Teachers College Record
2022, Vol. 124(11) 82–116

DOI: 10.1177/01614681221143548
journals.sagepub.com/home/tcz
SAGE

Connecting Policy to Practice: How State and Local Policy Environments Relate to Teachers' Instruction

Meghan Comstock[1], Adam K. Edgerton, PhD[1], and Laura M. Desimone, PhD[2]

Abstract

Background/Context: Instructional policy aims to shift the nature of teaching and learning. Decades of policy studies have highlighted the challenges inherent in these aims and the conditions necessary to support such change, including a robust infrastructure to support teacher learning. Further, teachers themselves must perceive and experience their policy environment to be supportive of calls to shift instruction.

Purpose/Objective/Research Question/Focus of Study: In this study, we examine the connection between teachers' perceptions of their policy environments and their instructional practices over time, in the context of college-and-career-readiness (CCR) standards implementation. While conducted in the context of standards implementation, our findings apply to supporting instructional change through policy more broadly.

Setting: We examine implementation of CCR standards in two unique state contexts: Texas and Ohio. These states represent important differences in demographics and in their approaches to CCR standards implementation over time.

Research Design: We use a convergent mixed-methods design that draws on state-representative teacher survey data at two points in time (allowing for a trend analysis to understand how teachers' perceptions and experiences evolve), longitudinal interview data with state education leaders, and interview data with educators in one case study district in each state.

Data Collection and Analysis: Surveys measured teachers' perceptions of their policy environments, as well as their self-reported instructional practices. Interviews

[1]University of Pennsylvania, Philadelphia, PA, USA
[2]University of Delaware, Newark, DE, USA

Corresponding Author:
Meghan Comstock, University of Pennsylvania, 3700 Walnut Street, Philadelphia, PA 19104-6243, USA.
Email: mccom@upenn.edu

focused on understanding state- and district-level policies, guidance, and resources, and educators' enactment of standards. Survey analysis included descriptive analysis of patterns over time and hierarchical linear modeling. To unpack broad-based survey patterns, we coded qualitative data and developed assertions based on emergent patterns.

Findings/Results: We found that Texas teachers agreed more strongly than Ohio teachers that their policy environment had aligned, specific, and stable resources, as well as accountability mechanisms in place. Specificity of guidance and resources for standards implementation predicted teachers' use of standards-emphasized instruction in 2019. These patterns reflected each state's approach to policy implementation: a robust state-level infrastructure for guidance and support in Texas, compared with fewer state-developed resources in Ohio in favor of local control. Still, aspects of teachers' local context—in particular, lack of infrastructure for ongoing, embedded professional learning—limited teachers' ability to engage in state-developed guidance.

Conclusions/Recommendations: Our study offers enduring lessons about how to establish the policy conditions necessary to support teachers to change instruction. Findings suggest a need for states to develop resources that clarify instructional shifts for teachers, and districts must balance these top-down resources with ongoing opportunities for educators to adapt resources to suit their students' needs.

Keywords

College-and-career-readiness standards, standards-based reform, policy implementation, instructional policy, mixed-methods research, survey methods, qualitative case study

It has been more than a decade since the Common Core State Standards first emerged. While the standards have evolved, primarily through state adaptations and relabeling of the standards, college-and-career-readiness (CCR) standards remain a persistent presence in classrooms across the country (Desimone et al., 2019; Edgerton, 2020; Kaufman et al., 2018). Since early efforts at standards-based reform, scholars have emphasized that central to this reform is creating a robust system of curricula, assessments, and training alongside adoption of instructional standards and accountability provisions, which will lead to changes in teaching practice and increases in student learning (Clune, 2001; Porter et al., 1988; Smith & O'Day, 1991).

Given these calls for immense changes in teaching and learning, standards-based reform demands that educators have access to a range of resources and conditions to support their learning, such as coherence among policies and intensive professional learning (PL) opportunities for teachers to learn new ways of teaching (Cohen & Hill, 2001; Cohen & Mehta, 2017; Cohen et al., 2007; Stosich, 2016). Furthermore, given the importance of teachers' interpretations and sensemaking when implementing new policies focused on teaching and learning (Coburn, 2005; Cohen & Hill, 2001), teachers themselves must perceive and experience their policy environment to be supportive of calls to shift instruction (Edgerton & Desimone, 2018). And importantly,

teachers' perceptions might differ based on their subject areas and their student populations—such as whether they serve students with disabilities (SWDs) and English learners (ELs)—because of differences in expectations and resources across content areas, subject areas, and student populations (Figueroa Murphy & Haller, 2015). Thus, for standards-based reform to be effective, teachers across content areas and student populations must perceive and experience a policy environment that is supportive of standards implementation—coherent policies that are sustained over time, resources that offer guidance, and PL that supports teacher learning.

In this study, we examine teachers' self-reported implementation of standards in two distinct policy environments—Texas and Ohio—and how teachers' perceptions of their policy environments relate to how well aligned their instruction is to content standards. We aim to understand broad trends in the relationship between teachers' policy environments and their instruction, as well as the nuanced dynamics of implementation at the local level. Texas and Ohio offer two unique state policy contexts for doing so; their varied histories and approaches to standards and associated resources make them a valuable pair of districts to study the influence of policy environment on teachers' instruction. While ample scholarship has focused on standards-based reform, longitudinal studies and studies that combine broad-based findings and in-depth examinations of on-the-ground dynamics of standards implementation are rare.

We use a convergent mixed-methods design that draws on state-representative teacher survey data at two points in time (allowing for a trend analysis to understand how teachers' perceptions and experiences evolve as their states progress through standards-based reform); longitudinal interview data with state education leaders; and interview data with educators in one case study district in each state. With our longitudinal design, we track changes over a four-year time span between the policy environment and teachers' instruction. In doing so, we follow other studies that have established links between policy, PL, and instruction and documented change in teachers' perceptions and practices due to instructional and accountability policy shifts across similar time spans (Hunter, 2019; Kisa & Correnti, 2015; Munter & Correnti, 2017; Stecher et al., 2008). We measure and analyze how teachers align their instruction to content in the standards, which we label "standards-emphasized instruction," and we focus our analysis on the relationship between teachers' perceptions of their policy environment, grounded in the policy attributes theory (Desimone, 2002; Porter et al., 1988), and their standards-emphasized instruction. Thus, our overarching research question for this study is: How does the policy environment influence teachers' instruction? We examine this overarching question in the context of CCR standards implementation in Texas and Ohio. More specifically:

1. How did teachers perceive their policy environments related to CCR standards in 2019, and how have their perceptions changed since 2016? In what ways do perceptions differ for teachers of English language arts (ELA), math, SWDs, and ELs in Texas and Ohio?
2. How is the policy environment related to teachers' use of standards-emphasized instruction, and how has this changed over time in Texas and Ohio?

3. How are aspects of the policy environment operationalized in Texas and Ohio, and what key factors influence the relationship between the policy environment and standards-emphasized instruction in those states?

In addressing these questions, we offer enduring lessons about how we establish the policy conditions necessary to support teachers in changing instruction. In what follows, we first present further background literature, followed by context for the two states of focus in this study—Texas and Ohio—and the conceptual framework grounding this study. We then present our results and conclude with a discussion of our findings and their relevance to the broader field.

Literature Review

Decades of education scholarship on standards-based reform efforts have yielded a rich literature on the conditions that influence teacher change, emphasizing coherence among policies and PL opportunities for teachers. In their study of math instructional reform, Cohen and Hill (2001) drew the field's attention to key conditions that support instructional reform: coherence among policies and PL opportunities for teachers to learn a new way of teaching. Additional in-depth studies of standards-based reform have further highlighted the local conditions and contextual factors that influence reform efforts: educators' beliefs about prescribed practices (Hodge, 2019); school leadership's role in supporting implementation (e.g., Coburn, 2005; Pak et al., 2020); and opportunities for teacher collaboration (Stosich, 2016).

Case studies of standards-based reform efforts have also revealed the particular challenges that teachers of ELs and SWDs face when implementing CCR standards. For instance, teachers of ELs and SWDs experience a lack of clarity around how to achieve alignment to the standards and pacing; student needs are not taken into account, in some cases leading to low buy-in for the standards (Bacon, 2015; Edgerton et al., 2020; Figueroa Murphy & Haller, 2015). In response, some scholars have argued that PL that allows for the alignment of EL and SWD learning needs and collaboration across all staff (i.e., EL, SWD, and general education teachers) is critical for supporting ELs and SWDs (Figueroa Murphy & Haller, 2015).

Furthermore, scholarship on standards-based reform has consistently raised how local and state contexts shape standards implementation, suggesting a need for in-depth examinations of the relations between policy environment and practice. In their reflection on what we still need to learn about standards-based reform, Coburn et al. (2016) called for comparing different states to examine how variations in the policy context influence implementation. In this study, we provide a novel and much-needed assessment of the evolution of standards implementation over the last several years—before the Covid-19 pandemic—in two states with unique contexts for CCR standards implementation, including differences in student populations and state approaches to supporting the rollout of standards.

