



The Enduring Struggle of Standards-Based Reform: Lessons from a National Research Center on College and Career-Ready Standards

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Standards have been at the heart of state and federal efforts to improve education for several decades. Most recently, standards-based reforms have evolved with a focus on more ambitious "college- and career-ready" (CCR) standards. This paper synthesizes the results of a seven-year national research center focused on the implementation and effects of CCR standards. The paper draws on evidence from a quasi-experimental longitudinal study using NAEP data, a cluster-randomized trial of an alignment feedback intervention, and detailed implementation data from state-representative surveys and case studies of five districts. Situating our work in a "policy attributes theory," we find important gaps in the theory of change underlying current standards-based reform efforts. We conclude that the CCR standards movement is not succeeding in achieving its desired outcomes. We make specific suggestions for improving instructional policy, including a) providing more specific instructional guidance, b) reconceptualizing professional learning, c) building buy-in through the involvement of trusted leaders, d) providing better supports for differentiation, and e) devoting attention and guidance to the intersection of content and pedagogy, and f) addressing persistent deficit thinking among educators.

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**The Enduring Struggle of Standards-Based Reform: Lessons from a National Research
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Just over 30 years ago, the modern standards movement began in earnest with state-led efforts across the nation and the concurrent publication of Smith and O’Day’s *Systemic School Reform* (1990). These early efforts laid out the building blocks of the standards movement that we see today—content standards in the core academic subjects, aligned assessments of student learning, some form of consequential accountability for performance, and various instructional supports like professional learning and curriculum materials. In the decades since, there have been several major waves of standards-based reform. What began with individual district and state efforts to improve the content and quality of instruction—and through instruction, student learning—evolved into the federal No Child Left Behind Act (NCLB, signed into law in 2001), which mandated standards-based accountability and a testing regime that has persisted to the present day.

At the end of the NCLB era, two further evolutions in standards-based reform policy occurred. First, between about 2010 and 2012, states adopted so-called “college and career-ready” (CCR) standards in mathematics and English language arts (ELA), of which the Common Core State Standards (CCSS) were the most prominent example. They were intended to be more coherent across grades and more rigorously prepare students for success in college and career. Simultaneously, federal and state accountability systems were relaxed considerably under NCLB

waivers and the Every Student Succeeds Act (ESSA, enacted in 2015), with states moving toward multi-measure accountability systems, increasingly emphasizing student achievement growth in addition to status, and dramatically reducing the number of schools and districts subject to accountability pressure (Egalite et al., 2017). This new era—CCR standards and somewhat relaxed accountability pressure—has been in place for approximately a decade as of 2022.

Since 2015 we have been studying this newest phase of standards-based reform. We anchor our work with the policy attributes theory (Porter, 1994), which hypothesizes that high quality implementation is more likely if a policy is (1) *specific* in its details about how it should be implemented, (2) *authoritative*, or able to attain buy-in from its implementers, (3) *powerful*, or accompanied by rewards and sanctions, (4) *consistent* with other policies in play and with implementers' beliefs, and (5) *stable* in its tenure.

We have carefully measured the impact on student achievement of states' adoption of more rigorous standards as part of the latest wave of standards-based reform using National Assessment of Educational Progress (NAEP) data. We have studied the implementation of standards in five states with state-representative teacher, principal, and district surveys as well as five district case studies. We have designed and tested an intervention aimed at supporting teachers to understand the content messages of the standards and implement a curriculum aligned with the standards' intent. Throughout our work we have built in explicit attention to the implementation and effects of standards for students with disabilities and English learners. The purpose of this paper is to bring together insights from across our body of work to judge the overall success of CCR standards policy in terms of achieving its intended goals—improving the

content of instruction and boosting student achievement—and to use this evidence to offer our thoughts on a reasonable path forward.

Adopting More Rigorous Standards Has Not Improved, and May Have Harmed, Student Achievement

To examine the effects of adopting more rigorous standards on student achievement, we analyzed state-level NAEP data from 1990 to 2017 using a comparative interrupted time series design, leveraging natural variation in the rigor of states' content standards prior to the introduction of CCR standards, including a supplemental analysis using high school graduation rate as an outcome. Our NAEP analyses are described in detail elsewhere (Song et al., 2022), but here we highlight our three main conclusions.

