



BRIEF

The power of connectedness: A case for a coherent instruction system for reading and science improvement

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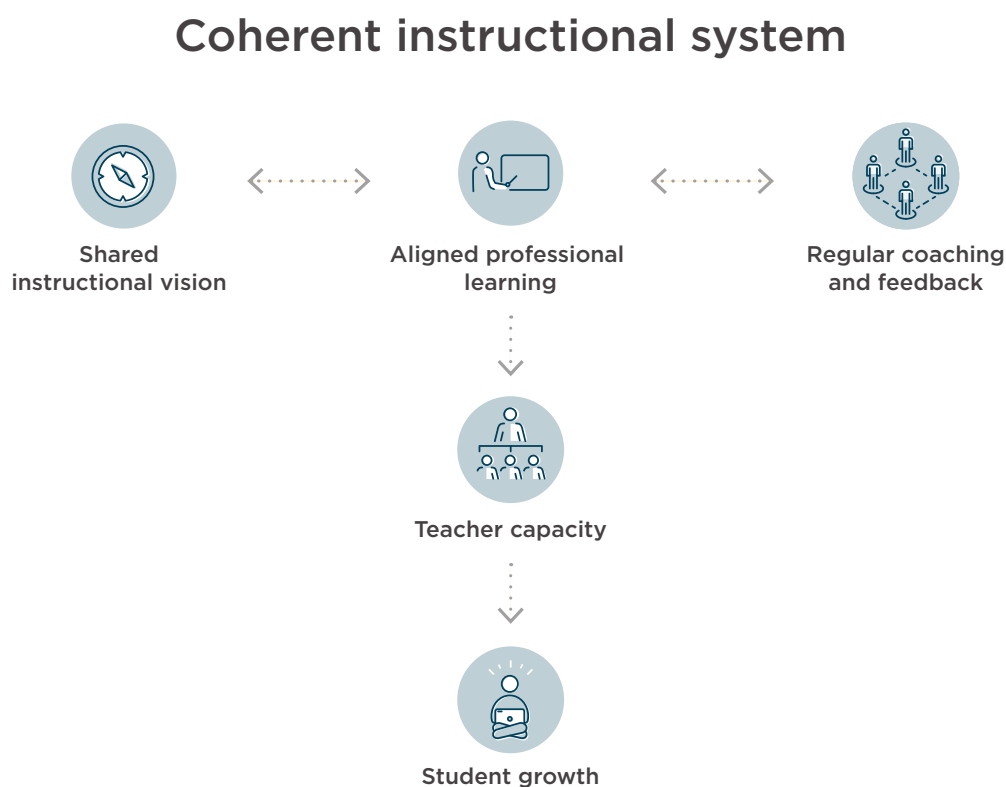
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District and school leaders often invest heavily in stand-alone efforts to improve educational outcomes, only to see limited or uneven impact. These experiences reinforce what research has long shown:

- [High-quality instructional materials alone are not enough](#)
- [One-off professional learning rarely changes instructional practice](#)
- [Classroom observations without meaningful feedback and coaching do little to improve teaching](#)

Each of these elements matters, but their greatest power lies in how they work together. In this brief, we examine a school that exemplifies this principle. Rather than finding one exceptional program or practice, we observed a coherent instructional system where the whole proved greater than the sum of its parts.

Our analysis found that exceptional instruction emerged from the alignment of several mutually reinforcing practices summarized in the figure below. Specifically, high-quality instructional materials were embedded within a coherent instructional system characterized by a shared instructional vision, curriculum-based professional learning that helped teachers internalize and enact the curriculum, and a continuous cycle of classroom observation, coaching, and feedback. Together, these structures strengthened teacher capacity, and, ultimately, supported extraordinary student growth.



The key takeaway is that these practices have the greatest impact when they are aligned within a coherent instructional system. The vignette that follows illustrates how the system came to life in daily practice. In the remainder of the brief, we examine each component in more detail.

The framework in action

The principal sits with four fourth-grade ELA teachers for their weekly curriculum-based professional learning session. Open laptops, teacher guides, student texts, and the district pacing guide cover the table.

The upcoming lessons are designed to take 120 minutes, but the school's literacy block is only 90. Rather than simply cutting the final activity, the team begins by identifying the purpose of the week's lessons: What should students understand by the end of the sequence? Which texts and tasks are essential to building that understanding? Where will students need to read closely, discuss their ideas, and support a claim with evidence?

Using the district-developed pacing guide, the principal helps the teachers distinguish the lesson's critical components from activities that can be shortened or omitted. The conversation moves beyond covering the materials to anticipating how students will experience them.