State Background: Texas and Ohio

In this study, we focus on implementation of CCR standards in Texas and Ohio from 2016 to 2019. These states offer two unique contexts for understanding standards implementation, given their demographic differences as well as differences in their approach to CCR standards implementation over time (Table 1). Regarding demographics (based on the 2018–2019 school year), Texas serves a much larger student population than Ohio (5.4 million students, compared with 1.7 million, respectively), nearly twice as many districts (1,025, compared with 619), and more than twice as many schools (8,774, compared with 3,500). Texas also has a larger proportion of students of color than Ohio (73% and 31%, respectively) and a much larger proportion of ELs than Ohio (18% and 3%, respectively). Texas, however, has a lower proportion of SWDs than Ohio (10% and 16%, respectively). These demographic differences alone might suggest that standards implementation would play out differently in these states, based on scholarship suggesting that local policy implementation differs depending on varied interpretations of policy and access to resources (e.g., Coburn, 2005), and differing needs across student populations (Figueroa Murphy & Haller, 2015).

Texas and Ohio also have notable differences in the development and rigor of the standards themselves. Ohio adopted the CCSS in 2010, while Texas revised its previous standards to be aligned with college and career readiness the year prior. Despite this, in their external review of the content standards in 2010, based on a series of criteria for assessing rigor of states' content standards—including content coverage, expectations for how content is taught, and appropriateness of content within grade levels—Carmichael et al. (2010) ranked Texas's standards as more rigorous than Ohio's standards. Furthermore, Texas also engaged in an ongoing revisions process for its original state standards, which extended through the course of the study; the most recent revision to its ELA standards was in 2017. These standards development processes are important factors in this study; Texas's long history of developing its own standards and associated resources signals long-standing capacity at the state level to support resources and guidance for standards-based reform. A point of convergence between these two states is their assessments—both states developed their own, though for Ohio, this decision came only after it dropped out of the Partnership for Assessment of Readiness for College and Careers (PARCC) consortium.

We leverage these distinct contexts in Texas and Ohio to understand how state and local context, and teachers' perceptions of their policy environments relate to teachers' self-reported instructional practices and the evolution of standards-based reform over time.

Conceptual Framework

We draw on two bodies of scholarship to ground this study: the policy attributes theory and policy implementation studies of standards-based reform and teacher learning. Our conceptual framework is depicted in Figure 1.

Table 1. Demographic and Policy Features by State.

Feature	Texas	Ohio
PreK–12 enrollment	5,433,471	1,695,762
Number of school districts	1,025	619
Number of public schools	8,774	3,500
Number of public school teachers	356,877	98,912
Percentage of students of color	72.6	30.7
Percentage of students eligible for free-or-reduced-price lunch	60.5	45.2
Percentage of students with disabilities	9.8	15.9
Percentage of English learners	17.7	3.3
Rigor of ELA/math standards	6 (ELA) 4 (Math)	4 (ELA) 3 (Math)
CCR standards	Texas Essential Knowledge and Skills (TEKS)	Ohio's Learning Standards (OLS)
CCR standards adoption and implementation	TEKS adopted in 1997 and first implemented in 1998–1999. ELA TEKS were revised to align with college and career readiness standards and first implemented in the 2009–2010 school year. ELA TEKS most recently revised in 2017.[a] Math TEKS were revised to align with college and career readiness standards in 2012 and first implemented in the 2014–2015 school year.	OLS adopted in 2010 and fully implemented in the 2014–2015 school year
Implementation of CCR-aligned assessments	CCR-aligned State of Texas Assessment of Academic Readiness (STAAR) fully implemented in 2015	CCR-aligned Ohio Achievement Assessment first implemented in 2015 (originally part of the PARCC consortium)

Note. ELA = English language arts; CCR = college-and career-readiness. Demographic data represent the 2018–2019 school year. Demographic data are derived from the National Center for Education Statistics' current Digest of Education Statistics tables (https://nces.ed.gov/programs/digest/current_tables.asp): Tables 203.20, 204.20, 204.70, and 204.10. Percentage of students of color is from Table 203.70 from the Digest of Education Statistics 2020 (https://nces.ed.gov/programs/digest/d20/tables/dt20_203.70.asp). Rigor of ELA/math standards is based on a 7-point grading scale, with 7 as the most rigorous and 0 as least rigorous, from Carmichael and colleagues' (2010) external review of the standards for each state in 2010. Further details on CCR standards and assessment policies in each state can be found at www.c-sail.org.

[a]https://tea.texas.gov/academics/curriculum-standards/teks/texas-essential-knowledge-and-skills.

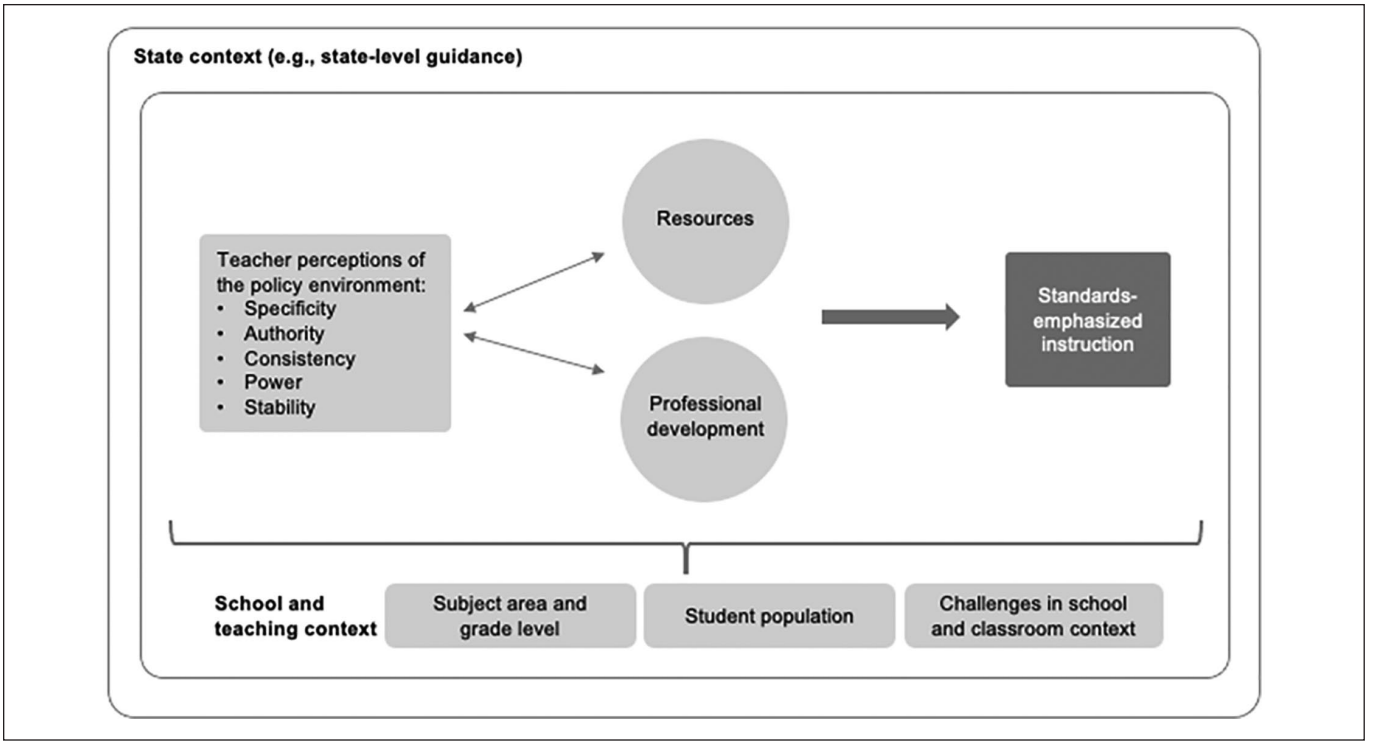

Figure 1. Conceptual framework.

The Policy Attributes

The policy attributes theory (Porter, 1994; Porter et al., 1988) identifies five factors critical for successful policy implementation. *Specificity* is the degree of prescriptiveness of the policy, such as whether teachers receive guidance on the order and pacing of the curriculum. *Consistency* refers to the alignment of policies and resources—for instance, the extent to which curriculum, PL, and assessments are aligned. This aspect of the policy environment connects directly to other scholars' work on standards-based reform—specifically, calls for attending to the alignment of state policy, district policy, and "the educational infrastructure that has developed to support teachers' learning about and compliance with policy" (Coburn et al., 2016, p. 246). *Authority* refers to the legitimacy of the policy change, including the extent to which stakeholders have bought into the policy. In our study, authority includes teachers' perceptions of the appropriateness and relevance of the standards and the extent to which they believe the standards adequately prepare students for subsequent grades. *Power* refers to the accountability mechanisms, such as awards, incentives, or sanctions, built into the policy (Desimone et al., 2019). Scholars have discussed accountability as the other side of the alignment coin—that is, accountability mechanisms, coupled with an educational infrastructure that supports the learning required for standards implementation, are critical to standards-based reform (Coburn et al., 2016). Finally, *stability* is whether the policy is likely to change. This theory suggests that policies are more likely to be successfully implemented if stakeholders believe they will last. Scholars continue to iterate on the attributes, most recently in describing how the detail, drive, and durability of standards-based reform can explain its successes and failures (Edgerton, 2020).