First, the adoption of more rigorous standards did not improve student achievement overall in mathematics or ELA during the seven post-adoption years examined. In mathematics, the effects on achievement in grades 4 and 8 were small, negative, and not statistically significant, except one negative and statistically significant effect of 0.10 standard deviations in grade 8 mathematics seven years after adoption. In ELA, we similarly found most of the effects were small and negative. All the effect estimates were statistically or marginally significant ($p < .10$) in grade 4 reading but not in grade 8 reading. Across both subjects, the effect estimates ranged from -0.10 to +0.05 standard deviations.

Second, we found that the adoption of more rigorous standards had no significant effect on high school graduation rates during the first 3 years after adoption, with effect estimates ranging from -0.84 to -1.63 percentage points.¹ In the early days of CCR standards adoption, some were concerned more rigorous content standards would lead to higher high school dropout

¹ Unfortunately, the National Center for Education Statistics has not released the state-level data on high school graduation rate needed for our analysis since 2013, which corresponds to 3 years post adoption in our analysis.

rates, while others thought effective implementation of more rigorous standards would improve high school outcomes (Polikoff, 2017). We found that CCR standards did not seem to have affected secular trends in graduation rates in either direction.

Third, we examined the effects of states' adoption of more rigorous standards on the achievement of students from different demographic groups (Black students, Hispanic students, English learners, students with disabilities, and free/reduced-price lunch recipients). Findings broadly matched those for the overall student population; most effect estimates were negative and not statistically significant. Where there were positive effects for some student groups in some years, they tended to occur in the years immediately after adoption and vanished or turned negative in subsequent years.

These findings differ somewhat from a recent analysis of 2003–2013 student-level NAEP data by Bleiberg (2021), who studied the impact of the CCSS only, for states that began CCSS implementation in 2012 or 2013. He found virtually no effects on reading and small positive effects on mathematics scores as of 2013. Other analyses (e.g., Gao & Lafortune, 2019; Loveless, 2014, 2015, 2016; Xu & Cepa, 2018) have found mixed and small effects of the standards on student achievement in mathematics and ELA. O'Day and Smith (2019)'s findings are more positive, but they reviewed NAEP trends more descriptively to evaluate different standards eras, and their definitions of the transition points between eras were different than ours (e.g., O'Day and Smith treat NAEP scores for 2003-2017 as part of the NCLB era, while we consider scores for 2011-2017 as post-adoption of CCR standards). A recent analysis of other subject areas found statistically significant negative effects of CCSS adoption concentrated in grade 4 science (Arold & Shakeel, 2021). Our study is thus a bit more pessimistic about the achievement effects of adopting CCR standards that are more rigorous than prior standards, but

certainly the broad consensus of the literature is that adopting the latest generation of CCR standards has produced at best close to zero effects on student learning.

Notable is that earlier research on test-based accountability generally found positive or null impacts (for a review, see Polikoff & Korn, 2020), whereas recent research found negative or null impacts. For instance, Dee and Jacob (2011) found a positive impact of NCLB on grade 4 mathematics achievement with an effect size of 0.23 standard deviations, while Wong and colleagues (2015) found additional effects in grade 8 mathematics and suggestive effects in grade 4 reading. These findings from well-designed causal studies also match the descriptive trends in student achievement on NAEP, which generally show increases during the 1990s and early 2000s and a leveling off thereafter. Importantly, those earlier studies were generally focused on the impact of accountability policies in the context of standards-based reform, whereas our study and other recent studies focus on the impact of the adoption of new (and more rigorous) standards. It is also worth noting that our study and others focused on the impacts of standards adoption, rather than the impact of standards implementation, both because implementation is difficult to measure at scale and because implementation is potentially endogenous to the measured impacts.

Why Aren't CCR Standards Working as Intended?

Standards-based reforms have an intuitive and appealing theory of change. At the heart of these reforms are content standards, which spell out what students are supposed to know and be able to do at each grade. To encourage teachers to teach the content in those standards, policymakers couple them with aligned assessments (to measure how well students met the goals) and aligned policy supports like professional learning and curriculum materials (to support teachers in understanding and implementing the standards). The most straightforward

explanation for why standards-based reforms are not working (or are no longer working, depending how one reads the evidence) is therefore that various elements of the theory of change have not materialized. And indeed, our research and others from the last decade makes clear some of the ways that we are still failing to implement standards-based reform at scale; these findings hold clear lessons for enduring challenges of supporting instructional change writ large.