One teacher points to a passage dense with unfamiliar vocabulary. Several students in her class are emergent multilingual learners, and she worries that they may have difficulty with the text. The group does not consider replacing it with an easier passage. Instead, they plan how to preserve the complexity while increasing access: introduce a few essential words with visuals and cognates, give students time to write before speaking, and provide a sentence frame for the partner discussion.

Next, the team rehearses an ABBA conversation: One student will explain an idea. The partner will respond. The roles will then reverse. The teachers refine the prompt so that students must use academic vocabulary and cite something they read. "What will we listen for?" the principal asks.

Together, they create a short checklist: Is each student doing the reading? Can the student state a claim? Does the student use evidence from the text? Can the student respond to a partner's idea? The teachers identify two points in the lesson when they will pause to record what they hear and decide who may need same-day small-group support.

The following morning, the principal steps quietly into one of the classrooms. Students are leaning over the same complex text the team examined the day before. After writing independently, they turn to their partners. Nearly every student is speaking, listening, or locating evidence in the text.

The teacher circulates with a clipboard, checking names as students explain their thinking. When one student gives a vague answer, she points to the sentence frame and asks him to try again using the vocabulary from the lesson. At another table, she notes three students who can identify evidence but cannot yet explain how it supports their claim.

After the lesson, the principal and teacher confer briefly. They agree that students were doing most of the intellectual work—a shift from earlier lessons in which the teacher had carried too much of the discussion. They also identify the next step: during small group that afternoon, the teacher will help the three students connect their evidence to their reasoning.

Week after week, the cycle repeats: teachers internalize the high-quality curriculum materials together, leaders observe instruction, coaching is grounded in what students are actually doing, and the next round of planning builds on what was learned. Professional learning is not an isolated event, nor are classroom observations disconnected evaluations. Together, they form a continuous system for building teacher capacity and, ultimately, improving student learning.

This brief examines the coherent instructional system that made these exceptional results possible, offering a practical model other leaders can adapt in their own contexts as they work to strengthen instruction across classrooms.

The sections that follow describe the system-level conditions that made this instruction possible. Each section begins by defining one component of the system and then highlights how district leaders, school leaders, and teachers worked together to enact it.

About this case study

This framework emerged from a case study of an elementary school that achieved nearly twice the national average growth in both reading and science during the 2024–25 school year. The results were especially noteworthy because the school served a high-poverty student population, high percentages of Black and Hispanic students, and many emergent multilingual learners. It also experienced substantial teacher turnover. After we identified the school as an outlier across national MAP® Growth™ data, we conducted interviews with district leaders, school leaders, and teachers to understand the leadership practices and instructional routines that contributed to these outcomes.

Shared instructional vision

Rather than managing separate initiatives, district leaders, school leaders, and teachers worked within a shared system that connected how instruction was defined, how teachers learned to enact it, and how instruction in the classroom was continually refined.

A clear instructional vision provided the foundation for instructional improvement by reducing ambiguity about what strong instruction should look like across classrooms. In this district, the vision was defined not through abstract statements about excellence, but through observable classroom practice. By making expectations observable rather than abstract, leaders reduced ambiguity about what teachers and students should be doing in every classroom.

At the center of the vision was rigorous, accessible instruction for every student. Students were expected to read complex, grade-level texts, engage in substantive academic discussions, write claims supported by evidence and reasoning, and participate actively in making sense of challenging content. Teachers were expected to maintain these high expectations while scaffolding access for students who needed additional support, rather than reducing rigor.

The following table shows how district leaders, school leaders, and teachers each contributed to defining, reinforcing, and enacting the shared instructional vision.

Role	Description
District leaders	District leaders, led by the superintendent, translated broad system goals into an actionable instructional vision. They defined rigorous instruction in observable terms, selecting curriculum materials to align with the vision. They embedded instructional expectations in walk-through tools and consistent structures across grade levels and subjects. Extensive leader development ensured all stakeholders, from district leaders to principals, shared a common understanding of what high-quality instruction looked like and how to support it.
School leaders	School leaders maintained the expectation that instruction would align with the vision and worked to continually deepen a shared understanding of the vision with teachers.
Teachers	Teachers enacted the vision by consistently engaging students in rigorous reading, discussion, writing, and evidence-based reasoning while scaffolding access without reducing rigor.

Aligned professional learning

A shared vision alone is insufficient if teachers lack opportunities to internalize and enact it. Curriculum-based professional learning (CBPL)—[high quality professional learning anchored in high quality instructional materials](#)—transformed the instructional vision from a set of expectations into a learnable set of practices. It also gave teachers regular opportunities to plan, rehearse, and refine lessons together.

