This study focused on deeply exploring the PYP's role in fostering school climate from the perspective of key stakeholders at PYP schools that demonstrate strong implementation, as well as on determining the extent to which PYP authorization impacts the trajectory of school climate outcomes. This section provides an overview of the key findings, limitations of the research that must be considered when interpreting the findings, and related opportunities for future research related to IB programming.

Summary of Findings

- The qualitative data revealed numerous improvements to school climate that participants at all or most case study schools attributed to the PYP.
- Participants at every school reported increased focus on SEL and the whole child and the use of transdisciplinary instruction and teacher collaboration because of the PYP. Further, participants from at least three-fourths of case study schools attributed the following to the PYP:
    - increased use of inquiry
    - student voice
    - global perspectives
    - open-mindedness
    - individualization in instruction
    - celebration of diverse student accomplishments
    - student learning for life
    - student action and community service
    - student agency and ownership over learning
    - student engagement
    - teacher relationships
    - teacher creativity and sense of safety to take risks
    - teacher engagement
    - teacher reflection
    - parent involvement
    - parent belief that their children are set up for success.

- The proportion of case study schools that reported experiencing these improvements suggests they may be common impacts associated with strong PYP implementation.
- Participants viewed the exhibition as an experience that is unique to the PYP. They considered it a useful tool for encouraging student action and community service, increasing the use of student voice and choice, expanding horizons, and increasing reflection, as well as for engaging parents, K–4 students, and the larger community.
- Participants at all case study sites described the IB learner profile, PYP professional development and supports, the PYP coordinator, and the use of essential agreements as being key contributors to school climate.
- The quantitative data showed small, but statistically significant improvements post-authorization on the following six school climate outcomes: Perceived Safety, Caring Relationships, Fairness, Parent Involvement, Bullying, and Victimization.
- The quantitative data showed positive trends post-authorization for School Connectedness and Meaningful Participation, but the changes post-authorization for these two school climate outcomes were not statistically significant.
- The only school climate outcome that did not show a positive trend post-authorization was Schoolwork.
- Exploratory analyses that used different analytic approaches and examined changes post-candidacy were generally consistent with the initial results and increased WestEd's confidence in the findings.

Research Limitations

As with any study, it is important to understand research limitations when examining and interpreting findings. The current study had several important limitations related to both the qualitative and the quantitative components that must be considered and are described below.

Qualitative Component Limitations

- The qualitative sample included schools selected because they demonstrated strong implementation of the PYP and therefore the sample was not necessarily representative of all public PYP schools in California.
- The interview and focus group protocols asked participants to retrospectively describe changes in school climate after the PYP was introduced, which may have been challenging for some participants. For example, at some schools, the PYP had been in place for upwards of a decade, and recollection of specific aspects of school climate before that time may have been limited.
- Similarly, most schools had experienced at least some turnover in principals, coordinators, and / or teachers since the PYP was introduced, and parent participants at every school

only had insight about the school during the time their children attended. In these situations, participants could not speak to changes in school climate following the introduction of the PYP and instead described how their school differed from non-PYP schools.

- Implementation of the PYP does not occur in isolation, as schools are complex and dynamic environments. Given this, it was sometimes difficult for participants to disentangle the effects of the PYP and the effects of other contextual factors, such as changes in leadership, shifts in neighborhood demographics, or the introduction of other types of programming. Participants attempted to disentangle which changes or differences they believed occurred because of the PYP, but in many cases, the PYP was one of several factors attributed to improvements.
- WestEd used a climate walk assessment tool to capture physical and experiential indicators of school climate. However, this tool was of limited value to inform the research questions. The tool did not produce data that differentiated schools, perhaps because the study design called for schools that showed evidence of strong implementation of the PYP. In addition, because visits occurred at the very end or very beginning of the school year, some climate walk items were difficult to rate (e.g., the lack of décor on the walls was attributed to a recent open house night when students took their work home), making them of limited use.
- WestEd provided guidance to principals and coordinators about criteria for teacher and parent focus group participants to maximize the likelihood that they had experienced the school prior to the introduction of the PYP or had experienced other schools. Because principals and coordinators selected focus group participants, it is possible they chose individuals who were supportive of and engaged in the PYP.
- Although student voice is important to fully understand school climate, this study did not collect qualitative data from students and instead relied on the perspectives of their teachers and parents. However, the quantitative portion of the study focused exclusively on school climate from the student perspective.
- The current study relied on one individual to conduct most qualitative data collection and analysis. Although two data collectors and coders would have allowed for reliability checks, this level of staffing exceeded resources for the study. The qualitative researcher collected data at every school, which allowed a deep understanding of the nuance and context at each case study school. The quantitative researcher supported data collection at two case study schools to ensure a shared sense of the school context and appropriate use of the protocols. Further, this contextual exposure enabled the quantitative researcher to serve as a thought partner throughout the qualitative analysis. In addition, the quantitative researcher and the IB liaison reviewed the codebook and analytic summaries to ensure that the conceptual framework and conclusions from the study make sense in the context of the PYP.

Quantitative Component Limitations

- The quantitative examination of school climate was limited by the domains assessed by the CHKS, which did not include items directly relevant to the **Staff** or **Teaching and Learning** domains of school climate and includes only the students' perspectives on school climate.
- As is the case for all schools in California, the vast majority of the PYP schools included in the analysis did not participate in the CHKS data collection on an annual basis. Therefore, CHKS data were not consistently available directly before or after the authorization points, which reduced the ability of the statistical models to detect changes post-authorization.
- For several of the school climate outcomes (e.g., Parent Involvement and Bullying), the students' average responses were close to the top or bottom of the scales (i.e., a ceiling or floor effect), which could have prevented larger post-authorization changes from occurring.
- The schools' varying authorization dates meant that WestEd could not utilize the more rigorous CITS design (Hallberg et al., 2018), which would have allowed for stronger causal conclusions.
- Although the IB accurately recorded authorization dates, the candidacy dates were not consistently recorded and needed to be estimated, which meant the examination of the changes post-candidacy had to be examined as part of the exploratory analyses.

Recommendations for Further Research

This study found that the PYP was linked to small, but significant improvements on several quantitative indicators of school climate, and when a subset of schools with strong implementation were examined qualitatively, stakeholders attributed numerous improvements in school climate to the PYP. Although these findings are promising, future research to more fully understand the impact of the PYP and other IB programming may be valuable. Potential topics for future research are described below.

- The current study focused on one IB program, the PYP, implemented in public elementary school settings, and it is unknown whether similar improvements in school climate might occur after implementation of the Middle Years Programme in middle school settings or after implementation of the Diploma and Career-Related Programmes in high school settings. Future research could explore the impact of these IB programs on school climate outcomes.
- Because the qualitative component of this study focused on public schools with strong implementation of the PYP, the extent to which case study findings are generalizable is uncertain. However, the sampled schools displayed a high level of variability regarding other factors such as school structure (e.g., magnet, charter, and traditional district schools), history, and context, as well as student characteristics. This variation suggests that among schools with strong PYP implementation, PYP influenced school climate regardless of other factors. Now that an understanding of how the PYP can influence

school climate under ideal implementation conditions has been achieved, future research could more deeply explore where these findings hold true among schools with varying levels of PYP implementation.