The Imbalance of Specificity and Flexibility

One key tension in the theory of change for standards has always been the conflict between standardization and local control. Standardization of content is at the heart of the reform—the standards quite literally spell out what all students across the state are to know and do. But there are strong traditions of local control in the states that clearly run counter to the idea of standardizing content. In our research, this tension manifested in our case studies of CCR standards implementation in five districts across five states—California, Massachusetts, Ohio, Pennsylvania, and Texas (Stornaiuolo, under review).

In three of the five districts, we found ongoing issues with successfully balancing standardization and local control, issues we suspect are representative of struggles in many districts across the country. At one extreme was the Pennsylvania district, where almost no instructional guidance was offered by the central office, and schools varied widely in their implementation efforts and their expectations related to curriculum materials. At the other extreme was the Texas district, where highly scripted curriculum expectations left teachers feeling stifled. In the Massachusetts district, turnaround status had just recently prompted an effort to begin to rein in teachers' curriculum authority after years of an “anything goes” approach to curriculum that resulted in many teachers creating or curating their own materials from scratch. In short, an imbalance of specificity and flexibility drove poor standards

implementation in these three districts. We discuss more productive strategies we observed in the other two districts below.

Variable and Sometimes Inadequate Teacher Authority (Buy-in)

One potential reason CCR standards may not have positive effects is that educators do not believe they are appropriate for their students, and as a result, are not implementing them in the classroom. By and large, we have not found this; teachers are mostly bought in to the standards—in the language of the policy attributes theory, the standards hold authority. In our representative surveys of teachers in five states, we found generally moderate to high buy-in. There was little outright resistance (nor was there overwhelming enthusiasm), but rather acceptance of standards as a useful tool, with an acknowledgement of challenges that accompany successful implementation (Edgerton et al., forthcoming; Stornaiuolo et al., 2019).

We did find two important imbalances in educator buy-in for the standards, however. One imbalance was for teachers of students with disabilities, who were more likely to see the content standards as inappropriate for the students they served (Edgerton et al., 2020, forthcoming). Another imbalance was that administrators were generally more supportive of the standards than were teachers (Edgerton & Desimone, 2019), which is consistent with previous research that showed as one gets closer to the classroom, authority for reform decreases (Desimone, 2013). These imbalances in authority have important implications; we found that higher teacher authority predicted instruction that was better aligned with standards (Edgerton & Desimone, 2018). These findings agree with other work that has emphasized the critical role that authority can play—educators buying into a reform and believing it is good for their students—in fostering the enthusiastic adoption and implementation (e.g., Desimone, 2002; Desimone et al., 2016; Hill & Desimone, in press).

The Persistent Tension Between Standardization and Individualization

In our survey analysis, we found that teachers of students with disabilities (SWDs) who take the state's general assessment (i.e., those with high-incidence disabilities) did not fully buy into the idea of standards as appropriate for their students: they estimated that more than half will fail to reach grade-level standards (Edgerton et al., 2020). Further, special education teachers reported low levels of specificity in terms of the guidance provided to them for how to help their students meet the standards. This enduring paradigmatic mismatch between standardization and individualization emerged as a core explanation for why teachers of SWDs report higher levels of power in state standards policy (feeling the punitive threats of punishment) and lower levels of authority and specificity (Edgerton & Desimone, 2019).

Special education relies on the Individualized Education Program (IEP) designed to meet a student's unique learning needs, which stands in tension with having the same standards for all students. There are few approaches for addressing this pervasive gap (Fuchs et al., 2015; Voltz & Fore III, 2006). We found that this core tension persists; educators in our study across the nation questioned the fairness of holding students whose learning is guided via IEPs to a common set of grade-level standards.