We ground our analysis in educators' perceptions of the attributes, rather than attempting to measure some true value of each attribute (Desimone, 2002; Desimone et al., 2019). This lens is especially suitable in our study, given our focus on the relationship between teachers' perceptions of their policy environments and their practice. We theorize that teachers' perceptions of their policy environment are linked to the extent to which they engage in standards-emphasized instruction.

Factors Affecting Implementation

In addition to the policy attributes, we also attend to key resources available to teachers. Policy implementation studies of standards-based reform and teacher learning have drawn attention to policy instruments and local conditions that influence effects (Cohen et al., 2007). One key factor is teachers' access to aligned resources and PL. Teacher changes in practice depend in part on teachers' understandings and interpretations of instructional standards, which are shaped by their prior beliefs, practices, and experiences (Coburn, 2005; Cohen, 1990; Cohen & Hill, 2001; Spillane et al., 2002). Despite the mixed findings on the impact of PL (e.g., Garet et al., 2011; Kraft et al., 2018), which limit our ability to know exactly how to

shape and provide effective PL, literature supports the idea that properly constructed teacher learning opportunities are fundamental to productive teacher change (Desimone, 2009). PL around CCR standards can support teachers in engaging in "joint inquiry" that enables them to identify gaps in their own practices (Stosich, 2016) and has been connected to student learning improvements under standards-based reform efforts (Hochberg & Desimone, 2010). As such, we posit that PL is a necessary component of standards-based reform because it serves as the space in which teachers can make sense of policy expectations and adapt their practice. Furthermore, resources, such as curricular resources and standards-aligned tools, can mediate teachers' implementation of state standards (e.g., Hill, 2001; Polikoff, 2012, 2015; Spillane, 2004) and thus are necessary to support standards-emphasized instruction.

Further, aspects of the teachers' school and teaching contexts, such as the students they serve and challenges in the school such as turnover, are likely to influence their efforts to implement standards. For instance, teachers of ELs or SWDs are likely to view standards differently than teachers who do not serve these populations of students, given differences in students' needs (Bacon, 2015; Edgerton et al., 2020; Figueroa Murphy & Haller, 2015). Based on scholarship that suggests differences in implementation across grade levels and subject areas (e.g., Dee & Jacob, 2011; Edgerton & Desimone, 2018; Porter et al., 2011), we also hypothesize that implementation of standards-emphasized instruction may differ based on these aspects of teaching context. Challenges in the school and classroom context, such as differences in students' preparation and insufficient class time to cover content, are likely to influence the relationship between teachers' perceptions of the policy environment, their access to resources and PL, and the extent to which they implement standards-emphasized instruction.

Finally, the outer box in our framework indicates that these dynamics occur within a broader state-level context. State-level policy differences—such as capacity to produce guidance for districts—are key to understanding teachers' efforts to implement CCR standards (Coburn et al., 2016; Edgerton & Desimone, 2018).

Methods

Drawing on longitudinal data from Texas and Ohio, this study uses a convergent mixed-methods design (Creswell, 2014), which enables us to achieve both breadth and depth in the findings. We identify our design as convergent because we collected quantiative and qualitative data in approximately the same time frames and used these data in tandem to understand the connection between the policy environment and teachers' instruction. More specifically, we used survey data from two different cohorts of teachers—in 2015–2016 and 2018–2019—to describe broad, state-representative patterns in teachers' perceptions of their state policy environment and how those patterns have changed over time. Survey data also allowed us to examine broad associations between aspects of the policy environment and teachers' standards-emphasized

Table 2. Descriptive Statistics: Teacher Cohorts.

	Texas		Ohio	
Characteristic	2015–16	2019	2015–16	2019
Grades taught				
PreK–2nd	9%	11%	3%	6%
3rd–5th	55%	53%	40%	42%
6th–8th	5%	4%	7%	7%
9th–12th	45%	48%	60%	59%
Subjects taught				
ELA	61%	63%	56%	56 %
Math	59%	58%	53%	52%
Special education	18%	20%	19%	19%
English as a second language/English language development	13%	8%	4%	4%
Average years of teaching experience	12.40 (8.45)	12.15 (8.96)	13.88 (8.86)	15.72 (9.19)
Average years teaching in current district	8.42 (7.56)	8.29 (7.55)	10.66 (7.97)	12.28 (8.99)

Note. Descriptive statistics reported as % or *M*(*SD*).

practice. State-level interviews and case study interview data allowed us to examine why and under what conditions particular aspects of the policy environment were related to standards-emphasized instruction.

Data and Sample

For this study, we used longitudinal state-representative teacher survey data of two different teacher cohorts in 2015–2016 and 2018–2019, longitudinal interview data with state education leaders, and interview data with educators in one case study district in each state.

Survey. We administered a teacher survey in Texas and Ohio during the 2015–2016 and 2018–2019 school years. For each survey administration, we used stratified random sampling to ensure a state-representative sample that included ELA and math teachers, teachers of ELs and SWDs, and teachers at elementary and high schools. Importantly, our goal was not to measure individual change in perceptions and practices over time; rather, our goal was to examine how the relationship between teachers' perceptions of their policy environments and their self-reported instruction changed over time. As such, our survey data are not panel in nature; we targeted two distinct cohorts of teachers, representative of teachers in the state as a whole, which allowed

Table 3. Demographics of Case Study Districts.

Demographic	Texas	Ohio
Enrollment	~15,000	~10,000
Number of schools	22–27	12–17
Number of teachers	1,000	500
Percentage of students of color	60	30
Percentage of students who are economically disadvantaged	19[a]	30[b]
Percentage of students with IEPs	8	14
Percentage of students with disabilities	4	4
Percentage of English learners	18	5
4-year graduation rate	75%	95%

Note. Demographic data are from NCES (nces.ed.gov) and represent the 2018–2019 school year unless otherwise noted. Numbers are approximated to preserve the anonymity. [a] Source: Texas case study district website, 2019–2020 data. [b] Source: Ohio district website, 2019–2020 data.

us to conduct a trend study of educators' experiences across both states over time. See Table 2 for background characteristics of each teacher cohort.

We selected 42 districts in each state. In each selected district, we sampled up to two elementary schools and two high schools. In each elementary school, we sampled two fifth-grade math teachers, two fourth-grade ELA teachers, one teacher of SWDs, and one teacher of ELs. In each high school, we sampled two ELA teachers and one teacher of the following students or subjects: SWDs, ELs, Algebra I, Algebra II, and geometry. (See c-sail.org for additional information on sampling procedures.)

Of the eligible teachers for the 2015–2016 survey, 417 of 654 sampled teachers responded in Ohio (conditional response rate: 64.8%), and 603 of 1,089 (55.3%) in Texas. Of the eligible teachers for the 2018–2019 survey, 439 of 510 sampled teachers responded in Ohio (conditional response rate: 86.1%), and 339 of 484 (70.0%) in Texas.

State-Level Interviews. We conducted semi-structured interviews (Creswell, 2014) by phone with key state-level leaders in each state in 2015–2016 and in 2018–2019. We conducted six interviews per state per year, for a total of 24. Interviews focused on states' ongoing efforts to implement various aspects of standards-based reform, including changes to CCR standards and accountability guidance and policies, resources developed to support districts with CCR standards implementation, PL offerings made available to districts, and supports for SWDs and ELs.

Case Study Interviews. We also drew on in-person semi-structured interviews from one case study district in each state (Table 3). The purpose of the case study districts was to provide a nuanced examination of the ways that standards-based reform policies were implemented at the local level, especially among teachers of different

grades and student populations; this allowed us to connect state-level policies with practitioners at all levels of the system. We purposefully selected our case study districts from our stratified random sample of survey districts. Our selection criteria for case study districts included (1) a large population of ELs and SWDs relative to other districts, given our interest in understanding experiences of teachers of these populations, and (2) efforts to reform curriculum and instruction in response to CCR standards (Edgerton, 2020).

In each case study district, we visited two elementary schools and two high schools and interviewed school leaders, coaches, and teachers at each school. For this analysis, we focused on teacher interviews to understand how teachers perceived their policy environments and what factors influenced the relationship between specificity and standards-emphasized instruction.

In total, we interviewed 70 teachers across the two case study districts: 38 teachers in the Ohio case study district and 32 teachers in Texas. We conducted individual interviews with 29 of those teachers (16 in Ohio and 13 in Texas). We interviewed the remaining 41 teachers through group interviews (22 in Ohio and 19 in Texas)—we conducted one focus group per school. Interviews were conducted by members of the research team, which included professors and graduate students. During interviews, we asked teachers about their experiences teaching with the CCR standards, their district's efforts to support standards-based reform, opportunities for PL, assessment practices, and supports for SWDs and ELs.

Measures

All key measures in this analysis are composite averages of multiple items on the survey to increase reliability and validity (Mayer, 1999). When possible, we used items from previously validated national surveys. The development process for creating or adapting items included expert review, cognitive interviews, and substantial iteration (Desimone & LeFloch, 2004).