- Given the large gaps between PYP introduction and the case study data collection, many participants had to think back several years to remember what their school climate was like prior to implementation of the PYP. Future studies might focus on documenting shifts in school climate by following schools as they begin their journey with the PYP. Tracking schools new to the PYP over time would allow a baseline assessment of school climate and subsequent follow-ups to understand changes, rather than relying on retrospective reports.
- This study used data from the CHKS because it offered the most comprehensive longitudinal school climate database in the US. One limitation to the CHKS is its variable administration schedule, which differs by school. More states and school districts have begun utilizing mandated annual school climate surveys that may offer valuable data sources amenable to robust statistical analyses in the years to come.
- This study focused on documenting the PYP's impact on school climate outcomes. Information on the PYP's potential influence on school climate is valuable, but provides limited insight into the challenges schools face when cultivating a strong school climate or the specific ways in which the PYP might be leveraged to foster improvements. Future evaluative work may be helpful for providing feedback on the extent to which the PYP is aligned to school needs and for developing promising practices to support improvements in school climate through the PYP.
- The quantitative methodology used in this study may be appropriate to extend into different domains that have outcomes that are collected on a consistent and annual basis by states, such as student achievement, discipline, and attendance.

Recommendations for Practice

Findings from the current study suggest several recommendations for IB stakeholders. These recommendations may be useful for district and school leaders, teachers, and other individuals interested in using the PYP to influence school climate.

- Case study findings suggest that cultivating leader and teacher buy-in is vital in order to realize the positive effects of the PYP on school climate. Given this, schools interested in improving their climate through implementation of the PYP should consider the extent to which potential leaders and teachers might be a good fit within the context of the PYP. This may include considering their philosophy toward teaching, comfort with transdisciplinary and inquiry-based instruction, and interest in a collaborative work environment. Among existing staff, schools should prioritize getting all stakeholders on board with the PYP. This could be achieved through practices within specific school settings to orient new staff to the PYP and through providing new PYP educators with access to workshops and conferences provided by the IB.
- Benefits to school climate that emerged within case study schools and that participants attributed to the PYP often occurred in combination with the effects of having a strong PYP coordinator. Given the centrality of this role in cultivating a positive school climate and fostering strong implementation of the PYP, districts and schools should be thoughtful about staffing the PYP coordinator position, providing sufficient release time (at least 50%) for the coordinator position, and striving for stability of the position over time.
- Although many IB workshops and professional development opportunities emphasize the importance of school culture and context, there do not appear to be opportunities focused on strategies to improve overall school climate. Professional development with an explicit focus on how to leverage the PYP to foster improved school climate may be valuable.
- The PYP is not implemented in a vacuum, and it is not the only way to improve school climate. Efforts to improve school climate should capitalize on the multitude of programs and resources to which schools have access, with a focus on identifying ways to coordinate diverse assets. These programs may focus on such varied topics as magnet school specializations, dual language programs, and behavioral management initiatives (e.g., restorative justice, multi-tiered system of support). For example, coordination among the PYP and a magnet program might include professional development events that specifically focus on building PYP units of inquiry that incorporate magnet themes.
- PYP schools that want to track their school climate could do so with annual school climate surveys, such as the CHKS or the CSCI. Annual school climate data collected with a valid and reliable tool could be disseminated to the schools' communities and be used to inform changes to the schools' practices and curricula.

- Given that this study found that the PYP positively influences school climate, school staff at PYP schools may consider developing an "elevator pitch" that highlights the importance of school climate and describes the impact that the PYP can have on school climate.
- The IB learner profile was consistently raised as a crucial tool for developing and fostering the dimensions of school climate. When implemented well, the use of essential agreements was also described as a useful tool. Given the apparent importance of the IB learner profile and essential agreements, schools should continue to focus on these as valuable drivers to improve school climate.
- Similarly, professional development and planning time to support the PYP approach appear to be vital to both implementation and positive school climate. Schools should continue to provide planning time, as well as encourage and support staff to engage in workshops, conferences, and other professional development.
- According to case study participants, the task of creating new, transdisciplinary, and inquiry-based curricula that is called for by the PYP is difficult. Although participants noted that creating their own curriculum made them more invested and knowledgeable, it is likely that teachers will need support, especially in the early stages of this endeavor. Having a coordinator with expertise in curriculum design and / or providing professional development on curriculum design may be valuable to facilitate the development of high-quality materials.

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Appendices

Appendix A: Qualitative Data Collection Protocols

PYP Principal Interview Protocol

Background

1. To begin, can you tell me a little bit about your background and how long you have been at this school?
    - Probes as needed:
        - How long have you been the principal?
        - Were you at this school during the transition to the PYP? If so, in what role?
        - Have you worked at other schools in the past?
        - Have you worked at other PYP schools in the past?

2. Can you tell me a little bit about your vision for your school in terms of school culture and climate?
    - Probes as needed:
        - To what extent do you think this vision has been achieved?
        - How have you achieved those aspects of the vision through whole-school change?
        - What are areas of strength from your perspective?
        - What are areas for growth from your perspective?
        - What partners (e.g., parents, agencies, etc.) do you work with to achieve this vision?
        - How has the PYP influenced your vision for school culture and climate?

General Reflections

3. For this study, we are interested in learning more about your school and ways that it has changed since the start of PYP implementation. We know that schools go through several phases to PYP implementation, from becoming an interested school, to entering candidacy, all the way through authorization. For the purposes of today's discussion, when we talk about the start of PYP implementation, we are referring to when your school first started introducing aspects of the PYP model into curriculum and practices.

    (A) If you were at this school before the PYP was introduced, can you give me an overview of how the school has changed or has not changed since the start of PYP implementation?

    AND/OR

(B) If you joined this school after PYP was introduced, can you give me an overview of the similarities and differences between this school and those you have worked at in the past?

Perceptions about the School Environment

4. How would you describe the culture and climate of your school?
    - Probes as needed:
        - Describe the atmosphere of your school.
        - What are students' attitudes toward school?
        - Do your students come to school on time and ready to learn?
        - Do students seem to enjoy coming to school?
        - What are teachers' attitudes toward school?
        - Do teachers seem to enjoy coming to school?
        - How does the PYP model impact this?

5. How do students, teachers, and school staff interact at your school?
    - Probes as needed:
        - How do students treat each other (e.g., respect, kindness)?
        - To what extent is discipline an issue at your school?
        - To what extent is bullying an issue at your school?
        - How do your students and staff demonstrate a respect for differences with others (e.g., differences based on based on race, gender, culture, or language)?
        - How do students build meaningful relationships with teachers and school staff?
        - How do staff build meaningful relationships with one another?
        - How does the PYP model impact this?

6. How are rules and norms decided on and communicated at your school?
    - Probes as needed:
        - How do students and teachers have a role in deciding on those norms and rules?
        - How do you make sure students have a clear understanding of the rules and consequences?
        - To what extent do you see students taking responsibility for their behavior? What does this look like?
        - How does the PYP model impact this?

7. What opportunities do students and teachers have to make a difference in their school or community?
    - Probes as needed:
        - Do students engage in service projects? What do these look like?
        - Do families engage in service projects? What do these look like?
        - How does this foster development of socially competent students?
        - How does this foster development of civically engaged and socially conscious students?
        - How does the PYP model impact this?

8. (A) Has the school environment, attitudes toward school, or interactions at school shifted due to the PYP? If yes, how? If no, why not?

   AND/OR

   (B) Is the school environment, attitudes toward school, or interactions at school different at your current school compared to schools you have worked at in the past? If yes, how? If no, why not?

Academics and Pedagogy

9. How do teachers and school leadership ensure that teaching occurs in ways that are relevant to students?
   - Probes as needed:
     - To what extent are classroom activities student-led?
     - In what situations do students decide what to study and how to study it?
     - How do instructional materials and strategies reflect the cultural and ethnic diversity of students?
     - How do you incorporate social-emotional learning into your school's curriculum and pedagogy?
     - How does the PYP model impact this?

10. How does your school go about setting academic expectations for all students?
    - Probes as needed:
      - What supports are offered to help all students achieve success?
      - How do you assess whether or not students are meeting expectations?
      - How does the PYP model impact this?