The Insufficiency of Alignment to Promote Student Learning

Because prior generations of research suggested teachers' alignment to standards fell short due to inadequate instructional support, we built into our project a novel and direct test of the theory of change. Our Feedback on Alignment and Support for Teachers (FAST) intervention was aimed to address shortcomings of prior implementation efforts (Smith et al., 2022). We hired content area expert instructional coaches and assigned teachers to them for individual and school-based coaching and discussion. We had teachers fill out instructional logs and complete

videos of their instruction, and our FAST coaches gave them detailed feedback on their instructional alignment with state standards, with concrete tips for improvement. And we offered teachers a library of aligned instructional resources to give them options and fill in gaps in their instruction. We carried out a school-level randomized controlled trial to test the impact of the intervention on 4th grade mathematics and 5th grade ELA instruction and achievement with a sample of 56 schools (Smith et al., 2022).

The results of the study in part confirmed and in part undermined elements of the theory of change for standards-based reform. First, we found that we could move teachers' instruction significantly in the direction of the standards (effect size = 0.70, $p < .01$, for mathematics; effect size = 0.40, $p > .05$, for ELA). Teachers also expressed overwhelmingly positive views of the intervention, saying that it made them think about their instruction and the standards in ways they never had before and helped improve their instructional practice.

But when we examined the impact of our intervention on student learning, the results were sobering. Despite the positive effects on teachers' instructional alignment that we believed—and theory indicated—should mediate the effect of the intervention on study achievement, students in the treatment condition scored worse on state tests than those in the control condition, although the negative effect was statistically significant only for ELA (effect size = -0.07 for mathematics and -0.10 for ELA). Yes, we could support teachers to better align their instruction with standards, but their students' achievement got worse. These findings corroborate earlier work that found limited evidence of a link between standards-aligned instruction and student achievement (Polikoff & Porter, 2014). We take these findings as another piece of evidence that the theory of change underlying the CCR standards has not played out in practice.

The Enduring Struggle of Standards

Taken together, the evidence from our studies and others makes clear that CCR standards are not working as their authors predicted. Teachers mostly like the standards, but not as much as their administrators do, and teachers of students with disabilities have concerns about their appropriateness. Implementation of the standards is, at best, moderate, regardless of how implementation is measured. Districts often fail to provide teachers with key instructional supports like curriculum materials and aligned professional learning, even though these have always been central to the theory of change. And even when teachers receive direct, aligned supports through an intervention, instructional change does not lead to desired achievement gains. Yes, we can find—and we did find—examples of places where things are going better, but these remain the exception, and there is no reason to think they will become the norm given the decentralization of educational systems throughout the nation (Polikoff, 2021).

The stagnation of academic performance in the last decade has also coincided with a sharp decline in the role of accountability in standards-based reform. NCLB’s highly criticized accountability provisions did boost achievement—though mainly in mathematics—but as those provisions were unwound and the array of desired outcomes broadened beyond math and reading, achievement gains stalled or even reversed. It is not yet knowable whether the ebb of consequential accountability under ESSA caused these trends, but it does at least seem clear that the pressure for improvement has declined at the same time improvement has halted.

Given these findings, we are confident that doing more of the same approach to standards-based reform will not succeed in improving student achievement in America’s schools. What should replace our current efforts is less clear. In the next section we again draw on our own research and others’ to offer fruitful possibilities for improvement and potential pitfalls on

the road to scalable instructional change. We believe that what follows applies to all policy initiatives aimed at improving instructional practice in K-12 education.

Lessons for Improving Instruction at Scale

Achieving Flexible Specificity in the Context of Local Control

Compared with standards-based reform efforts from the mid-1990s to early 2010s, states are now less prescriptive and detailed in their policies surrounding the standards (specificity), and they are including fewer or less forceful rewards and sanctions (power), what we term “soft power” (see Nichols et al., forthcoming). Local districts are stepping into the policy space that states have vacated by developing more detailed, standards-aligned professional learning and supporting materials to guide teachers in implementing the standards (specificity and consistency) (Desimone et al., 2019). This has brought with it its own challenges including exacerbating inequalities based on district leadership capacity (Pak & Desimone, 2019), and uneven resources (Desimone et al., 2019).

In our five-district case study, we found two districts where leaders created instructional strategies that successfully balanced flexibility (local and classroom control) with guidance (clear instructions about what and how to teach). We called this balance “flexible specificity,” and it had several key elements (Stornaiuolo et al., in review). First, these districts built teacher authority by involving teachers in a thoughtful, deliberative process to adopt core curriculum materials, including extensive piloting.