Our key independent variables are multi-item composites for each of the policy attributes, challenges, resources, and PL. To measure specificity (Cronbach's $\alpha = .79$ in Texas, .84 in Ohio), we asked teachers their level of agreement with statements related to how detailed guidance from the district was around standards implementation, where 1 = strongly disagree; 2 = somewhat disagree; 3 = somewhat agree; and 4 = strongly agree. For authority ($\alpha = .83$ in Texas, .75 in Ohio), we asked teachers the extent of their agreement with statements that reflected their buy-in to the standards, such as if they thought the standards made learning relevant, if the standards were appropriate for their students, and if they gave them the flexibility they needed to help students below grade level. For consistency ($\alpha = .86$ in Texas, .88 in Ohio), we asked the degree to which teachers believed that curricula, assessments, PL, evaluations, and other policies were aligned. For power ($\alpha = .73$ in Texas, .72 in Ohio), we asked teachers about positive and negative repercussions for implementing the standards. For stability ($\alpha = .82$ in Texas, .84 in Ohio), we asked them to predict how long

the standards and assessments would last in each state. Policy attributes scales are included in Appendix.

To measure resources, we asked teachers about the instructional resources they used and found useful. To measure PL, we multiplied teachers' reported usefulness of PL (from 1 to 4) by the dosage of PL they reported receiving that academic year (on a 1–5 scale, where 1 = 1–10 hours; 2 = 11–20 hours; 3 = 21–40 hours; 4 = 41–80 hours; and 5 = 81 or more hours). Thus, the resulting variable, PL, represents both the reported amount and the perceived usefulness of PL. To measure challenges, we provided a list of 10 school, classroom, and student challenges and asked teachers to rate them as either not a challenge, a minor challenge, a moderate challenge, or a major challenge (on a scale from 1 to 4). We derived this list of challenges from the literature—for instance, student absenteeism may preclude teachers from engaging with resources and PL (Allensworth & Easton, 2007). Our key independent variables were not highly correlated. The highest correlation was 0.47 between consistency and resources.

The key outcome variable of interest was alignment of teachers' self-reported instruction with content emphasized in the standards ("standards-emphasized instruction"). To measure standards-emphasized instruction, we used a modified version of the Surveys of Enacted Curriculum approach (Porter, 2002), which has been used in several studies (e.g., Polikoff et al., 2011; Webb, 2007). We asked teachers to report the topics (e.g., adding fractions) and cognitive demands (e.g., memorize, problem solve) that they covered. Trained content experts then mapped teachers' reported content onto the topics and cognitive demands from each state's standards to determine degree of standards-emphasized instruction.

Analytic Strategy

We used survey jackknife procedures to weight all survey analyses based on state demographics so that the results represented the state population. To answer RQ1, we used one-way analysis of variance to assess differences on policy attributes across states in 2019 and differences across years within states on each of the policy attributes, both overall and by subgroups of teachers. We also used one-way analysis of variance to assess differences on challenges, resources, and PL by state in 2019. We looked descriptively at the most common challenges teachers reported and the extent to which those top challenges changed over time.

To answer RQ2, we used two-level hierarchical linear models (HLMs), nesting teachers within schools, to examine the extent to which instructional supports and teachers' perceptions of their policy environment predicted changes in standards-emphasized instruction. Results from log-likelihood ratio tests indicated that a model that nested teachers in schools was significantly different from a linear model for ELA teachers in Texas (α level .05). For that sample, the school random effect accounted for approximately 17% of the variation in standards-emphasized instruction. For consistency across models, we used a two-level HLM for each model. We ran eight models total: one for each year of survey data, in each subject,

in each state. The linear mixed model specification for each regression model was as follows:

$$Y_{si} = \beta_{00} + \beta_{01} Specificity + \beta_{02} Authority + \beta_{03} Consistency + \beta_{04} Power + \beta_{05} Stability + \beta_{06} PL Usefulness\ x\ PLhours + \beta_{07} Resources + \beta_{08} Challenges + \upsilon_{i0} + \epsilon_{si}$$

Finally, we used qualitative data to answer RQ3. All interviews were recorded and transcribed. We then coded the interview data for key constructs in our conceptual framework: each of the policy attributes, challenges, resources, and PL. We also added descriptive tags to each interview; this was especially helpful for analyzing teacher interviews, because we noted characteristics such as grade level, content area, and whether the teacher taught particular student populations (e.g., SWDs or ELs).

After finding that specificity was consistently related to standards-aligned instruction in our survey analysis, we analyzed each state's approach to specificity over time. We started with the first round of state-level interviews, followed by the second, noting the major changes to the way they operationalized specificity (e.g., in their resources, PL offerings) over time. This round of analysis provided us with the state-level context for interpreting the findings from the survey analysis. With this context, we then turned to the case study interviews. We analyzed excerpts from each of the a priori codes, noting key patterns across respondents and examining differences based on descriptive characteristics of the teachers noted earlier. We generated key assertions from the patterns that arose from these rounds of analysis (Miles et al., 2014; Ravitch & Carl, 2016).

Thus, we relied on the survey data to identify broad-based patterns among educators in Texas and Ohio and to assess the extent to which those patterns have changed over time. We leveraged the interview data to operationalize, explain, and understand the relationships revealed through the quantitative data analysis. Our approach, then, offers both broad-based findings and in-depth examinations of those findings in local context.

Findings

Perceptions of the Policy Environment in Texas and Ohio

In 2019. Survey data indicated that Texas teachers perceived their policy environment for standards-based reform in 2019 to be more specific, consistent, authoritative, powerful, and stable than Ohio's policy environment (Table 4). Texas teachers' perceptions of specificity of the standards were most prominent: Average perceptions of the specificity of their CCR standards policies (3.25 out of 4) were significantly higher than all other policy attributes in Texas and Ohio. Thus, the clarity of standards content, expectations, and guidance stood out as particularly strong among Texas teachers.

At the same time, perceptions of the policy attributes varied across subgroups in Texas. Teachers of SWDs perceived significantly lower specificity than math teachers ($p = .01$) and reported significantly lower authority of the standards than both ELA

Table 4. Means and Mean Differences in Teacher Policy Attributes by State in 2019.

	Texas		Ohio				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	329	3.25 (0.07)	431	2.48 (0.12)	0.77**	26.22	0.00
Authority	330	2.86 (0.03)	431	2.55 (0.05)	0.31**	24.30	0.00
Consistency	328	2.87 (0.05)	430	2.64 (0.04)	0.23**	19.00	0.00
Power	329	3.05 (0.04)	432	2.70 (0.06)	0.35**	20.60	0.00
Stability	328	2.54 (0.13)	430	2.27 (0.06)	0.27*	4.14	0.04

Note. This table provides the mean survey scale value for each policy attribute (specificity, authority, consistency, power, stability) among teachers in Texas and Ohio, the mean difference between Texas and Ohio for each attribute, the *F* statistic for each mean difference, and the significance level for each mean difference. Numbers in parentheses are standard errors.
*$p < .05$ **$p < .01$.

and math teachers ($p = .001$ and $p = .002$, respectively). In Ohio, perceptions of teachers of SWDs and ELs did not differ significantly from those of ELA or math teachers. (See Table 5 for the mean values by subgroup for 2019. *F* statistics and significance levels for these comparisons are not shown in the table.)

In addition, compared with Ohio teachers, Texas teachers, on average, reported fewer challenges and greater resources for CCR standards implementation. Texas teachers also reported, on average, higher amounts of usefulness and quantity of PL (Table 6). It is worth noting, however, that the usefulness and quantity of PL remained quite low across both states. The maximum value of 20 for this scale would indicate that teachers reported receiving 81 or more hours of PL that was very useful. Thus, while Texas teachers reported receiving, on average, significantly more and more useful PL than Ohio teachers, the average reported PL in both states was relatively low (6.05 in Texas and 4.91 in Ohio out of 20, with a minimum of 1 and a maximum of 20 in each state).

Change and Continuity Over Time. In both states, teachers perceived their policy environment to have become stronger in terms of authority and power since 2015–2016 (Table 5). In other words, across both states, on average, teachers reported significantly greater buy-in and support for the standards (authority) and greater accountability structures for CCR standards implementation (power) in 2019 compared with 2015–2016. At the same time, in Ohio teachers' perceptions of the stability of the CCR standards and associated assessments significantly decreased (from a mean of 2.44 in

Table 5. Teacher Policy Attributes Within States Over Time and by Subgroup.