11. Tell me about the role of the exhibition at your school.
    - Probes as needed:
      - How does the exhibition foster attributes included in the IB learner profile, such as being inquirers, communicators, principled, and reflective?
      - How does the exhibition help engage parents?
      - How does the exhibition help engage the larger community?

12. (A) Has the approach to academics and pedagogy at your school shifted due to the PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the approach to academics and pedagogy at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Parent Engagement

13. What does parent involvement look like at your school?
    - Probes as needed:
        - How does your school try to engage parents?
        - To what extent do parents participate in their child's education? What does this look like?
        - How do you work with parents to solve problems?
    - How does the PYP model impact this?

14. (A) Has the approach to working with parents at your school shifted due to the PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the approach to working with parents at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Wrap Up

15. Is there anything else you would like to add to help me understand the PYP's impact on your school's culture and climate?

PYP Coordinator Interview Protocol

Background

1. To begin, can you tell me a little bit about your role at your school and how you are involved with the PYP?
    - Probes as needed:
        - How long have you been a PYP coordinator?
        - What made you decide to take on the role of PYP coordinator?
        - What does your role of PYP coordinator entail?
        - What supports do you receive to fulfill your PYP coordinator role?
        - What other roles do you have at your school?

General Reflections

2. For this study, we are interested in learning more about your school and ways that it has changed since the start of PYP implementation. We know that schools go through several phases to PYP implementation, from becoming an interested school, to entering candidacy, all the way through authorization. For the purposes of today's discussion, when we talk about the start of PYP implementation, we are referring to when your school first started introducing aspects of the PYP model into curriculum and practices.

   (A) If you were at this school before the PYP was introduced, can you give me an overview of how the school has changed or has not changed since the start of PYP implementation?

   AND/OR

   (B) If you joined this school after the PYP was introduced, can you give me an overview of the similarities and differences between this school and those you have worked at in the past?

Perceptions about Student Experiences

3. In general, what is your students' attitude toward school?
    - Probes as needed:
        - Do your students come to school on time and ready to learn?
        - Do they seem to enjoy coming to school?
        - How does the PYP model impact this?

4. How do students at your school interact with one another, teachers, and school staff?
    - Probes as needed:
        - How do students treat each other (e.g., respect, kindness)?
        - To what extent is discipline an issue at your school?
        - To what extent is bullying an issue at your school?
        - How do your students demonstrate a respect for differences with others (e.g., differences based on race, gender, culture, or language)?
        - How do students build meaningful relationships with teachers and school staff?
        - How does the PYP model impact this?

5. How are rules decided on and communicated at your school and in your classroom?
    - Probes as needed:
        - How do students have a role in deciding on those norms and rules?
        - How do you make sure students have a clear understanding of the rules and consequences?
        - To what extent do you see students taking responsibility for their behavior? What does this look like?
        - How does the PYP model impact this?

6. What opportunities do students have to make a difference in their school or community?
    - Probes as needed:
        - Do students engage in service projects? What do these look like?
        - Do families engage in service projects? What do these look like?
        - How does this foster development of socially competent students?
        - How does this foster development of civically engaged and socially conscious students?
        - How does the PYP model impact this?

7. (A) Have students' attitudes toward school, their interactions with others at school, or ways rules are communicated shifted due to the PYP? If yes, how? If no, why not?

    AND/OR

    (B) Are students' attitudes toward school, their interactions with others at school, or ways rules are communicated at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Academics and Pedagogy

8. How do teachers and school leadership ensure that teaching occurs in ways that are relevant to students?
    - Probes as needed:
        - How does your school incorporate a transdisciplinary approach?
        - To what extent are classroom activities student-led?
        - In what situations do students decide what to study and how to study it?
        - How do instructional materials and strategies reflect the diversity of students?
        - How does the PYP model impact this?

9. How does your school go about setting academic expectations for all students?
    - Probes as needed:
        - What supports are offered to help all students achieve success?
        - How do you assess whether or not students are meeting expectations?
        - How does the PYP model impact this?

10. Tell me about the role of the exhibition at your school.
    - Probes as needed:
        - How does the exhibition foster attributes included in the IB learner profile, such as being inquirers, communicators, principled, and reflective?
        - How does the exhibition help engage parents?

- How does the exhibition help engage the larger community?

11. (A) Has the approach to academics and pedagogy at your school shifted due to the PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the approach to academics and pedagogy at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Parent Engagement

12. What does parent involvement look like at your school?
    - Probes as needed:
        - How does your school try to engage parents?
        - To what extent do parents participate in their children's education? What does this look like?
        - How do you work with parents to solve problems?

13. (A) Has the approach to working with parents at your school shifted due to the PYP? If yes, how? If no, why not?

    OR

    (B) Is the approach to working with parents at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Staff Relationships and Supports

14. (A) (If PYP coordinator is a teacher at the school): Tell me about what it is like to be a teacher at this school.

    OR

    (B) (If PYP coordinator is not a teacher at the school): Tell me about your perceptions of what it is like to be a teacher at this school.

    - Probes as needed:
        - To what extent do you collaborate with other teachers?
        - To what extent do you feel connected to and supported by other teachers?
        - What is the morale like among teachers at this school?
        - How are teachers involved in decision making about the school?
        - How does the PYP model impact this?

15. How are teachers able to influence the culture and climate of this school?
    - Probes as needed:
        - How does the PYP model impact this?

16. What training and supports do teachers receive to effectively work with students?
    - Probes as needed:
        - Do you have the materials you need to do your job?
        - How does the PYP model impact this?

17. (A) Has the experience of being a teacher shifted due to the PYP? Or is it different from your previous schools? If yes, how? If no, why not?

    OR

    (B) Is the experience of being a teacher at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Wrap Up

Is there anything else you would like to add to help me understand the PYP's impact on your school's culture and climate?

PYP Teacher Focus Group Protocol

Background

1. To begin, can you tell me what grade you teach and how long you have been with this school?
    - Probes as needed:
        - Were you at this school prior to the start of PYP implementation?
        - Did you teach at other schools before coming to this school?

General Reflections

2. For this study, we are interested in learning more about your school and ways that it has changed since the start of PYP implementation. We know that schools go through several phases to PYP implementation, from becoming an interested school, to entering candidacy, all the way through authorization. For the purposes of today's discussion, when we talk about the start of PYP implementation, we are referring to when your school first started introducing aspects of the PYP model into curriculum and practices.

   (A) If you were at this school before the PYP was introduced, can you give me an overview of how the school has changed or has not changed since the start of PYP implementation?

   AND/OR

   (B) If you joined this school after the PYP was introduced, can you give me an overview of the similarities and differences between this school and those you have worked at in the past?

Staff Relationships and Supports

3. Tell me about what it is like to be a teacher at this school.
    - Probes as needed:
        - To what extent do you collaborate with other teachers?
        - To what extent do you feel connected to and supported by other teachers?
        - What is the morale like among teachers at this school?
        - Do teachers have a role in decision making about the school?
        - What training and supports do teachers receive to effectively work with students?
        - How does the PYP model impact this?

4. As a teacher at this school, how are you able to influence the culture and climate of this school?
    - Probes as needed:
        - How does the PYP model impact this?

5. (A) Has the experience of being a teacher shifted due to the PYP? Or is it different from your previous schools? If yes, how? If no, why not?