Role	Description
District leaders	District leaders operationalized the instructional vision through CBPL. Weekly 90-minute sessions ensured an ongoing shared understanding and vision of instruction across principals, teachers, classrooms, and subjects.
School leaders	School leaders participated in the 90-minute CBPL sessions, ensuring that principals knew exactly what to expect in classrooms, what teachers should be doing, and more importantly, what students should be doing.
Teachers	Teachers unpacked curriculum content, practiced instructional strategies, anticipated student thinking, and received feedback from peers and leaders before teaching. The structure reduced reliance on individual teacher discretion and supported consistent instruction across classrooms.

Regular coaching and feedback

Professional learning prepared teachers before instruction. Observation, coaching, and feedback reinforced that learning during and after instruction. Together, these routines closed the loop between instructional vision, professional learning, and classroom practice, ensuring that teacher capacity continued to grow over time.

Role	Description
District leaders	District leaders developed and iteratively refined classroom observation rubrics that defined instruction aligned to the vision. They frequently visited schools, observing and scoring teachers alongside principals to develop shared understanding of the rubric. They also modeled feedback moves for principals, helping them learn to coach teachers in the moment. This aligned, multi-level feedback system made instructional improvement a shared and ongoing responsibility rather than the individual responsibility of teachers or principals.
School leaders	School leaders conducted regular walk-throughs of classrooms across grades, including multiple subjects for a given teacher. In any given week, a principal could conduct as many as 14 classroom walk-throughs. During and after the walk-throughs, the principals provided targeted coaching and feedback for the teachers, creating opportunity for a continuous improvement loop
Teachers	Teachers worked with principals to improve their instruction, but also actively monitored and observed their students. They used checklists aligned to key standards and grounded in the vision of rigorous instruction, allowing them to adjust instruction in response to individual student needs. In adjusting instruction, teachers resisted simplifying lessons, scaffolding activities so students of all backgrounds could actively engage in rigorous, grade-level learning opportunities instead.

A foundation of asset-based beliefs

It's important to emphasize one final component that served as the foundation for the system we observed. Underlying the entire framework is a shared belief in the capacity of teachers to become agents of change and the capacity of students to engage in rigorous coursework. These beliefs were particularly important in a context of high teacher turnover and a largely novice workforce. Leaders had to build instructional capacity intentionally.

In contexts such as these, school and district leaders must start by believing that their novice and early-career teachers can improve their instructional capacity with the right supports. Likewise, they must ensure that all stakeholders believe in students, holding them to high expectations while scaffolding lessons to make them accessible to everyone. Shifting mindsets takes time and requires ongoing engagement and dialogue between district leadership, school leaders, and teachers.

Role	Description
District leaders	District leaders set the tone, building buy-in through sustained presence and engagement with schools.
School leaders	School leaders continually reinforced the growth mindset and maintained a relentless focus on improving instruction in service of student growth.
Teachers	Teachers held all students to rigorous expectations, taking responsibility for student growth while continually strengthening their instructional practice.

Conclusion: The whole is greater than the sum of its parts

None of the individual elements in this system—defining an instructional vision, using curriculum-based professional learning, or in-depth coaching—is new. Each has been widely discussed in the literature. What distinguishes this case is how these elements operate together as a coherent system, sustained through consistent instructional leadership across levels. This coherence is especially consequential in contexts like this one, where teacher turnover is high, many teachers are early in their careers, and instructional capacity must be built continuously. In these settings, improvement does not depend on a single program or initiative, or one veteran teacher. It depends on whether systems are able to align expectations, support teachers in daily practice, and reinforce instruction through consistent feedback.

Related resources

- [**“Teacher’s guide to classroom practices that accelerate reading and science growth”**](#) A closer look at classroom instruction in the school
- [**“A recipe for results: A district leader’s guide to curriculum-based professional learning”**](#) Practical guidance for designing and implementing curriculum-based professional learning
- [**“Technical appendix: The power of connectedness: A case for a coherent instructional system for reading and science improvement”**](#) Technical details about the study design and school selection

ABOUT THE AUTHORS

Dr. Susan Kowalski is a lead research scientist at NWEA®. Her research focuses on the intersection of educational policy and science instruction in the United States. She employs quantitative and descriptive methods to explore the impact of state and district decisions on science education, including curriculum development and professional learning experiences. Before joining NWEA, she was a high school physics and physical science teacher and a senior research scientist and director of research at BSCS Science Learning. Dr. Kowalski received a PhD in curriculum and instruction from the University of Minnesota.



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