	Texas All Teachers							Ohio All Teachers						
	2019		2015–16					2019		2015–16				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	329	3.25 (0.07)	585	3.14 (0.07)	0.11	1.05	0.30	431	2.48 (0.12)	405	2.38 (0.13)	0.1	0.32	0.57
Authority	330	2.86 (0.03)	583	2.56 (0.05)	0.3**	18.43	0.00	431	2.55 (0.05)	402	2.3 (0.04)	0.25**	15.61	0.00
Consistency	328	2.87 (0.05)	564	2.82 (0.04)	0.05	0.59	0.44	430	2.64 (0.04)	379	2.71 (0.04)	−0.07	1.52	0.22
Power	329	3.05 (0.04)	586	2.68 (0.07)	0.37**	13.76	0.00	432	2.7 (0.06)	405	2.5 (0.06)	0.2*	5.74	0.02
Stability	328	2.54 (0.13)	579	2.51 (0.07)	0.03	0.06	0.80	430	2.27 (0.06)	398	2.44 (0.06)	−0.17*	4.18	0.04
	Texas ELA							Ohio ELA						
	2019		2015–16					2019		2015–16				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	96	3.26 (0.11)	207	3.16 (0.12)	0.1	0.30	0.59	163	2.39 (0.25)	157	2.38 (0.21)	0.01	0.00	0.98
Authority	96	2.98 (0.06)	207	2.7 (0.09)	0.28*	4.15	0.04	163	2.64 (0.07)	157	2.43 (0.08)	0.21	3.60	0.06
Consistency	96	3.68 (0.10)	202	2.85 (0.09)	0.83**	31.13	0.00	163	3.08 (0.20)	146	2.8 (0.05)	0.28	1.67	0.20
Power	96	3.06 (0.07)	207	2.73 (0.1)	0.33*	4.66	0.03	163	2.77 (0.13)	157	2.5 (0.08)	0.27	3.11	0.08
Stability	96	2.63 (0.22)	203	2.43 (0.13)	0.2	0.68	0.41	163	2.45 (0.14)	153	2.44 (0.08)	0.01	0.01	0.93

(continued)

Table 5. (continued)

	Texas Math							Ohio Math						
	2019		2015–16					2019		2015–16				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	115	3.43 (0.07)	250	3.24 (0.09)	0.19	1.77	0.18	167	2.64 (0.11)	166	2.4 (0.14)	0.24	1.82	0.18
Authority	116	2.94 (0.06)	248	2.52 (0.05)	0.42**	24.48	0.00	167	2.55 (0.08)	163	2.24 (0.06)	0.31**	9.88	0.00
Consistency	114	3.67 (0.13)	243	2.81 (0.04)	0.86**	65.55	0.00	167	3.00 (0.13)	158	2.57 (0.07)	0.43**	8.71	0.00
Power	115	3.05 (0.08)	250	2.65 (0.09)	0.4*	7.79	0.01	168	2.76 (0.07)	166	2.44 (0.07)	0.32**	10.10	0.00
Stability	114	2.54 (0.17)	249	2.61 (0.07)	−0.07	0.18	0.67	167	2.02 (0.08)	166	2.47 (0.12)	−0.45**	9.79	0.00
	Texas SWD							Ohio SWD						
	2019		2015–16					2019		2015–16				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	60	2.98 (0.12)	78	2.87 (0.13)	0.11	0.33	0.57	79	2.37 (0.12)	67	2.35 (0.14)	0.02	0.01	0.92
Authority	60	2.60 (0.08)	79	2.29 (0.12)	0.31*	4.01	0.05	79	2.43 (0.10)	66	2.17 (0.1)	0.26	3.19	0.08
Consistency	60	3.30 (0.16)	71	2.8 (0.07)	0.5**	9.34	0.00	79	2.80 (0.19)	59	2.83 (0.1)	−0.03	0.01	0.91
Power	60	3.02 (0.10)	79	2.61 (0.07)	0.41**	11.57	0.00	79	2.52 (0.17)	67	2.57 (0.1)	−0.05	0.06	0.81
Stability	60	2.45 (0.21)	78	2.45 (0.2)	0.0	0.00	0.99	79	2.28 (0.12)	64	2.39 (0.13)	−0.11	0.36	0.55

(continued)

Table 5. (continued)

	Texas EL							Ohio EL						
	2019		2015–16					2019		2015-16				
Attribute	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig	*n*	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Specificity	58	3.30 (0.13)	49	3.20 (0.13)	0.1	0.28	0.60	22	2.42 (0.30)	15	2.23 (0.41)	0.19	0.15	0.70
Authority	58	2.86 (0.05)	49	2.80 (0.1)	0.06	0.33	0.57	22	2.52 (0.11)	16	2.6 (0.36)	−0.08	0.05	0.82
Consistency	58	3.63 (0.11)	48	2.78 (0.12)	0.85**	25.86	0.00	21	3.34 (0.23)	16	2.7 (0.39)	0.64	2.23	0.14
Power	58	3.03 (0.08)	50	2.67 (0.08)	0.36**	10.77	0.00	22	2.64 (0.15)	15	2.68 (0.28)	−0.04	0.02	0.89
Stability	58	2.51 (0.12)	49	2.50 (0.19)	0.01	0.00	0.98	21	2.71 (0.34)	15	3.09 (0.29)	−0.38	0.63	0.43

Note. This table provides the mean survey scale value for each policy attribute (specificity, authority, consistency, power, stability) among teachers (overall and by subgroup) in Texas and Ohio; the mean difference between scale values over time within each state in each subgroup; the *F* statistic for each mean difference; and the significance level for each mean difference. *F* statistic values represent the comparison of the mean values for a given attribute in each survey year by state (e.g., a comparison of the mean value for specificity in Texas in 2016 compared with 2019). Numbers in parentheses are standard errors.

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

Table 6. Means and Mean Differences in Perceived Challenges, Resources, and PL By State in 2019.

	Texas		Ohio				
	n	*M*	*n*	*M*	*M* Difference	*F* Value	Sig
Challenges	330	2.25 (0.06)	435	2.43 (0.06)	−0.18*	4.33	0.04
Resources	313	3.11 (0.06)	403	2.77 (0.07)	0.34**	12.70	0.00
PL	285	6.05 (0.31)	322	4.91 (0.28)	1.14*	7.48	0.01

Note. This table provides the mean survey scale value for perceived challenges, resources, and PL among teachers in Texas and Ohio, the mean difference between Texas and Ohio for each scale, the *F* statistic for each mean difference, and the significance level for each mean difference. Numbers in parentheses are standard errors.
*$p < .05$. **$p < .01$.

2015–2016 to a mean of 2.27 in 2019). These findings in Ohio suggest that while teachers might be more "bought in" to the standards and perceive greater accountability in service of them, they have less confidence that the CCR standards will last—a point we return to in our qualitative analysis.

When disaggregated by teacher subgroups, survey data in Texas suggested that teachers of different subjects (ELA, math) and serving different populations of students (SWDs, ELs) reported similar strengthening of the policy attributes over time. Teachers of ELA, math, and SWDs all perceived higher levels of authority, consistency, and power in their policy environment—that is, they expressed greater buy-in for the standards, perceived greater alignment between standards and available resources, and perceived greater accountability mechanisms for standards implementation. However, as discussed, on the whole, authority among teachers of SWDs was significantly lower than ELA and math teachers. In other words, while teachers of SWDs saw improvements over time in their policy environments, they also remained less bought in to the standards than their ELA and math counterparts. Finally, teachers of ELs in Texas perceived greater consistency and power but did not express significantly different perceptions in any other attributes of their policy environment.

In contrast, the overall trends in Ohio were driven by changes in math teachers' perceptions. On average, like many educators in Texas, Ohio math teachers reported significantly stronger perceptions of authority, consistency, and power. At the same time, Ohio math teachers also drove the decrease in overall Ohio perceptions of stability of the standards environment. Perceptions of ELA teachers, teachers of SWDs, and teachers of ELs did not change significantly over time. (Note, however, the small sample size for Ohio EL teachers.)

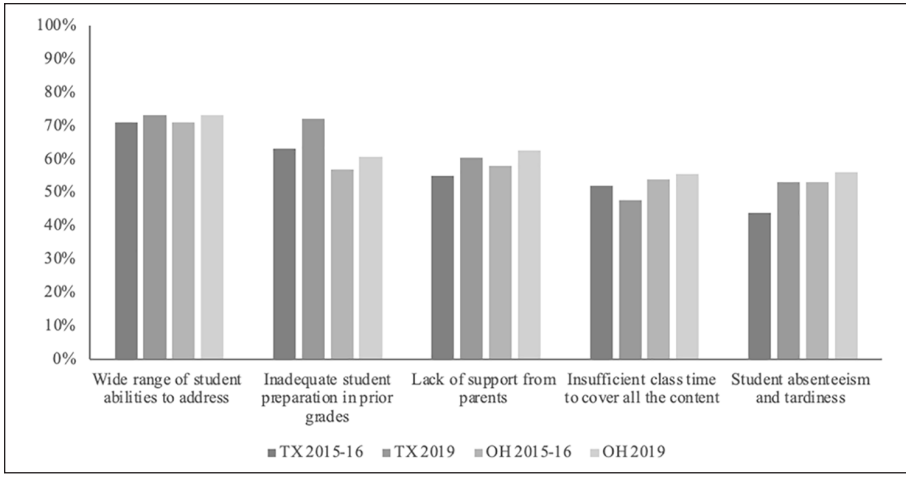

Figure 2. Challenges over time by state.
Note. Percentages represent the total percentage of teachers in each state who identified the challenge as a "moderate" or "major challenge."

At the same time, the top five most commonly reported challenges from teachers in both states did not change from 2015–2016 to 2019 (Figure 2). These challenges were: (1) wide range of student abilities to address; (2) inadequate student preparation in prior grades; (3) lack of support from parents; (4) insufficient class time to cover all the content; and (5) student absenteeism and tardiness. Thus, while the policy environment for CCR standards has improved in both states, driven by different subsets of teachers, teachers face consistent challenges across state contexts.