   OR

   (B) Is the experience of being a teacher at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Perceptions about Student Experiences

6. Tell me about your perceptions of what it is like to be a student at this school.
    - Probes as needed:
        - What are your students' attitudes toward school?
        - Do your students come to school on time and ready to learn?
        - Do they seem to enjoy coming to school?
        - How do students interact with one another, teachers, and school staff?
        - How do students treat each other (e.g., respect, kindness)?
        - To what extent is discipline an issue at your school?
        - To what extent is bullying an issue at your school?
        - How do your students demonstrate a respect for differences with others (e.g., differences based on race, gender, culture, or language)?
        - How do students build meaningful relationships with teachers and staff?
        - How are rules decided on and communicated at your school and in your classroom?
        - Do students have a role in deciding on those rules and norms?
        - What opportunities do students have to make a difference in their school or community?
        - How does the school foster development of socially competent students?
        - How does the school foster development of civically engaged and socially conscious students?
        - How does the PYP model impact this?

7. (A) Has the experience of being a student at this school shifted due to the PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the experience of being a student at this school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Academics and Pedagogy

8. How do teachers and school leadership ensure that teaching occurs in ways that are relevant to students?
    - Probes as needed:
        - How does your school incorporate a transdisciplinary approach?
        - To what extent are classroom activities student-led?
        - In what situations do students decide what to study and how to study it?
        - How do instructional materials and strategies reflect the cultural and ethnic diversity of students?
        - How does the PYP model impact this?

9. Tell me about the role of the exhibition at your school.
    - Probes as needed:
        - How does the exhibition foster attributes included in the IB learner profile, such as being inquirers, communicators, principled, and reflective?
        - How does the exhibition help engage parents?

- How does the exhibition help engage the larger community?

10. (A) Has the approach to academics and pedagogy at your school shifted due to PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the approach to academics and pedagogy at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Parent Engagement (If Time Permits)

11. What does parent involvement look like at your school?
    - Probes as needed:
        - How does your school try to engage parents?
        - To what extent do parents participate in their child's education? What does this look like?
        - How do you work with parents to solve problems?
        - How does the PYP model impact this?

12. (A) Has the approach to working with parents at your school shifted due to PYP? If yes, how? If no, why not?

    AND/OR

    (B) Is the approach to working with parents at your school different compared to schools you have worked at in the past? If yes, how? If no, why not?

Wrap Up

13. Is there anything else you would like to add to help me understand the PYP's impact on your school's culture and climate?

PYP Parent Focus Group Protocol

Background

1. To begin, can you tell me a little bit about your involvement with this school and what grades your children are in?
    - Probes as needed:
        - Do you have any children who attend(ed) other schools besides this one?
        - Did you have children at this school before it started the PYP program?
        - Why did you enroll your child/children in this school?
        - What did you know about the IB and PYP before you enrolled your child/children in the school?

General Reflections

2. (A) If you had children at this school before the PYP was introduced, can you give me an overview of how the school has changed or has not changed since the PYP was first introduced?

   OR

   (B) If you had or have children at other schools, can you give me an overview of the similarities and differences between this school and the other schools your children attend or have attended?

Parent Engagement

3. What does this school do to try to involve parents?
    - Probes as needed:
        - How are parents able to get involved in their child's classrooms and academics?
        - How are parents able to get involved in other school activities?
        - How do teachers and school staff work with parents to solve problems?
        - How does the school communicate with you?
        - Do you have a clear sense of what your child is doing at school?

4. (A) Has the way this school involves parents shifted since the PYP was introduced? If yes, how? If no, why not?

   OR

   (B) Is the way this school involves parents different compared to other schools your children attend or have attended?

Perceptions about Student Experiences

5. In general, what is your child's attitude toward school?
    - Probes as needed:
        - Does your child seem to enjoy coming to school?
        - Does your child have meaningful relationships with teachers/school staff?
        - How do students treat each other at this school?
        - To what extent are disciplinary problems an issue at this school?

6. What opportunities do students have to make a difference in their school/community?
    - Probes as needed:
        - Do students engage in service projects? What do these look like?
        - Do families engage in service projects? What do these look like?

7. (A) Has your child's attitude toward and experiences with school shifted since the PYP was introduced? If yes, how? If no, why not?

   OR

   (B) Is your child's attitude toward and experiences with school different compared to other schools your children attend or have attended?

Academics and Pedagogy

8. Do you notice any differences in this school's approach to teaching compared to what it was like before the PYP or what it is like at other schools?
    - Probes as needed:
        - Is instruction student-led?
        - Do students have a voice in what they study and how they study it?
        - To what extent do lessons or projects incorporate information from different subjects like math and reading?
        - Is curriculum relevant to students' lives?
        - Are supports offered to help all students achieve?
        - What do expectations for student performance look like?

9. We know that one aspect of the PYP is the fifth grade exhibition. What is your understanding of the exhibition?
    - Probes as needed:
        - Have your children been involved in the exhibition?
        - If your children have been involved, what did their project entail?
        - Have your children completed projects like this in the past or at previous schools?

Wrap Up

10. Is there anything else you would like to add to help me understand your child's school and your experiences with the PYP?

PYP School Climate Walk

School Name: _____ Date: _____

Provide a summary of the observation context. Include details such as the amount of time you observed, the settings you observed, and the extent to which you were able to observe student and teacher interactions.

_____
_____
_____
_____
_____
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_____
_____

Provide an initial assessment of the climate and culture at this school. Note the extent to which findings about the climate and culture relate to the PYP model (e.g., inquiry-based learning, transdisciplinary learning, attributes of the learner profile, etc.)

_____
_____
_____
_____
_____
_____
_____
_____
_____

	Observation	Rating	Comments
School Entrance	1. Visitors (including yourself) are greeted by staff, provided with a visitor's pass, and directed to the appropriate location upon entering the building.	☐ Observed ☐ Not observed	
	2. The main office is an orderly and well-managed environment.	☐ Observed ☐ Not observed	
Physical Environment	3. The physical environment is welcoming and supportive of learning for all students (e.g., well-lit, graffiti-free, painted walls, etc.).	☐ Observed ☐ Not observed	
	4. Self-contained classrooms are supportive of learning and are included within the school community; classrooms are not identified as "special education" or "SPED."	☐ Observed ☐ Not observed	
	5. The physical space is utilized effectively (i.e., not overcrowded or underutilized) and routinely checked by staff for students lingering or loitering.	☐ Observed ☐ Not observed	

	6. The physical school environment is secure (i.e., outside doors are kept closed or monitored, and outside student activities and transitions are monitored).	☐ Observed ☐ Not observed	
Student / Staff Interaction	7. Students are being respectful to one another and to staff members. Provide examples in the comments section.	☐ Observed ☐ Not observed	
	8. Staff members are being respectful to students and to one another. Provide examples in the comments section.	☐ Observed ☐ Not observed	
Transitions	9. Movement during transitions is orderly (e.g., all students appear to be heading to class with minimal horseplay).	☐ Observed ☐ Not observed	
	10. Support staff, teachers, and administrators are visible and engaging with students during transitions and at other times in the day.	☐ Observed ☐ Not observed	
Classrooms	11. The classrooms are orderly and well-managed environments (i.e., the teacher is engaging with students and students are responding positively).	☐ Observed ☐ Not observed	

	12. The hallways and / or classrooms include current examples of student work, accolades, or recognition, as well as expectations of student behavior.	☐ Observed ☐ Not observed	
	13. In classrooms, students appear to be actively engaged in their learning (i.e., attentive listening, participation, staying on task).*	☐ Observed ☐ Not observed	
	14. During instruction, student interests and questions guide the lesson.*	☐ Observed ☐ Not observed	
	15. Instruction is delivered in ways that are relevant to students.*	☐ Observed ☐ Not observed	
	16. Students appear to be enjoying themselves and display a positive attitude.*	☐ Observed ☐ Not observed	
Other	17. If you are present at entry or dismissal, observe whether adults are actively supervising students. Note if students are left outside and alone during these times.	☐ Observed ☐ Not observed	
	18. The cafeteria is clean, orderly, well-managed and with appropriate student groupings (e.g., first graders are separated from fifth graders).	☐ Observed ☐ Not observed	

*These items are not part of the original Baltimore City Schools School Climate Walk; they were created specifically for the PYP school walk-throughs.