Second, these districts clearly communicated their expectation that in the first year, they expected teachers to use the materials from cover to cover, as intended by the authors; but in subsequent years, they would be supported to productively and collaboratively modify and

supplement the materials as needed. There were no rigid scripts, but there were transparent district efforts to clearly communicate expectations for productive use of the materials.

Third, these districts built collaborative structures like professional learning and common planning time to facilitate implementation. For instance, one district devoted Friday afternoons to professional learning communities where teachers could focus on implementation, including what was and was not working well. And teachers in all schools were given directed time each morning to address the needs of the district's English learners through targeted intervention and support. In these districts, standards seemed to be working well, teachers were broadly enthusiastic about the instructional support they were receiving, and student achievement outcomes were above state averages.

Re-conceptualizing Professional Learning (PL)

Districts relied on PL to support teachers in translating standards to the classroom. Applying Desimone's (2009) framework identifying key features of PL as content focus, collective participation (teachers engaging in PL together), active learning, coherence (with other initiatives and with teacher beliefs), and duration (including span of time and number of hours), we found that PL in our study districts varied in quality and effectiveness (Pak et al., 2020). This was often due to capacity constraints (Comstock et al., in review) or constraints on PL time imposed by union rules (Desimone et al., 2019). We did find some districts where curriculum, standards and PL were more aligned (consistent), and where guidance was more specific (Desimone et al., 2019).

Specifically, in districts where we saw high authority for the standards and where educators reported strong implementation, we saw PL reconceptualized by (1) broadening the traditional notion of collective participation to include general ed, special ed and EL teachers

(and even school leaders) in the same PL experience, which served to improve coherence and build content knowledge across a policy system; (2) relying on what we term “sustained coherence”—an intentional interaction between duration and coherence where districts are trying to orient all teacher coaching, PL, and professional community experiences toward the same target, across the entire school year; and (3) pairing collective participation with active learning (e.g., principals engaging in instructional rounds together; convening teachers across the district to debrief the same standards-aligned lesson) (Pak et al., 2020).

Providing Effective Support—the Model of WIDA and ELPA21

While the national pendulum has shifted toward local control for general education, standards implementation efforts for ELs have become more centralized, with states and national consortia taking on more active roles in developing identification and reclassification guidelines and procedures local districts are expected to adhere to. Two national consortia are playing an increasingly prominent role in shaping state and local policies related to standards implementation for ELs: WIDA and the English Language Proficiency Assessment for the 21st Century (ELPA21). The states, in partnership with these national organizations, seem to be providing much more specificity and consistency (aligning supportive materials and PD with standards and assessments) in implementation standards for ELs. They do this through authority mechanisms that give the standards legitimacy and generate buy-in (e.g., rules, historical practice) rather than through power mechanisms (e.g., rewards and sanctions). The reputation and stability of WIDA, which has existed since 2002, and the flexibility inherent in the use of its supports, may contribute to its authority with educators.

We have labeled their approach “authoritative specificity” to reflect the genuine buy-in many stakeholders attributed to the helpful and detailed guidance provided by these national

consortia. Our findings indicate that an approach to educational reform that embraces authoritative specificity may be one way to maintain a robust role for national partners in shaping state and local educational policies (see Flores et al., in press). This model warrants study as a point of entry for thinking through how organizations may be able to have a national impact in ways that do not cause political backlash because of perceived threats to local control.

Differentiating Instruction

Research conducted with students at-risk for or with disabilities has shown that strong outcomes on challenging standards—even for students with gaps in foundational knowledge—can be achieved when teachers model solution strategies while explaining their thinking, gradually transfer responsibility to students for executing and explaining strategies, provide well designed and engaging practice, and support student perseverance through difficult tasks (e.g., Fuchs et al., 2021; Patton et al., 2022). While supplementing classroom instruction with intensified intervention may be necessary for some, if standards-based reform or any type of instructional improvement is to reach a broad spectrum of students, it likely needs to be integrated within classroom structures that help teachers meaningfully differentiate instruction. Teachers in our state-representative samples overwhelmingly reported that the support they wanted most was professional learning on how to differentiate instruction for SWDs and ELs (Edgerton & Desimone, 2018). Lack of time, autonomy, and collaborative structures for adapting specific resources left little room for teachers to meet their students’ unique needs, especially for teachers of ELs and SWDs, and those who did not teach tested subjects (Comstock et al., in review).