Connecting the Policy Environment to Instruction

In 2019. In 2019, specificity of standards and curricular materials was positively and significantly associated with more standards-emphasized instruction in ELA and math in Texas (Table 7). A one-unit increase on the specificity scale was associated with a 0.179-unit increased in standards-emphasized instruction among Texas ELA teachers and a 0.197-unit increase among Texas math teachers. In other words, the greater the specificity of resources (e.g., clarity of content to teach and the order to teach it in), the more teachers emphasized standards-based content in their instruction. For Texas math teachers in 2019, authority was also positively and significantly related to standards-emphasized instruction (each unit increase in authority was associated with a 0.252-unit increase in standards-emphasized instruction)—thus, in addition to specificity, buy-in among math teachers predicted the extent of their standards-emphasized instruction.

Table 7. HLM Results, Regressing Standards-Emphasized Instruction on Perceptions of the Policy Environment.

	Texas				Ohio			
	2015–16		2019		2015–16		2019	
	ELA	Math	ELA	Math	ELA	Math	ELA	Math
Elementary	−0.178**	−0.027	−0.179*	0.207*	−0.151*	0.245*	−0.152*	0.110
	(0.052)	(0.103)	(0.078)	(0.084)	(0.059)	(0.117)	(0.071)	(0.105)
Specificity	0.042	0.049	0.179**	0.197**	0.002	−0.002	0.093*	0.085
	(0.031)	(0.064)	(0.059)	(0.074)	(0.029)	(0.058)	(0.046)	(0.074)
Authority	0.147**	0.001	0.101	0.252**	0.123*	0.002	0.025	0.127
	(0.045)	(0.069)	(0.074)	(0.085)	(0.049)	(0.098)	(0.082)	(0.112)
Consistency	0.036	−0.007	0.010	0.087	0.112	−0.062	0.006	−0.084
	(0.049)	(0.087)	(0.061)	(0.077)	(0.061)	(0.109)	(0.049)	(0.078)
Power	0.023	0.117	0.063	0.012	0.05	−0.178	0.038	0.002
	(0.04)	(0.063)	(0.079)	(0.082)	(0.048)	(0.099)	(0.081)	(0.108)
Stability	0.002	−0.077	0.034	0.021	0.017	0.103	0.046	−0.038
	(0.025)	(0.043)	(0.036)	(0.037)	(0.03)	(0.056)	(0.037)	(0.056)
Resources	−0.014	0.257**	−0.006	−0.024	0.011	0.063	0.102	0.104
	(0.047)	(0.086)	(0.064)	(0.079)	(0.058)	(0.096)	(0.062)	(0.100)
Challenges	0.056	0.140*	0.058	0.053	−0.008	−0.014	−0.013	−0.068
	(0.04)	(0.068)	(0.067)	(0.063)	(0.054)	(0.098)	(0.053)	(0.095)
PL	0.012*	0.008	0.014	0.013	0.006	−0.002	0.006	0.046**
	(0.006)	(0.01)	(0.009)	(0.008)	(0.007)	(0.016)	(0.010)	(0.014)
Constant	2.659**	2.136**	2.128***	1.108**	2.554**	3.479**	2.607***	2.586***
	(0.228)	(0.395)	(0.398)	(0.391)	(0.279)	(0.512)	(0.271)	(0.556)
N	248	194	125	128	163	102	150	102

Note. This table provides results from eight HLM regression models. The outcome variable in each model is teachers' reported standards-emphasized instruction. Each model regresses teachers' reported standards-emphasized instruction on survey values for each policy attribute (specific, authority, consistency, power, stability), an indicator for elementary school level, and survey values for resources, challenges, and PL. Models differ by year, teacher subgroup, and state. For instance, the first model is the results among Texas ELA teachers in 2015–16. Numbers in parentheses are standard errors. * $p < .05$. ** $p < .01$. *** $p < .001$.

Like in Texas, specificity of resources was related to teachers' reported standards-emphasized instruction in Ohio, but only for ELA teachers. A one-unit increase on the specificity scale was associated with a 0.093-unit increase among Ohio ELA teachers. Thus, specificity was predictive of instructional alignment in each state, with the exception of math teachers in Ohio.

For Ohio math teachers in 2019, our indicator for dosage and usefulness of PL was positively associated with standards-emphasized instruction. Among these teachers, each unit increase in PL was associated with a 0.046-unit increase in standards-emphasized instruction. Ohio math teachers were the only group for which specificity was *not* related to instruction, and the only group in which PL *was* significantly related to instruction. The connection between PL and standards-emphasized instruction is notable, given that in 2019, teachers of ELA and SWDs reported higher average usefulness and frequency of PL (5.33 and 5.07, respectively) compared with Ohio math teachers (4.45). Survey results suggest, then, that even though math teachers did not report the highest levels of PL usefulness and frequency, the relationship between PL usefulness and frequency became important for instruction over time for these teachers.

Change and Continuity Over Time. The 2019 results were a notable change from 2015–2016, during which authority was positively associated with standards-emphasized instruction in ELA in both states, while specificity and PL were not significantly related to instruction among any group. While specificity became significantly related to instruction in 2019 for most teachers, our results do not suggest significant changes in teachers' perceptions of specificity over time in either state or among any subgroup of teachers (see Table 6). These results might suggest that while levels of specificity were similar, the role of specificity became important for instructional shifts over time, when CCR standards implementation was well under way in each state.

Factors Influencing Specificity

Guided by the survey data, we turned to our qualitative data to examine the relationship between specificity and standards-emphasized instruction more closely. Analysis of our qualitative data indicated that state-developed resources and materials, which were prevalent in Texas, were immensely helpful for districts and teachers in their efforts to make the standards more concrete—offering an explanation of the connection in survey data between teachers' perceptions of specificity and their standards-emphasized instruction (Table 7). At the same time, teachers valued opportunities to adapt those resources to suit their students' needs. Embedded and ongoing PL was a space for teachers to adapt resources, but not all teachers were granted such PL opportunities; this helps to explain the overall lack of connection between PL and standards-emphasized instruction in survey results, with notable exceptions in Ohio (Table 7). In this section, we summarize these key findings from our qualitative data, using them to bolster our understanding of the broad patterns in our survey data.

The Role of the State in Developing Resources and Tensions With Local Control. State-developed guidance was a key resource for Texas districts as they worked to implement the standards, whereas Ohio districts struggled without such guidance. In Texas, the state made substantial efforts to generate resources for districts. By the 2018–2019 school year, the state had built up Texas Gateway, an online repository of resources for districts and teachers, such as instructional videos, planning document templates (e.g., pacing guides), and benchmark assessments. State-level administrators also made great efforts to design resources for supporting English-as-a-second-language (ESL) programs, such as a virtual course on ESL instruction, literature reviews on ESL models, and a self-assessment rubric for districts to examine their ESL models. Less had been developed for teachers of SWDs, which state-level administrators indicated they planned to focus on in the future. This finding is also resonant with survey data, which showed that, on the whole, teachers of SWDs perceived lower amounts of specificity in their policy environments than teachers of all other subgroups (Table 6). One state leader explained, "We try to provide enough information, but without being prescriptive or tying districts' hands in terms of being able to implement or design their own programs in the way that they best see fit." They saw their role as providing specific guidance for districts to leverage for their localized implementation plans.

Leaders from our Texas case study district put available resources to use. For each subject, instructional specialists created a pacing guide that specified what standards to teach and when, with common assessments at the end of each unit. Teachers regularly used these resources. As one teacher explained,

> We follow our district's pacing guide. So all we have to make sure is that we're covering the TEKS [Texas Essential Knowledge and Skills] that we need to be covering, which is pretty much fine because we just constantly spiraling and teaching all the TEKS anyways.

Thus, local materials, developed from state-derived resources, made standards guidance more specific for educators, helping to account for the relationship we observed in survey data between specificity and standards-emphasized instruction for both math and ELA teachers in Texas (Table 7). Further, in interviews, teachers of ELs noted improvements in the consistency among resources like ELA and English language proficiency standards, helping to explain the overall increases in Texas EL teachers' perceptions of consistency evident in our survey data (Table 6).

In contrast, Ohio state leaders were cautious of providing too much detailed guidance. Relative to Texas, Ohio state leaders provided minimal resources for CCR standards implementation. The state focused on developing a Model Curriculum, which administrators were clear was not mandated, and released several iterations, with the most recent emerging after 2016. Explaining the decision to not conduct a broader textbook review process or develop additional resources, one official in 2016 stated, "We didn't develop lots of details in expectations for learning because PARCC [the Partnership for Assessment of Readiness for College and Careers] was doing that."[1] Officials saw assessments as the means for clarifying CCR standards content and

relied on these PARCC assessments to serve as guidance for teachers. They also did not want to create inconsistency with the state assessment. State leaders also often cited "local control" as a rationale for avoiding detailed guidance. In 2016, one official stated, "We're not that prescriptive because we can't be." This approach did not change over time; in 2019, an official said, "That might not be the right approach, but at least, it's our approach now, local control, and the way it is, we identify best practices, and you guys implement them." Ohio state leaders saw adhering to the principle of local control as critical to implementation—which translated to limited state-developed resources and guidance.