Appendix B: Codebook for Qualitative Analysis

Code Family	Code	Definition
Instruction	Relevance	Instruction focuses on topics and uses approaches that apply to students' lives.
	Inquiry and student voice	Instruction fosters questioning and prompts students to explore their interests. Student voice is asked for and utilized.
	Transdisciplinary instruction	Instruction blends multiple content areas into coherent lessons / units.
	Focus on global perspectives	Instruction introduces students to different regional, national, and global issues and points of view.
	Open-mindedness	Instruction introduces students to broader points of view.
	Individualization	Instruction and assessment vary to accommodate different types of learners.
Discipline and Safety	Disciplinary practices	Disciplinary practices are reflective and restorative.
	Disciplinary issues	The school has a positive disciplinary environment (e.g., low number and less severe disciplinary issues).
	Students keeping each other accountable	Students remind each other of expectations.
	Sense of safety	Students feel safe at school.
School Atmosphere	Sense of community	The school feels like a tight-knit community, even when it is a large campus.
	Cultivation of an atmosphere of trust	School staff trust one another, including the leaders.
	Focus on SEL and the whole child	SEL and a focus on the whole child are consistently included in instruction and school activities.
	Use of consistent language	Students, school staff, and parents have the same language to talk about expectations.

Code Family	Code	Definition
	Inclusivity	The school is inclusive for all students.
	Student-staff relationships	Student and staff relationships are positive and constructive.
	Perceptions of school as a positive environment	The school is viewed as a happy place where students and staff want to be.
	Desirability of the school to teachers	The school is a desirable place to teach/substitute.
	Teacher desire to send children to the school	Teachers from the school or other schools send their child to the PYP school.
Teacher Experiences	Creativity and sense of safety to take risks	Teachers feel empowered to try new things and experiment with their teaching.
	Collaboration	Teachers work together often and deeply.
	Engagement	Teachers feel interested in teaching.
	Job satisfaction	Teachers feel happy with their jobs and the teaching profession.
	Relationships	Teachers get along and can work together effectively.
	Reflection	Teachers regularly think about how instruction went and make changes based on this review process.
	Confidence	Teachers feel confident teaching because they created the content.
	Retention	Teachers stay at the school.
	Internalization of the IB learner profile	Teachers take on the IB learner profile and apply those attributes to themselves and how they work with each other.
Student Experiences	Engagement	Students are interested in what they are learning.
	Confidence	Students are confident and can present their ideas and thoughts.

Code Family	Code	Definition
	Sense of agency and ownership over learning	Students feel they can make a difference in their school, community, and world and take ownership for their own learning.
	Learning for life	Students learn the skills they need to be a citizen in the world.
	Internalization of IB learner profile	Students take on learner profile attributes.
	Discourse/thinking	Student thinking is deep, and the way students talk about content is robust.
	Academic performance	The school's academic performance is positive (e.g., strong performance on test scores, assessments).
	Relationships	Students are kind to each other; there is little or no bullying.
	Ability to look outside themselves	Students can take on the perspectives of others.
	Collaboration	Students work with one another effectively.
	Celebration of diverse accomplishments	Students are praised and appreciated for their contributions and achievements, academic or otherwise.
	Action and community service	Students are provided with opportunities and encouraged to engage in actions and service.
Parent Experiences	Parent involvement	Parents are active in the school community.
	Parent belief that children are set up for success	Students succeed after leaving the school (e.g., in middle and high school).
	Positive parent perceptions of their school	Parents have a positive perception of their school and the use of the PYP.
	Parent belief that children are thriving after moving to a PYP school	Students thrive after transferring to the PYP school.

Code Family	Code	Definition
Results of the Exhibition	Encourage students to expand their horizons	Students explore new areas and learn about varied topics.
	Encourage student voice and choice	Student input is used to determine topics and projects.
	Foster increased student confidence	Students have confidence to share their thoughts and ideas.
	Encourage students to engage in teamwork	Students practice working in teams.
	Encourage reflection	Students think back on their learning over the course of the PYP.
	Engage the larger community	The community participates in exhibition events.
	Engage parents	Parents participate in exhibition events.
	Engage K–4 students	Other students participate in exhibition events.
	Encourage action and / or community service	Students are provided with opportunities and encouraged to engage in actions and service through exhibition.
Flagging Changes and Differences	Change	Practice/perception/experience changed after introduction of the PYP (the PYP may be one of several contributing factors).
	Difference	Practice/perception/experience is different at the PYP school compared to other schools (the PYP may be one of several contributing factors).
Aspects of the PYP that Contribute to School Climate Change	PYP identity	Having the PYP promotes a coherent mission and identity for the school.
	PYP framework	Having the PYP gives schools a structure around which to focus instruction, policies, and priorities.
	IB learner profile	The learner profile provides a common language and a consistent set of expectations.

Code Family	Code	Definition
	Essential agreements	Essential agreements allow students and staff to have voice and to buy into the rules and expectations.
	PYP professional development and supports	Being a PYP school comes with additional professional development and planning time, which are critical to successful implementation.
	PYP's focus on individualization	The structure of the PYP allows ample space for individualization and adaptation to meet student needs.
	Focus on public speaking	The PYP's focus on public speaking is a useful strategy to build student confidence.
	PYP coordinator	The coordinator is viewed as critical for successful implementation.
Other Contributors to Positive School Climate	Low turnover	The school has experienced longevity in teaching staff, which contributes to successful implementation.
	Leader buy-in	The principal is viewed as critical for successful implementation.
	District support	District support helps ensure the PYP remains a priority and has adequate resources.
	Non-IB professional development and planning supports	Professional development and planning supports are available beyond those offered based on designation as IB school.

Appendix C: CHKS Data

The reliability for the three-item School Connectedness scale (Cronbach's alpha = .63) was below the typical cutoff of .70 for acceptable reliability (John & Benet-Martinez, 2000). However, given the small number of items in the scale and the age of the respondents (both of which tend to lower the reliability of scales), WestEd opted to create a composite variable out of the three items. In many of the analyses with CHKS data (e.g., You et al., 2008), the School Connectedness scale includes the Fairness and Perceived Safety items. At the start of the study, WestEd and the IB Research Department opted to analyze these two items separately because of the conceptual distinction between the two items and the rest of the scale as well as the low correlations between one of the items in the scale (i.e., Do you feel close to people at school?) and the Fairness (r = .13) and Perceived Safety (r = .22) items. The four-item Caring Relationships scale had acceptable reliability (Cronbach's alpha = .72). In addition, there were moderate correlations between the two items that made up the Bullying (r = .39) scale and the two items that made up the Victimization (r = .47) scale.

Table C–1. Correlations Among School Climate Outcomes

School Climate Outcome	1	2	3	4	5	6	7	8	9
1. School Connectedness	—								
2. Caring Relationships	0.49	—							
3. Schoolwork	0.13	0.09	—						
4. Parent Involvement	0.20	0.26	0.07	—					
5. Meaningful Participation	0.30	0.32	0.15	0.15	—				
6. Fairness	0.35	0.50	0.02	0.16	0.20	—			
7. Perceived Safety	0.45	0.42	0.08	0.18	0.18	0.33	—		
8. Bullying	−0.19	−0.21	−0.12	−0.12	−0.20	−0.23	−0.21	—	
9. Victimization	−0.24	−0.22	−0.09	−0.10	−0.01	−0.21	−0.28	0.35	—

Note: The correlations were calculated using all data from 2003–04 through 2018–19 and from all students in the PYP schools' districts. The sample sizes for the correlations ranged from 145,531 to 171,835. All of the correlations were statistically significant at $p < .001$.