We need to prepare our teachers for the “adaptive challenges of curriculum implementation” (Pak et al., 2020), such that whatever the instructional target or materials,

teachers have the knowledge and skill to identify and respond to gaps in the materials so they can meet the needs of their students while satisfying the demands of their school/district.

Instructional support organizations may hold promise for addressing this ongoing challenge; in our research, we found that intermediaries like regional service centers successfully helped districts by providing supports calibrated to the particular needs of the districts. In particular, these organizations provided support to teachers in translating the standards for SWD students and ELs (Pak et al., 2021).

The Content vs. Pedagogy Debate

Our FAST intervention resulted in teachers covering more of the content standards, but it didn't improve student learning. While FAST did not focus on or measure classroom pedagogy, another recent study of standards reform found that a PL targeted to instructional practices related to the practice standards did result in student learning gains (Allensworth et al., 2021). The debate about the relative importance and interaction of content (what teachers teach) and pedagogy (how teachers teach) has permeated instruction reform debates for decades (see Shulman, 1987). Should we interpret our FAST findings, alongside the NAEP analysis findings, to show that the approach of focusing only on content is ineffective? This is a reasonable conclusion. It could be that gains in student learning hinge on pedagogical improvements—for example, balancing explicit and inquiry-oriented instruction, ensuring student engagement, eliciting student thinking, or maximizing use of instructional time.

Reckoning With Deficit Thinking

Educators across all our partner states reported that the major challenges to high-quality instruction were not resources, supports, time or other institutional or organizational factors, but rather students and their families (Edgerton & Desimone, 2018). The most common challenges

to instruction that teachers and principals identified were student ability, inadequate student preparation, and inadequate support from parents (Edgerton & Desimone, 2018), and these remained the same from 2016 to 2019 (Comstock et al., in review). These results may reflect a form of deficit thinking, which locates the problem in supposed deficiencies in students, families, and communities rather than the structures of schooling and the broader society (Valencia, 2010). This troubling pattern was the same in states as diverse as Texas, Kentucky, and Massachusetts.

This finding likely reflects the fact that efforts to close the achievement gap have done little to address the educational debt owed to low-income communities of color or the many challenges that confront these communities and serve as barriers to their academic achievement and social mobility (Ladson-Billings, 2006). Given the strong correlation of poverty and academic achievement, it seems that broadening the conversation to include how families and communities can receive the resources they need to thrive would be an important step in addressing the concerns that educators have related to the lack of family support and student ability they perceive (Greene & Anyon, 2010). Yet, given the consistency and enduring nature of deficit thinking among educators, going forward any education reform also needs to address this directly—whether through explicit interventions to support educators in understanding how consistent exposure to underperforming schools contributes to students’ preparedness (e.g., Covay et al., 2015), or implementing strategies to support educators in implementing culturally sustaining pedagogies that frame the cultural and linguistic practices of students and communities as assets to build on in the classroom (Paris, 2012).

Conclusion

Taken as a whole, we think our research and the broader literature on the most recent wave of standards-based reform establishes conclusively that while there may be pockets of success, the policy has not worked as intended overall. It is hard to argue against more rigorous standards, yet existing policy efforts to make high standards work are failing.

Beyond standards-based reform, our findings point to several areas that might hold promise to improve instruction, and through it student learning. These key areas include (1) flexible specificity, where aligned curriculum materials and professional learning balance clear and detailed guidance with teacher adaptation; (2) new approaches to professional learning, including new forms of collective participation that include EL and SWD teachers with general ed teachers, joining principals with teachers, and sustained coherence; (3) the engagement of respected partners in providing support, given the critical role that educator authority (buy-in) and sufficient resources play in moving teachers to accept and implement a reform; (4) explicit support for all teachers in differentiating their instruction, which is a key challenge not only for teachers of special education and ELs, but noted by mathematics and ELA teachers across the country; (5) careful attention to the balance of guidance on what and how to teach; and (6) explicit and aggressive attention to the widespread deficit view held by teachers and school leaders that students and their families are barriers to the education enterprise.

While overall we find the latest adoption and implementation of standards-based reform not to have fostered the improvements in student learning we had hoped for, our seven-year national study has garnered lessons that hold promise for shaping future efforts to improve instruction and student learning for the next generation of school improvement efforts

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