District-level educators in our case study district were frustrated by the lack of guidance from the state department of education as they worked to facilitate standards implementation. Educators described policies as "incoherent" and stated that they lacked sufficient common planning time to increase coherence and consistency across curricular materials. One teacher said, "The data was just too much. There needed to be more discussion on implementation and teaching practices and strategies. And less discussion on the numbers [from diagnostic and other tests]." Both state and district leaders struggled to provide specificity around the core curriculum. While the state departments of education created a statewide context for standards guidance, districts and schools then implemented those resources within their district contexts. In the next section, we describe the ways that our two case study districts operationalized state resources.

Resources With Opportunities for Adaptation. While specific resources supported standards-emphasized instruction, teachers across both states valued having the autonomy to adapt specific resources as needed to suit their students' needs, which may partly explain the increases in authority that we found in our survey results (Table 6). As one elementary Texas teacher explained, "I don't feel really restricted [in what I teach]. Thankfully here in this school I feel supported and can plan activities that I like." Another Texas teacher noted, "We have a lot of freedom at [our school]. So as long as we're aligned with the TEKS, it's okay." For these teachers, the resources provided structure, and their school leaders' approach to implementation gave teachers sufficient autonomy to adapt as needed.

Ohio teachers also felt this balance, but only after resistance to an overly prescribed approach to curriculum. Initially, in our case study district, teachers were provided with a curriculum and "told they needed to follow it step by step, activity by activity, and everybody needed to be on the same thing every day." According to one participant, educators "never bought into it." More recently, teachers were allowed to lesson-plan as they saw fit. They explained, "[We] pull what we think is necessary for the kids" and removed material that was not on the state test. Increasing the level of flexibility while still providing specificity improved morale at the school, because teams of teachers were given more decision-making authority. At the same time, the shifts from an overly prescribed curriculum to more teacher flexibility and iterative state-level modifications to the Model Curriculum may have been sources of perceived

instability of the policy, contributing to the lower perceived stability in 2019 survey data as compared with 2015–2016 (Table 6).

But not all teachers experienced the right balance between autonomy and top-down guidance. In Texas, several high school teachers felt constrained by the school pacing guides, noting the need to follow them because of "accountability." Teachers also spoke of the unreasonable pacing in district guidance. One high school math teacher explained, "We can't get through everything. It's impossible. And I, I work hard trying to get through everything and I still fall short every time." Thus, institutional structures—accountability demands and time constraints—prohibited teachers from having the autonomy that they felt was necessary to do their work well.

Lack of flexibility in the pacing guide was particularly challenging for teachers who taught students who were behind grade level, teachers of ELs, and teachers of SWDs. Reflecting the broader patterns in survey data of teachers perceiving inadequate student preparation in prior grades and experiencing insufficient class time to cover all the content (Figure 2), case study teachers described either not feeling able to remediate, or ignoring the standards to focus on what they thought was appropriate for their students. A high school math teacher explained,

> This year, I noticed that those scores were a lot lower than they had been in previous years, which let me know I'm going to have to do a lot of remediation. The curriculum that was already set in place didn't give me that time.

A teacher of SWDs explained, "We're so far below the standard on a normal day that you just don't even think about the standard." For these teachers, a mismatch between their curricular documents and their student needs led them to make concessions in meeting their student needs or to ignore the guidance altogether.

Access to Ongoing, Embedded PL. Collaborative PL opportunities enabled teachers to engage with specific resources and offered an opportunity for teachers to discuss how to translate specific guidance into practice; however, such opportunities were in short supply across both case study districts, especially for teachers of nontested grades and special populations. In our Texas case study district, only teachers of tested subjects or grades had time built into their schedules for professional learning communities (PLCs). PLCs were seen as spaces to share resources and materials, further supporting specificity of instructional standards as well as consistency across classrooms. As one teacher of a tested subject explained, "We generally try to, whatever we decide as a team, stick with that though, and be the same across the board. So that if a kid ends up moving classes, they're still talking about the same text." Teachers of nontested subjects or grades and teachers of special populations, however, had limited opportunities to connect with their colleagues through sustained PL opportunities. For example, teachers of ELs reported having attended initial ESL certification trainings, but these opportunities did not sustain throughout the school year.

In our Ohio case study district, teachers expressed similar concerns to some Texas teachers about the lack of specific PL. Teachers saw instructional coaches as particularly helpful, when they were available, so the district recently switched to an embedded model to give coaches more time in their school buildings. As in Texas, teachers wanted more PL on how to make modifications for SWDs. They were provided with a suite of options, but according to a district administrator, "providing professional development to the regular content teachers has been a challenge . . . sometimes they're scared to use a program or don't feel comfortable." Educators that the team interviewed preferred to have more planning time rather than more district-led PL. In general, both districts lacked a comprehensive infrastructure of ongoing PL for teachers, though when this infrastructure was available, teachers leveraged it for planning and discussion.

Limitations

Several limitations to our study should be considered in the interpretation of our findings. First, we reported from only a single case study district in each state. Though we used a systematic process for case study site selection, these districts are not necessarily reflective of approaches to standards implementation across each state. Further, though our study offers a significant amount of data across these two states, we do not have detailed classroom observational data and therefore cannot make distinctions in the nature of standards implementation—for example, superficial implementation versus deep meaningful change (Coburn, 2001; Coburn et al., 2016; Yurkofsky, 2020). Related, we also did not assess distinctions in teacher understanding of the standards. Because our survey data were self-reported, teachers who reported similar emphasis on standards-emphasized content could be interpreting the standards differently. Still, our approach to asking about standards-emphasized instruction on our survey (i.e., asking about the emphasis on specific content, rather than more general questions about how well aligned teachers believe their instruction to be) partially alleviates this concern. Finally, we do not have teacher interview data from the start of the study, so our teacher interview data represent a single point in time.

Despite these limitations, our study provides a useful longitudinal perspective on ongoing CCR standards implementation efforts. Our mixed-methods approach allows us not only to provide overarching patterns over time across our two focal states, but also to delve into some potential explanations for the broad patterns using interview and case study data.

Discussion and Conclusions

We draw several key takeaways from our analysis. First, our findings reinforce the notion that teachers need buy-in, learning opportunities, and guidance to adopt standards-based instruction, and we found evidence that the state-level policy environment

can deeply shape whether teachers perceive that they have those opportunities. Texas's long history of developing its own standards and resources may have given the state the capacity for building new resources and producing new guidance to support educators in implementing standards-emphasized instruction in the CCR era. We saw this across both survey and qualitative data. Texas teachers were more positive about all attributes of their policy environment relative to Ohio in 2019. Teachers' strong perceptions of specificity were most notable, indicating that Texas had established a policy environment that privileged clear guidance and documentation. In Ohio, leaders and educators were frustrated by the lack of state guidance. Ohio leaned heavily on a norm of local control to justify its approach, but local challenges suggest that there are significant trade-offs to this approach—namely, that it results in less guidance and more responsibility for local districts to fill the void of resources from their state policy environment. While the Model Curriculum that Ohio developed may have been a start to providing more detailed guidance on standards implementation, teachers' and administrators' perceptions of the lack of guidance suggested that a Model Curriculum alone was insufficient. Taken together, the policy environments in Texas and Ohio suggest that specific policy levers—in particular, clear and specific guidance and a plethora of resources—may best support teachers in learning how to integrate standards into their practice and may also facilitate buy-in for the instructional shifts that the standards call for.

Furthermore, the patterns among subgroups of teachers across the two states provide further insights into how states can establish policy environments that are most supportive of all teachers. In Texas, teachers of SWDs in Texas had significantly lower perceptions of their policy environment compared with other teachers, which, based on qualitative data, may be attributable to fewer state-developed resources for teachers of SWDs specifically. Meanwhile, in Ohio, math teachers drove much of the change in teachers' average perceptions of the policy environment, showing increases in perceived authority, consistency, and power of the policy environment. The lack of other subgroup differences in Ohio may be due to sample size limitations. Alternatively, it might bolster findings from other literature that suggest it may be easier to influence math instruction than ELA (Desimone, 2002). For teachers of other subgroups, having limited guidance and PL may have made the notion of adopting standards-aligned instruction even more challenging, resulting in stagnant perceptions of the policy environment over time.

However, Ohio math teachers reported overall decreases in perceived stability of the standards environment. We again suggest that these differences may be due to specific aspects of Ohio's policy context. In particular, the state iterated on its Model Curriculum, the most recent of which was released after 2016, and our case study data suggested that districts might also have adjusted their approach to prescribed curriculum over time. Both of these changes might signal an unstable policy environment to teachers. In addition, this lack of stability might be related to Ohio's approach to local control—without a substantial state-level infrastructure for supporting CCR standards implementation, teachers' confidence in the persistence of the standards might wane

over time. Thus, while Ohio aimed to produce a policy environment that valued local control, it may have missed opportunities to better support teachers in shifting instruction, unintentionally contributing to perceptions of an unstable environment.

Second, our findings also provide helpful context about CCR standards implementation over time. Specifically, while buy-in and support for the standards (authority) might be important in initial implementation efforts (and, at least in the case of Texas math teachers, remains important), specificity—providing detailed guidance—becomes critical as CCR standards implementation is well under way. This was true for educators in both states. These findings resonate with other scholars' conclusions that standards-aligned curriculum is a key lever in supporting teachers' efforts to teach instructional standards (Hill, 2001; Polikoff, 2012, 2015; Spillane, 2004).