The items in the School Connectedness, Caring Relationships, Bullying, and Victimization scales were averaged to create composite variables. Only data from students who completed all three items in the School Connectedness scale were used when creating the composite variable (i.e., WestEd excluded students who completed zero, one, or two items from the analyses). Data from students who completed three or four of the items in the Caring Relationships scale were used when creating the composite variable. Finally, only data from students who completed both items in the Bullying and Victimization scales were used when creating the composite variables.

Table C–2. Means, Standard Deviations, and Sample Sizes for the School Climate Outcomes for Students in the PYP and Non-PYP Schools

School Climate Outcome	Mean	Standard Deviation	N
School Connectedness	3.08	0.69	149,951
Caring Relationships	3.31	0.60	172,780
Schoolwork	2.57	0.92	172,035
Parent Involvement	3.72	0.63	169,194
Meaningful Participation	2.90	0.84	172,290
Fairness	3.34	0.82	151,422
Perceived Safety	3.27	0.88	170,598
Bullying	1.51	0.75	169,127
Victimization	1.64	0.71	169,562

Note: The means are based on all years of available data (i.e., 2003–04 or 2005–06 through 2018–19). For each School Climate Outcome, the minimum was 1 and the maximum was 4.

Appendix D: Quantitative Analysis Sample Description

Table D–1. Number of PYP and Non-PYP Schools and Students Included in the Quantitative Analyses, by District

District	PYP Schools		Non-PYP Schools		Total	
	Schools	Students	Schools	Students	Schools	Students
District 1	1	656	18	10,965	19	11,621
District 2	1	157	4	762	5	919
District 3	1	163	38	7,557	39	7,720
District 4	1	228	8	1,881	9	2,109
District 5	1	378	46	17,737	47	18,115
District 6	2	1,325	18	11,673	20	12,998
District 7	1	277	4	1,314	5	1,591
District 8	1	289	8	3,027	9	3,316
District 9	1	407	5	2,261	6	2,668
District 10	1	280	12	4,077	13	4,357
District 11	2	240	5	802	7	1,042
District 12	1	52	3	712	4	764
District 13	1	245	10	2,240	11	2,485
District 14	1	15	17	6,622	18	6,637
District 15	2	716	22	7,275	24	7,991
District 16	1	118	9	1,501	10	1,619
District 17	3	1,588	24	12,507	27	14,095

District	PYP Schools		Non-PYP Schools		Total	
	Schools	Students	Schools	Students	Schools	Students
District 18	1	471	22	6,936	23	7,407
District 19	1	322	23	5,519	24	5,841
District 20	1	168	12	2,018	13	2,186
District 21	2	578	14	3,161	16	3,739
District 22	1	28	55	3,794	56	3,822
District 23	4	442	120	14,360	124	14,802
District 24	1	102	29	3,506	30	3,608
District 25	1	70	41	3,281	42	3,351
District 26	1	485	12	6,502	13	6,987
District 27	1	310	17	5,104	18	5,414
District 28	1	120	11	2,272	12	2,392
District 29	1	54	3	308	4	362
District 30	2	1,142	18	7,760	20	8,902
District 31	2	519	7	2,291	9	2,810
District 32	2	305	7	805	9	1,110
Total	**44**	**12,250**	**642**	**160,530**	**686**	**172,780**

Note: The sample sizes are based on the numbers of schools and students included in the Caring Relationships analyses, which had the largest sample size.

Data Sources

As noted in the body of the report, the data used to compare the PYP and non-PYP schools came from the CDE and the CCD. The enrollment data came from the CDE's 2018–19 Enrollment by School file, which includes only schools open in 2018–19. A total of 47 non-PYP schools included in the analyses were closed in 2018–19 and are excluded from the enrollment calculation in Table 3. The charter[11] and magnet[12] status came from the CDE's Public Schools and Districts file, which contains a historical record of all open and closed schools in California. As a result, the charter status and the magnet status were available for all 642 non-PYP schools. At the time of the study, the most recent CCD data with geographical locale data were from 2017–18, and locale data were available for all 44 PYP schools and 602 non-PYP schools. The CDE's Enrollment by School file also provided the racial / ethnic breakdowns of the PYP and non-PYP schools in 2018–19. In addition, the CDE's English Learners by Grade and Language and Student Poverty – Free and Reduced-Price Meals Data files provided the English learner and the free or reduced-price meals data, respectively, for the PYP and non-PYP schools still open in 2018–19. WestEd used the historical Student Poverty – Free or Reduced-Price Meals Data files going back to 2003–04 as the source for school-level free or reduced-price meals eligibility, which was a control variable in the growth curve models.

[11] According to the CCD, a charter school is a "school providing free public elementary or secondary education to eligible students under a specific charter granted by the state legislature or other appropriate authority, and it is designated by such authority to be a charter school" (Glander, 2019, p. 10).

[12] According to the CCD, a magnet school is a "special school designed to attract students of different racial / ethnic backgrounds for the purpose of reducing, preventing, or eliminating racial isolation (50 percent or more minority enrollment); and / or to provide an academic or social focus on a particular theme (e.g., science / math, performing arts, gifted / talented, or foreign language)" (Glander, 2019, p. 10).

Appendix E: Quantitative Analysis Approach

WestEd used the "xtmixed" command in Stata 15.1 (StataCorp, 2015) to conduct the growth curve modeling. 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, the growth curve analyses conducted by WestEd model the 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 (ITS) design. Consistent with WestEd's current analyses, Bloom used student-level data to model school trajectories.

WestEd followed Singer and Willett's (2003) model-building approach and specified three models with all of the PYP and non-PYP schools in the PYP schools' districts for each school climate outcome:

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

The metric for time was centered at 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. The linear term for time was coded as zero to 13 or zero to 15 depending on the school climate outcome and the quadratic term in the models was Time^2. WestEd 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 five outcomes (i.e., Caring Relationships, Parent Involvement, Meaningful Participation, Fairness, and Victimization) and a quadratic growth model for four outcomes (i.e., School Connectedness, Schoolwork, Perceived Safety, and Bullying). After determining the best-fitting growth model for each outcome, WestEd added the students' gender as a student-level dummy coded control variable. In addition, WestEd added in free or reduced-price meals rates as a school-level control variable. The free or reduced-price meals rates 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 the changing demographics of the schools.

WestEd and the IB Research Department jointly determined the most appropriate way to code the authorization and candidacy dates. WestEd collected the authorization dates from the IB website (https://www.ibo.org/programmes/find-an-ib-school/), then the IB Research Department reviewed dates and updated them as necessary. The candidacy dates were not publicly available and were provided by the IB Research Department. Although PYP schools included in the analysis tended to be authorized in the spring and summer, there were schools that were authorized throughout the entire

year. In addition, there were not consistent records available indicating what month the CHKS was completed by the schools prior to when an online version of the survey became available in 2012–13. Given this situation, WestEd and the IB Research Department determined that schools authorized in a given calendar year (e.g., January 1, 2012, through December 31, 2012) would be coded as having their first school year post-authorization as the corresponding school year (e.g., 2012–13). Thus, a school authorized late in the school year would not have its CHKS data from that school year count as part of the post-authorization period. The school years for the candidacy dates were specified in the same manner as the school years for the authorization dates. However, the candidacy dates were not consistently available for many of the schools included in the analyses and had to be estimated by utilizing a date two years before the authorization date, which is the typical timeline between candidacy and authorization. As a result, the analyses based on the candidacy dates were treated as exploratory analyses.