Still, our case study data suggest that it is important to consider the tradeoffs to an emphasis on specificity. Lack of time, autonomy, and collaborative structures for adapting specific resources leaves little room for teachers to meet their students' unique needs, especially for teachers who do not teach tested subjects and those who teach ELs or SWDs. This may also partially account for the lower buy-in we found among teachers of SWDs in Texas. As Hamilton et al. (2008) once noted about standards-based reform, "Alignment and autonomy may become competing goals" (p. 6). Providing districts and teachers with specificity requires attention to the right balance between top-down guidance and localized adaptation. These findings resonate with curricular studies that, while noting the importance of curriculum for supporting standards-aligned instruction, identify key challenges with curriculum, such as misalignment between curriculum and standards, teachers' inconsistent use of curricular materials, and lack of PL for teachers to learn about the curriculum (Allen & Penuel, 2015; Edgerton, 2020; Polikoff, 2018).

Third, our case studies make clear that districts have more of an influence on certain aspects of the policy environment, regardless of the state context. Embedded and ongoing PL opportunities linked to instructional goals and meeting student needs allow for localized adaptation, yet we rarely saw instances of districts establishing such structures for all teachers because of capacity constraints and a prioritization of teachers of tested subjects. Put simply, if infrastructure is not in place at the district level for ongoing, embedded PL in which teachers can both make sense of guidance and adapt it to their teaching contexts, the benefits of detailed guidance documents from the state are called into question. This is particularly important in light of the relationship we found in our survey data among Ohio math teachers between PL and standards-emphasized instruction. Taken alongside qualitative findings, survey data suggest that Ohio math teachers, on average, may have had more opportunities in PL to dig into and adapt standards guidance and resources than other teachers, contributing to more standards-emphasized instruction. Thus, leveraging embedded and ongoing PL for local adaptation may be a route to addressing concerns about standards, and districts can facilitate or hinder this local adaptation.

It is also important to highlight that, based on both our qualitative and quantitative data, teachers in both states reported facing the *same* challenges in 2016 and 2019—for example, inadequate student preparation in prior grades and insufficient time to cover all the material. Given that strong state resources supported implementation in Texas, states might consider ways to address the *specific* and *enduring* challenges that teachers face across contexts through additional resources and supports. Notably, some of these are structural in nature—for example, the amount of teaching time or insufficient PL opportunities. These challenges underscore the importance of ensuring not just that teachers have opportunities to make curricular adaptations, but also that these opportunities are institutionalized through a robust PL infrastructure. These challenges also point to the enduring tension between standardization and individualization of instruction (Desimone et al., 2019) and suggest that central to standards implementation is support for teachers to individualize instruction. Thus, as states consider what types of resources to provide to local districts to support implementation, they might move beyond a focus on how teachers implement the standards in their classrooms and also consider strategies for school-level approaches to these persistent structural problems.

To be clear, we cannot definitively state that differences in state context caused the differences we saw in teachers' standards-emphasized instruction and the experiences of educators in our case studies. However, our findings offer important considerations for the field as we continue to understand and build on the ways that state- and district-level policy environments shape instruction. Future work might interrogate, for instance, how local control plays out across contexts and how it supports or hinders teachers' efforts to shift instruction, or how differences in states' approaches to developing standards lead to different local interpretations.

This study offers a unique longitudinal look at CCR standards implementation, revealing ongoing implementation work that shows improvement amid persistent structural challenges. Moving forward, it will be important to understand the continued evolution of CCR standards implementation and the efforts that states and local education agencies make to achieve the right balance between autonomy and clear guidance, to provide PL that responds to all teachers' needs, and to address the enduring challenges that teachers face.

Appendix

Survey Measures

This appendix lists all the survey items used to construct the policy attribute scales.

Specificity. Scale: 1 = disagree strongly; 2 = disagree somewhat; 3 = agree somewhat; 4 = agree strongly

Please indicate your level of agreement with the following statements:

a. CCR standards for (ELA or math) clearly indicate the content I should teach.
b. I have received guidance from my district that clearly indicates the order in which I should teach each content area for CCR standards in (math or ELA).
c. Teachers have received guidance from my district that clearly indicates how much time I should spend on each content area for CCR standards in (math or ELA).

Consistency. Scale: 1 = not at all aligned; 2 = somewhat aligned; 3 = aligned; 4 = strongly aligned

Please indicate your opinion on the degree to which the following were aligned to the CCR standards for (ELA or math).

a. The (ELA or math) sections of the test
b. District-mandated summative assessments
c. Formative or diagnostic assessments selected or created by schools
d. Formative or diagnostic assessments used districtwide
e. Textbooks used in your school
f. Curriculum selected or developed by your district
g. State-developed or organized professional development activities that you've participated in this year
h. District-developed or organized professional development activities that you've participated in this year
i. Administrator feedback provided to you from classroom observations (i.e., walkthroughs, formal observations, etc.)

Authority. Scale: 1 = disagree strongly; 2 = disagree somewhat; 3 = agree somewhat; 4 = agree strongly

Please indicate your agreement with the following statements.

a. CCR standards for (ELA or math) positively affect the degree to which students are prepared for middle school.
b. CR standards for (ELA or math) make learning relevant to everyday lives.
c. Since starting to implement for CCR standards for (ELA or math), I have made instructional shifts to ensure students meet those standards.
d. Students' results from the (ELA or math) section provide valuable information about how well my students are mastering CCR standards for (ELA or math).
e. CCR standards for (ELA or math) exclude important content that students should learn.
f. CCR standards for (ELA or math) provide a manageable number of topics to teach in a school year, for my grade level.
g. CCR standards for (ELA or math) give educators the flexibility they need to help students who are below grade level.

h. CCR standards for (ELA or math) are more rigorous than previous state standards.
i. Students' results from the (ELA or math) sections of the state test are useful for improving my practice.
j. CCR standards for (ELA or math) set appropriate expectations for ELL.
k. CCR standards for (ELA or math) set appropriate expectations for SWD.
l. CCR standards for (ELA or math) set appropriate expectations for students learning at each grade level.
m. I plan lessons with CCR standards for (ELA or math) in mind.

Power. Scale: 1 = disagree strongly; 2 = disagree somewhat; 3 = agree somewhat; 4 = agree strongly

Please indicate your level of agreement with the following statements:

a. Teachers who poorly implement CCR standards for (math or ELA) will have a lower summative evaluation rating.
b. There are negative repercussions for teachers at this school whose students performed poorly on the state test.
c. Teachers at this school are recognized for using exemplary classroom practices that support the implementation of CCR standards for (math or ELA).
d. Teachers at this school are recognized for their students' achievement gains on the state test.

Stability. Scale: 1 = 1–2 years; 2 = 3 years; 3 = 4 years; 4 = 5+ years.

Including this current school year, how long do you believe each of the following will remain in effect?

a. CCR standards for (ELA or math)
b. The (ELA or math) section of the state test
c. The current proficiency standards (i.e., cut scores) for the state test.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Data collection, analysis, and writing for this research were supported by Grant R305C150007 from the Institute of Education Sciences in the U.S. Department of Education to the University of Pennsylvania. Analysis and writing of this manuscript were also supported in part by the Institute of Education Sciences, U.S. Department of Education, through Grant R305B200035 to the University of Pennsylvania. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Note

1. Importantly, shortly after these initial interviews, the Ohio state legislature decided to withdraw from PARCC. However, the attention to assessments as a guide for instruction was maintained.

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Author Biographies

Meghan Comstock is an Institute of Education Sciences predoctoral fellow and PhD candidate in education policy at the University of Pennsylvania. Drawing heavily on organizational lenses, she studies implementation of equity-focused K–12 policies related to instruction and leadership. Her recent publications include "Leading From the Middle: How Principals Rely on District Guidance and Organizational Conditions in Times of Crisis" in *AERA Open* (Kaul, Comstock, & Simon, 2022) and "'Tearing Down the Wall': Making Sense of Teacher Leaders as Instructional Coaches and Evaluators" in *Journal of School Leadership* (Comstock & Margolis, 2021).

Adam K. Edgerton, PhD worked at the Center for Standards, Alignment, Instruction, and Learning (C-SAIL) and earned his PhD in education policy from the University of Pennsylvania. He has taught quantitative and qualitative methods courses at the University of Pennsylvania, American University, and the University of Maryland at College Park, and he recently published "Partisan Predictors for Collective Bargaining Agreement Items" in *Educational Policy* (Edgerton, 2021).

Laura M. Desimone, PhD is director of research for the College of Education and Human Development, professor in education statistics and research methods, and director of the doctoral program in education and social policy at the University of Delaware. She conducts research on education policy implementation and effects on teachers and students, with special attention to the role of teacher learning in education reform efforts. Her recent publications include "The 'New' Standards-Based Reform: How Is It Similar and Different Than Previous Waves of Reform?" in *American Journal of Education* (Nichols, Desimone, & Edgerton, 2021), and "An Integrative Approach to Professional Development to Support College- and Career-Readiness Standards" in *Education Policy Analysis Archives* (Pak, Desimone, & Parsons, 2020).