After determining the best-fitting growth model and adding the control variables, WestEd added the dummy coded variables indicating whether the 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. The inclusion of these time-varying predictor variables enabled the researchers to examine whether there was a change in the PYP schools' trajectories (and specifically a change in the level) following authorization or candidacy. The inclusion of the comparison non-PYP schools meant that the change post-authorization and post-candidacy for the PYP schools was contrasted with the trajectories of the non-PYP schools, of the PYP schools that had not yet been authorized (for the PYP schools that were authorized before 2018), and of the PYP schools' own trajectories pre-authorization and pre-candidacy.

The HLM equation for the final growth curve models with the school climate outcomes that showed quadratic growth is outlined below. The linear models were consistent with the HLM equation below, but did not include the quadratic term (i.e., $Year^2$). The 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).

$$SchoolClimate_{ijkl} = \gamma_{0000} + \gamma_{1000}Gender_{ijkl} + \gamma_{0100}Year_{jkl} + \gamma_{0200}Year^2_{jkl} + \gamma_{0300}Authorization_{jkl} + \gamma_{0400}FreeMeals_{jkl} + \varepsilon_{ijkl}$$

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} is a level-1 coefficient that describes the strength and direction of the association between student gender (a level-1 dummy code variable) and the outcome school climate score. γ_{0100} and γ_{0200} describe the schools' yearly rate of change or trajectory on the school climate outcome. γ_{0100} is the coefficient for the linear term (i.e., the instantaneous rate of change), and γ_{0200} is the coefficient for the quadratic term (i.e., the curvature; Singer & Willett, 2003). γ_{0300} is a level-2 coefficient and represents the average difference in school climate scores for schools pre-authorization (this includes non-PYP schools for all years) and PYP schools post-authorization. γ_{0400} is a level-2 coefficient that describes the strength and direction of the association between the schools' free or reduced-price meals rate in year *k* and the outcome school climate score. Finally, ε_{ijkl} is the residual, or error term.

The variance components for the linear and quadratic terms could not be consistently estimated (i.e., the models failed to converge) for all of the school climate outcomes when we 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, WestEd included only fixed effects for the linear and quadratic terms in the models, which assumes that the linear and quadratic terms are constant across schools (as opposed to varying across schools; Singer & Willett, 2003).

WestEd additionally conducted exploratory analyses to examine whether the growth rates changed post-authorization. These analyses included interactions between the linear and quadratic (when included in the final model for an outcome) terms and the authorization status variable. These models allowed for the growth rates (in addition to the level) to vary post-authorization for the PYP schools. It would be possible for the PYP schools to show a flat trajectory in the pre-authorization period and then show positive linear growth post-authorization. However, the majority of the interaction terms were not statistically significant, and several of the models failed to converge. In addition, the results from these exploratory analyses that were statistically significant were not readily interpretable when the trajectories were graphed. For example, one plotted trajectory showed an initial increase in Bullying post-authorization (i.e., a negative finding), but then a more rapid decline in the rate of Bullying post-authorization (i.e., a positive finding). It may be that there was an insufficient number of data collection points before and after authorization to accurately model the changes in growth rates pre- and post-authorization.

WestEd did not utilize a multiple comparison correction (e.g., Benjamini & Hochberg, 1995) to protect against the Type I error rate because the nine school climate outcomes were considered separate domains (U.S. Department of Education, 2017). As a result, the critical p value remained at $p < .05$. As shown in Exhibit B–1, in Appendix B, the largest correlation between the school climate outcomes was $r = .50$ and the school climate outcomes would not be considered highly correlated outcomes.

WestEd and the IB Research Department initially explored the use of a CITS design to address the quantitative research question. However, WestEd and the IB Research Department determined that the growth curve modeling approach was a better fit for the study due to the varying authorization dates and the CHKS administration schedule. The CITS design would have allowed for the examination of whether the schools participating in the PYP 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 PYP (Somers et al., 2013). As part of the CITS design, WestEd would have needed to identify a comparison group of schools and re-center the metric for time so that time was centered on the first year post-authorization, regardless of when the schools were authorized (Hallberg et al., 2018).

There are three main problems with the CHKS data that made the CITS design untenable. First, consistent with administration schedules across the state, the PYP schools did not complete the CHKS on an annual basis. Although some schools completed the survey every other year, there was not a consistent survey administration pattern for the vast majority of the PYP schools. Between 2003–04 and 2018–19, 74.58% of the public PYP schools in California (i.e., 44 of the 59 schools) completed the

CHKS at least once, and these schools completed the student survey an average of 5.59 times (*SD* = 2.65). In addition, 20.45% of the schools (i.e., 9 of the 44 schools) that completed the survey at least once did not have data in their post-authorization period. Further, post-test data points for some of the schools occurred up to eight years after the start of PYP at their schools. When re-centering the metric for time for the CITS design, the time variable stretched from -14 to +12 (rather than zero to 15 in the growth curve models), and several of the points (e.g., 10 years post-authorization) had only one school with CHKS data.

Second, the coding for the metric for time in the CITS design (i.e., re-centering each school so that time was centered on the authorization point) would have required each comparison school to be re-centered in the same way as their corresponding PYP school. However, it would have been extremely difficult (and potentially impossible) to identify a comparison group of schools that were matched on prior school climate scores and student demographics as well as on the CHKS administration schedule so that each comparison school had a similar survey administration schedule as their corresponding PYP schools.

Third, the statewide trends for several of the outcomes of interest were non-linear over time. For example, the means on the School Connectedness measure increased from 2009–10 through 2013–14 and then declined thereafter. Preliminary analyses of the statewide data indicated that a quadratic model would be the best fit for the data. The non-linear trends could have been built into a CITS design if all of the PYP schools were authorized in the same year. However, re-centering the metric for time meant that there was no clear way to account for the historical trends for the school climate outcomes in the models.

WestEd conducted two sets of exploratory analyses that examined changes post-authorization. The first exploratory analysis used student-level data, but excluded the non-PYP comparison schools. Because 79.54% of the PYP schools (i.e., 35 of the 44 schools) were in a district with only one PYP school, WestEd used a three-level model that excluded the district level. The use of student-level data without comparison schools is analogous to an ITS design without a comparison group, and the changes post-authorization for the PYP schools are contrasted with the PYP schools that had not yet been authorized (for the PYP schools that were authorized before 2018) and the PYP schools' own trajectories pre-authorization. The second exploratory analysis used aggregate school-level data (rather than student-level data) with the PYP and non-PYP schools. To create the school-level dataset for this analysis, WestEd 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, WestEd excluded the school climate scores that were based on 14 or fewer students from the analysis. The analysis with school-level data was a three-level model with school years within schools nested within schools and districts. In addition, WestEd conducted the same three analyses that were used to examine changes post-authorization (i.e., the primary analysis and two exploratory analyses) to examine changes post-candidacy.

Appendix F: Detailed Findings From Growth Curve Modeling and Findings From Sensitivity Analyses

Table F–1. Findings from the Quantitative Analyses That Examined Post-Authorization Changes in the School Climate Outcomes

School Climate Outcome	Primary Analysis Using Student-Level Data with PYP and Non-PYP Schools				Exploratory Analysis Using Student-Level Data with Only PYP Schools				Exploratory Analysis Using Aggregate School-Level Data with PYP and Non-PYP Schools			
	Post-Authorization Change	Standard Error	p value	Effect Size	Post-Authorization Change	Standard Error	p value	Effect Size	Post-Authorization Change	Standard Error	p value	Effect Size
Perceived Safety	0.062*	0.017	< .001	0.07	0.075*	0.030	.012	0.09	0.049*	0.024	.037	0.06
Caring Relationships	0.039*	0.012	.002	0.06	0.053*	0.020	.008	0.09	0.030	0.018	.092	0.05
Fairness	0.045*	0.018	.012	0.06	0.095*	0.029	.001	0.12	0.034	0.026	.198	0.04
Parent Involvement	0.023*	0.011	.035	0.04	0.012	0.019	.541	0.02	0.022	0.013	.086	0.03
Bullying	−0.038*	0.014	.006	−0.05	−0.058*	0.025	.019	−0.08	−0.036	0.018	.052	−0.05
Victimization	−0.027*	0.013	.039	−0.04	−0.027	0.024	.260	−0.04	−0.021	0.017	.222	−0.03
School Connectedness	0.010	0.015	.484	0.02	0.034	0.025	.170	0.05	0.001	0.020	.945	0.00
Meaningful Participation	0.016	0.016	.288	0.02	0.039	0.027	.148	0.05	0.020	0.020	.318	0.02
Schoolwork	0.002	0.016	.905	0.00	0.043*	0.017	.012	0.05	0.004	0.019	.844	0.00

Note: The changes marked with an asterisk (*) were statistically significant. The effect sizes were based on the student-level standard deviations.

Table F–2. Findings from the Quantitative Analyses That Examined Post-Candidacy Changes in the School Climate Outcomes

School Climate Outcome	Exploratory Analysis Using Student-Level Data with PYP and Non-PYP Schools				Exploratory Analysis using Student-Level Data with Only PYP Schools				Exploratory Analysis Using Aggregate School-Level Data with PYP and Non-PYP Schools			
	Post-Authori-zation Change	Standard Error	p value	Effect Size	Post-Authori-zation Change	Standard Error	p value	Effect Size	Post-Authori-zation Change	Standard Error	p value	Effect Size
Perceived Safety	0.050*	0.016	.001	0.06	0.041	0.031	.188	0.05	0.036	0.021	.090	0.04
Caring Relationships	0.036*	0.011	.002	0.06	0.067*	0.021	.001	0.11	0.030	0.016	.064	0.05
Fairness	0.034*	0.017	.039	0.04	0.088*	0.029	.003	0.11	0.026	0.023	.272	0.03
Parent Involvement	0.021*	0.010	.033	0.03	0.012	0.020	.548	0.02	0.016	0.011	.163	0.03
Bullying	−0.021	0.013	.102	−0.03	−0.020	0.026	.436	−0.03	−0.015	0.016	.368	−0.02
Victimization	−0.023	0.012	.055	−0.03	−0.024	0.025	.335	−0.03	−0.015	0.015	.324	−0.02
School Connectedness	0.016	0.014	.234	0.02	0.045	0.025	.073	0.07	0.013	0.018	.473	0.02
Meaningful Participation	0.031*	0.014	.027	0.04	0.119*	0.028	< .001	0.14	0.027	0.018	.128	0.03
Schoolwork	−0.006	0.015	.670	−0.01	0.041*	0.017	.014	0.04	−0.004	0.017	.799	0.00

Note: The changes marked with an asterisk (*) were statistically significant. The effect sizes were based on the student-level standard deviations.

Appendix G: Alignment Between Codes and the National School Climate Center's Dimensions of School Climate[13]

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	**Code**	**Rules and Norms**	**Physical Security**	**Social-Emotional Security**	**Support for Learning**	**Social and Civic Learning**	**Respect for Diversity**	**Social Support – Adults**	**Social Support – Students**	**School Connectedness – Engagement**	**Leader-ship**	**Professional Relationships**
Instruction	Relevance				✓							
	Inquiry and student voice				✓							
	Transdisciplinary instruction				✓							
	Focus on global perspectives				✓	✓	✓					
	Open-mindedness				✓	✓	✓					
	Individualization				✓							

[13] This table provides information on the alignment of the codes used to examine qualitative data and the NSCC's CSCI.

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	Code	Rules and Norms	Physical Security	Social-Emotional Security	Support for Learning	Social and Civic Learning	Respect for Diversity	Social Support – Adults	Social Support – Students	School Connectedness – Engagement	Leader-ship	Professional Relationships
Discipline	Disciplinary practices	✓									✓	
	Disciplinary issues	✓										
	Students keeping each other accountable	✓										
	Sense of safety		✓	✓				✓	✓			
School Atmosphere	Sense of community									✓		
	Cultivation of an atmosphere of trust									✓	✓	✓
	Focus on SEL and the whole child					✓						

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	Code	Rules and Norms	Physical Security	Social-Emotional Security	Support for Learning	Social and Civic Learning	Respect for Diversity	Social Support – Adults	Social Support – Students	School Connectedness – Engagement	Leader-ship	Professional Relationships
	Use of consistent language	✓								✓	✓	
	Inclusivity		✓	✓	✓	✓	✓		✓			
	Student-staff relationships							✓				✓
	Perceptions of school as a positive environment									✓		
	Desirability to teach at the school									✓		
	Teacher desire to send their children to the school									✓		

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	**Code**	**Rules and Norms**	**Physical Security**	**Social-Emotional Security**	**Support for Learning**	**Social and Civic Learning**	**Respect for Diversity**	**Social Support – Adults**	**Social Support – Students**	**School Connectedness – Engagement**	**Leader-ship**	**Professional Relationships**
Teacher Experiences	Creativity and sense of safety to take risks				✓						✓	✓
	Collaboration										✓	✓
	Engagement				✓							
	Job satisfaction									✓		✓
	Relationships											✓
	Reflection				✓						✓	✓
	Confidence				✓							
	Retention									✓		
	Internalization of the IB learner profile										✓	✓

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	**Code**	**Rules and Norms**	**Physical Security**	**Social-Emotional Security**	**Support for Learning**	**Social and Civic Learning**	**Respect for Diversity**	**Social Support – Adults**	**Social Support – Students**	**School Connectedness – Engagement**	**Leader-ship**	**Professional Relationships**
Student Experiences	Engagement				✓							
	Confidence					✓						
	Sense of agency and ownership over learning					✓						
	Learning for life					✓						
	Internalization of the IB learner profile					✓						
	Discourse / thinking				✓							
	Academic performance				✓							
	Relationships		✓	✓					✓			

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	Code	Rules and Norms	Physical Security	Social-Emotional Security	Support for Learning	Social and Civic Learning	Respect for Diversity	Social Support – Adults	Social Support – Students	School Connectedness – Engagement	Leader-ship	Professional Relationships
	Ability to look outside themselves					✓	✓		✓			
	Collaboration					✓			✓			
	Celebration of diverse accomplish-ments							✓				
	Action and community service				✓	✓				✓		
Parent Experiences	Parent involvement									✓		
	Parent belief that their children are set up for success					✓						

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	**Code**	**Rules and Norms**	**Physical Security**	**Social-Emotional Security**	**Support for Learning**	**Social and Civic Learning**	**Respect for Diversity**	**Social Support – Adults**	**Social Support – Students**	**School Connectedness – Engagement**	**Leader-ship**	**Professional Relationships**
	Positive parent perceptions of their school									✓		
	Parent belief that their children are thriving after moving to PYP school									✓		
Results of the Exhibition	Encourage students to expand their horizons					✓	✓					
	Encourage student voice and choice				✓							
	Foster increased student confidence			✓		✓						

		Safety			Teaching and Learning		Interpersonal Relationships			Institutional Environment	Staff	
Code Family	Code	Rules and Norms	Physical Security	Social-Emotional Security	Support for Learning	Social and Civic Learning	Respect for Diversity	Social Support – Adults	Social Support – Students	School Connectedness – Engagement	Leader-ship	Professional Relationships
	Encourage students to engage in teamwork						✓		✓			
	Encourage reflection					✓						
	Engage the larger community									✓		
	Engage parents									✓		
	Engage K–4 students								✓	✓		
	Encourage action and / or community service					✓	✓					